SIP98A Appendix

Comparison of ACHD Article XXI CTG-based VOC regulations to PA DEP 25 Pa. Code CTG-based VOC regulations

Introduction

ACHD prepared this comparison to assist with the effort of submitting a CTG Certification SIP for the 2015 Ozone NAAQS.

PA DEP is performing a "Due Diligence Review" of its CTG-based regulations, making comparisons with the regulations from other states to demonstrate that the DEP regulations continue to represent RACT for the source categories covered by the EPA Control Techniques Guidelines (CTGs).

Concurrently, ACHD (and Philadelphia AMS) conducted a comparison of ACHD Article XXI CTG-based regulations to those found in 25 Pa. Code Chapter 129. If the CTG based regulations found in Article XXI, Part E are found to be equivalent or more stringent than the corresponding PA DEP regulations, and if the PA DEP "due diligence" review finds the CTG-based regulations in 25 Pa. Code adequate to meet the 2015 Ozone NAAQS RACT requirements, then ACHD can conclude that the Article XXI CTG-based regulations also continue to represent RACT.

Format of comparison

In this document, each Article XXI CTG-based regulation, or portion thereof, appears first followed by the corresponding regulation or portion thereof, from 25 Pa. Code. The effective dates are shown also as described below.

- For each Article XXI regulation, the first header includes the effective dates. Where no date exists, that indicates that the regulation has been unchanged since Article XXI first became effective 10/20/1995.
- The PA DEP regulations were accessed at 25 Pa. Code Chapter 129. Standards For Sources. Here again, for each 25 Pa. Code regulation, the first header of each Code regulation includes the "Source" information for purposes of providing the latest effective date. For example, for §129.74, Control of VOC Emissions from Fiberglass Boat Manufacturing Materials, the source information states:
  "The provisions of this § 129.74 adopted December 18, 2015, effective December 19, 2015, 45 Pa.B. 7127."

Differences are shown with yellow highlighting.
Those differences are then addressed in the "Comments" associated with each section or subsection.

Conclusion

The review focused on determining if there were material, significant differences or omissions and whether any such differences or omissions would require an update to be made to Article XXI to make it equivalent to the Pennsylvania Code. No such differences were found.

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Details of the Article XXI / 25 PA Code Comparison for CTG-based regulations

Article XXI
§2105.10 Surface Coating Processes

{Modified July 10, 2003. Paragraphs a.1 & 2 added May 14, 2010, effective May 24, 2010. Paragraphs a.3 & 4 added May 29, 2013, effective June 8, 2013. Subsection b amended October 26, 2022, effective November 5, 2022.}

a. **Applicability**. This section applies to a surface coating process category, regardless of the size of the facility, which emits or has emitted VOCs into the outdoor atmosphere in quantities greater than 3 pounds (1.4 kilograms) per hour, 15 pounds (7 kilograms) per day, or 2.7 tons (2,455 kilograms) per year during any calendar year since January 1, 1987.

1. The limits from §2105.10 and Table 2105.10, number 7 for Metal furniture coating and number 9 for Large appliance coating, no longer apply to the large appliance and metal furniture surface coating process as of January 1, 2011.
2. The limits from §2105.10 and Table 2105.10, number 5 for Paper coating, no longer apply to the paper, film, and foil surface coating process as of January 1, 2011.
3. The limits from §2105.10 and Table §2105.10, number 10 for Miscellaneous metal parts and products, no longer apply to miscellaneous metal and/or plastic parts surface coating processes as of January 1, 2014.
4. The limits from §2105.10 and Table §2105.10, number 6 for Automobile and light duty truck coating, no longer apply to automobile and light-duty truck assembly coatings as of January 1, 2014.

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§ 129.52. Surface coating processes.

The provisions of this § 129.52 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended May 6, 1988, effective May 7, 1988, 18 Pa.B. 2098; amended August 2, 1991, effective August 3, 1991, 21 Pa.B. 3406; amended May 22, 1992, effective May 23, 1992, 22 Pa. B. 2720; amended January 14, 1994, effective January 15, 1994, 24 Pa.B. 443; corrected May 12, 1995, effective May 7, 1994, 25 Pa.B. 1858; amended June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995; amended September 10, 2010, effective September 11, 2010, 40 Pa.B. 5132; amended November 19, 2010, effective November 20, 2010, 40 Pa.B. 6646; amended October 21, 2016, effective October 22, 2016, 46 Pa.B. 6758; amended January 20, 2023, effective January 21, 2023, 53 Pa.B. 465. Immediately preceding text appears at serial pages (393457) to (393458) and (384131) to (384134).

(a) This section applies as follows to the owner and operator of a:

(1) Surface coating process category listed in Table I, categories 1—11, regardless of the size of the facility, which emits or has emitted VOCs into the outdoor atmosphere in quantities greater than 3 pounds (1.4 kilograms) per hour, 15 pounds (7 kilograms) per day or 2.7 tons (2,455 kilograms) per year during any calendar year since January 1, 1987.

(2) Shipbuilding or ship repair facility that has a surface coating operation that uses or applies more than 264 gallons of one or a combination of coatings listed in Table I, category 12, beginning January 21, 2023.

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(i) Beginning January 1, 2011, the requirements and limits for metal furniture coatings and large appliance coatings in this section are superseded by the requirements and limits in § 129.52a (relating to control of VOC emissions from large appliance and metal furniture surface coating processes).

(j) Beginning January 1, 2012, the requirements and limits for paper coatings in this section are superseded by the requirements and limits in § 129.52b (relating to control of VOC emissions from paper, film and foil surface coating processes).

(k) Section 129.52d(a)(5)(i) (relating to control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings) applies to surface coating processes regulated under Table I, Category 10, miscellaneous metal parts and products. Aerosol coatings must meet the requirements of 40 CFR Part 59, Subpart E (relating to National volatile organic compound emission standards for aerosol coatings).

Comparison notes:

- Article XXI applicability parameters are the same as 25 Pa. Code.
- Shipbuilding is being picked up in Article XXI by SIP Revision103, currently headed for final approval.
- Article XXI picks up (i), (j) and (k).
- Article XXI does not make mention of 40 CFR Part 59, but it is not a significant difference with the Code.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.10 Surface Coating Processes (continued)

b. **Limitations**. A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table 2105.10, unless one of the following limitations is met:

1. The VOC content of each as applied coating is equal to or less than the standard specified in Table 2105.10.

A. The VOC content of the as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$VOC = (W_o)(D_c)/V_n$

Where:
VOC = VOC content in lb VOC/gal of coating solids
W_o = Weight percent of VOC (W_v-W_w-W_{ex})
W_v = Weight percent of total volatiles (100% - weight percent solids)
W_w = Weight percent of water
W_{ex} = Weight percent of exempt solvent(s)
D_c = Density of coating, lb/gal, at 25°C
V_n = Volume percent of solids of the as applied coating

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(b) A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table I, unless one of the following limitations is met:
(1) The VOC content of each as applied coating is equal to or less than the standard specified in Table I.
(i) The VOC content of the as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$$\mathbf{VOC = (W_o)(D_c)/V_n}$$

Where:
VOC = VOC content in lb VOC/gal of coating solids
W_o = Weight percent of VOC (W_v-W_w-W_{ex})
W_v = Weight percent of total volatiles (100%-weight percent solids)
W_w = Weight percent of water
W_{ex} = Weight percent of exempt solvent(s)
D_c = Density of coating, lb/gal, at 25°C
V_n = Volume percent of solids of the as applied coating

Comparison notes: No substantive differences

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
Surface Coating Processes (continued)

b. ***Limitations***. *A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table 2105.10, unless one of the following limitations is met:*

1. The VOC content of each as applied coating is equal to or less than the standard specified in Table 2105.10.

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B. The VOC content of a dip coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\sum_i (W_{oi} \times D_{ci} \times Q_i) + \sum_J (W_{oJ} \times D_{dJ} \times Q_J)}{\sum_i (V_{ni} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/gal of coating solids for a dip coating, calculated on a 30-day rolling average basis

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)

D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon

Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons

V_{ni} = Percent solids by volume of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction

W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction

D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon

Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

C. The VOC content of the as applied coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated as follows:

$$VOC_B = (W_o)/(W_n)$$

Where:

VOC_B = VOC content in lb VOC/lb of coating solids

W_o = Weight percent of VOC (Wv-Ww-Wex)

W_v = Weight percent of total volatiles (100% - weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvents

W_n = Weight percent of solids of the as applied coating

D. Sampling and testing shall be done in accordance with the procedures and test methods established by Part G (Methods).

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§ 129.52. Surface coating processes

.....

(b) A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table I, unless one of the following limitations is met:

(1) The VOC content of each as applied coating is equal to or less than the standard specified in Table I.

.....

(ii) The VOC content of a dip coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\Sigma_i(W_{oi} \times D_{ci} \times Q_i) + \Sigma_J (W_{oJ} \times D_{dJ} \times Q_J)}{\Sigma_i (V_{ni} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/gal of coating solids for a dip coating, calculated on a 30-day rolling average basis

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)

D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon

Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons

V_{ni} = Percent solids by volume of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction

W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction

D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon

Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

(iii) The VOC content of the as applied coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated as follows:

$$\mathbf{VOC_B = (W_o)/(W_n)}$$

Where:

VOC_B = VOC content in lb VOC/lb of coating solids

W_o = Weight percent of VOC (W_v-W_w-W_{ex})

W_v = Weight percent of total volatiles (100%-weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvents

W_n = Weight percent of solids of the as applied coating

(iv) Sampling and testing shall be done in accordance with the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

Comparison notes: Article XXI, Part G, "Methods," cites to the Allegheny County Source Testing Manual. Part G also incorporates by reference all sampling and analytical procedures promulgated by PA DEP at 25 Pa. Code Chapter 139 Subchapter A. **No substantive differences.**

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.10 Surface Coating Processes (continued)

b. ***Limitations***. *A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table 2105.10, unless one of the following limitations is met:*

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2. The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method which is acceptable under §2105.01 (Equivalent Compliance Techniques). The overall efficiency of a control system, as determined by the test methods and procedures established by Part G, shall be no less than the equivalent overall efficiency calculated by the following equation:

$$O = (1 - E/V) \times 100$$

Where:

V = The VOC content of the as applied coating, in lb VOC/gal of coating solids or lb VOC/lb of coating solids

E = Table 2105.10 limit in lb VOC/gal of coating solids or lb VOC/lb of coating solids

O = Overall control efficiency

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(b) A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a surface coating process category listed in Table I, unless one of the following limitations is met:

.....

(2) The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method which is acceptable under § 129.51(a) (relating to general). The overall efficiency of a control system, as determined by the test methods and procedures specified in Chapter 139 shall be no less than the equivalent overall efficiency calculated by the following equation:

O = (1 - E/V) x 100

Where:

V = The VOC content of the as applied coating, in lb VOC/gal of coating solids or lb VOC/lb of coating solids.

E = Table I limit in lb VOC/gal of coating solids or lb VOC/lb of coating solids.

O = Overall control efficiency.

Comparison notes: Article XXI, Part G, incorporates by reference 25 Pa. Code Chapter 139, therefore the test methods are equivalent. No substantive difference. Also, see the Appendix of this document for a demonstration of the equivalency of §2105.01 to 25 Pa. Code § 129.51.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.10 Surface Coating Processes (continued)

c. **Records**. A facility, regardless of the facility's annual emission rate, which contains surface coating processes shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating, thinner, and other component as supplied:

   A. The coating, thinner, or component name and identification number;
   B. The volume used;
   C. The mix ratio;
   D. The density or specific gravity;
   E. The weight percent of total volatiles, water, solids, and exempt solvents; and
   F. The volume percent of solids for Table 2105.10 surface coating process categories 1-10.

2. The VOC content of each coating, thinner, and other component as supplied.

3. The VOC content of each as applied coating.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

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(c) The owner or operator of a facility, regardless of the facility's annual emission rate, which contains surface coating processes shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

(1) The following parameters for each coating, thinner and other component as supplied:
   (i) The coating, thinner or component name and identification number.
   (ii) The volume used.
   (iii) The mix ratio.
   (iv) The density or specific gravity.
   (v) The weight percent of total volatiles, water, solids and exempt solvents.
   (vi) The volume percent of solids for Table I surface coating process categories 1—10.
   (vii) The volume percent of solids for a Table I surface coating process category 12 coating whose VOC content is expressed in units of weight of VOC per volume of coating solids.

(2) The VOC content of each coating, thinner and other component as supplied.
(3) The VOC content of each as applied coating.

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(g) The records shall be maintained onsite for 2 years, unless a longer period is required by an order, plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). The records shall be submitted to the Department in an acceptable format on a schedule reasonably prescribed by the Department.

Comparison notes: Article XXI does not yet have a subparagraph comparable to 25 Pa. Code § 129.52(c)(1)(vii) relating to shipbuilding, but this is being addressed by SIP Revision 103 currently in approval process. Refer to the coverage of SIP103 near the end of this document. No substantive difference.
Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.10 Surface Coating Processes (continued)

d. **Exempt Solvents**. The solvents methyl chloroform (1,1,1 - trichloroethane) and methylene chloride are exempt from control under this Section. No surface coating process which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Wood Furniture**. No person shall operate, or allow to be operated, any source subject to this Section that emits VOCs into the outdoor atmosphere from the application of wood furniture coatings unless the coatings are applied using electrostatic, airless, curtain coating, roll coating, hand roller, hand brush, flow coating, dip coating, or high volume-low pressure application equipment. Air atomized sprays may be used to apply cosmetic specialty coatings if the volume of the cosmetic specialty coatings is less than 5% by volume of the total coating used at the source or to apply final repair coatings.

f. **Miscellaneous Metal Parts and Products.** If more than one emission limitation for miscellaneous metal parts and products applies to a specific coating, then the least stringent emission limitation shall apply.

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(d) The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this section and § 129.67 (relating to graphic arts systems). A surface coating process which seeks to comply with this section through the use of an exempt solvent may not be included in any alternative standards.

Comparison notes: No substantive difference, except for the mention of § 129.67. Note, however, that this exemption appears in multiple Article XXI sections, but not in other sections of the Code. This is addressed in the review of subsequent sections including § 2105.11 and § 2105.77 through § 2105.85.

(e) If more than one emission limitation under miscellaneous metal parts and products applies to a specific coating, the least stringent emission limitation applies.

(f) A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of wood furniture coatings unless the coatings are applied using electrostatic, airless, curtain coating, roller coating, hand roller, hand brush, flow coating, dip coating or high volume-low pressure application equipment. Air atomized sprays may be used to apply cosmetic specialty coatings if the volume of the cosmetic specialty coatings is less than 5% by volume of the total coating used at the facility or to apply final repair coatings.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.10 Surface Coating Processes (continued)

g. **Exempt Other**. The VOC standards in Table 2105.10 do not apply to a coating used exclusively for determining product quality and commercial acceptance, touch-up and repair, and other small quantity coatings if the coating meets the following criteria:

1. The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

2. The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

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§ 129.52. Surface coating processes

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(h) The VOC standards in Table I do not apply to a coating used exclusively for determining product quality and commercial acceptance, touch-up and repair and other small quantity coatings if the coating meets the following criteria:

(1) The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

(2) The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Table 2105.10
Emission Limits of VOCs in Surface Coatings by Process Category

Weight of VOC per Volume of Coating Solids

	Surface Coating Process Category	lbs VOC per gal coating solids	kg VOC per liter coating solids
1.	Can Coating		
	(a) sheet basecoat	4.62	0.55
	(b) can exterior	4.62	0.55
	(c) interior body spray	10.05	1.20
	(d) two piece can end exterior	10.05	1.20
	(e) side-seam spray	21.92	2.63
	(f) end sealing compound	7.32	0.88
2.	Coil coating	4.02	0.48
3.	Fabric coating	4.84	0.58
4.	Vinyl coating	7.69	0.92
5.	Paper coating	4.84	0.58
6.	Automobile and light duty truck coating		
	(a) prime coat	2.60	0.31
	(b) topcoat	4.62	0.55
	(c) repair	14.14	1.69
7.	Metal furniture coating	5.06	0.61
8.	Magnet wire coating	2.16	0.26
9.	Large appliance coating	4.62	0.55
10.	Miscellaneous metal parts and products		
	(a) topcoats for locomotives and heavy-duty trucks	6.67	0.80
	(b) hopper car and tank car interiors	6.67	0.80
	(c) pail and drum interiors	10.34	1.24
	(d) clear coatings	10.34	1.24
	(e) air-dried coatings	6.67	0.80
	(f) extreme performance coatings	6.67	0.80
	(g) all other coatings	5.06	0.61

Weight of VOC per Weight of Coating Solids

		lbs VOC per lb coating solids	kg VOC per kg coating solids
11.	Wood furniture manufacturing operations		
	(a) topcoats and enamels	3.0	3.0
	(b) washcoat	14.3	14.3
	(c) final repair coat	3.3	3.3
	(d) basecoats	2.2	2.2
	(e) cosmetic specialty coatings	14.3	14.3
	(f) sealers	3.9	3.9

25 Pa Code Ch. 129 § 129.52

Table I

Emission Limits of VOCs in Surface Coatings by Process Category

Weight of VOC per Volume of Coating Solids

Surface Coating Process Category	lbs VOC Per gal Coating solids	kg VOC per liter coating solids
1. Can coating		
(a) sheet basecoat	4.62	0.55
(b) can exterior	4.62	0.55
(c) interior body spray	10.05	1.20
(d) two piece can end exterior	10.05	1.20
(e) side-seam spray	21.92	2.63
(f) end sealing compound	7.32	0.88
2. Coil coating	4.02	0.48
3. Fabric coating	4.84	0.58
4. Vinyl coating	7.69	0.92
5. Paper coating	4.84	0.58
6. Automobile and light duty truck coating		
(a) prime coat	2.60	0.31
(b) top coat	4.62	0.55
(c) repair	14.14	1.69
7. Metal furniture coating	5.06	0.61
8. Magnet wire coating	2.16	0.26
9. Large appliance coating	4.62	0.55
Categories 1—9 were adopted on April 17, 1979		
10. Miscellaneous metal parts & products		
(a) top coats for locomotives and heavy-duty trucks	6.67	0.80
(b) hopper car and tank car interiors	6.67	0.80
(c) pail and drum interiors	10.34	1.24
(d) clear coatings	10.34	1.24
(e) air-dried coatings	6.67	0.80
(f) extreme performance coatings	6.67	0.80
(g) all other coatings	5.06	0.61
Category 10 was adopted on April 21, 1981		

Weight of VOC per Weight of Coating Solids

	lbs VOC per lb coating solids	kgVOC per liter coating solids
11. Wood furniture manufacturing operations		
(a) Topcoats and enamels	3.0	3.0
(b) Washcoat	14.3	14.3
(c) Final repair coat	3.3	3.3
(d) Basecoats	2.2	2.2
(e) Cosmetic specialty coatings	14.3	14.3
(f) Sealers	3.9	3.9
Category 11 was adopted on May 7, 1988		

Comparison notes: Tables are identical

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.11 Graphic Arts Systems

{Subsection f added May 29, 2013, effective June 8, 2013. Subsection e amended October 26, 2022, effective November 5, 2022.}

a. This Section applies to sources whose rotogravure and flexographic printing presses in themselves, or in combination with any surface coating operations subject to the provisions of Section 2105.10 of this Article (relating to Surface Coating Processes), have a potential uncontrolled emission rate of 1000 pounds or more per day or 100 tons or more per year of volatile organic compounds, including emissions from solvents used for clean-up and purging. No person shall operate, or allow to be operated, any source to which this Section applies, unless one of the following emission limitations is met:

1. The volatile fraction of the ink, as applied to the substrate, contains 25.0 percent by volume or less of VOC and 75.0 percent by volume or more of water;
2. The ink, as applied to the substrate, contains 60.0 percent by volume or more of solid material; or
3. There is in operation a carbon adsorption system, an incinerator system, or an alternative volatile organic compound emission control system which recovers or destroys at least 90 percent by weight of the volatile organic compounds entering the system.

b. Any person who seeks to comply with the requirements of this Section through the installation and operation of an emission control system as provided by Paragraph a.3 above shall operate such emission control system in conjunction with an emission capture system which is designed and operated consistent with good engineering practice and which achieves a contemporaneous, overall reduction in volatile organic compound emissions from each ink/press of at least:

1. 75.0 percent from publication rotogravure processes;
2. 65.0 percent from other rotogravure processes; and,
3. 60.0 percent from flexographic printing processes.

25 Pa Code Ch. 129
§129.67 Graphic arts systems

The provisions of this § 129.67 adopted June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended August 2, 1991, effective August 3, 1991, 21 Pa.B. 3406; amended May 22, 1992, effective May 23, 1992, 22 Pa. B. 2720; amended September 4, 1998, effective September 5, 1998, 28 Pa.B. 4525; amended June 27, 2014, effective June 28, 2014, 44 Pa.B. 3929; amended October 21, 2016, effective October 22, 2016, 46 Pa.B. 6758. Immediately preceding text appears at serial pages (380434) to (380435).

(a) This section applies as follows:

(1) This section applies to the owner and operator of a facility whose rotogravure and flexographic printing presses by themselves or in combination with a surface coating operation subject to § 129.52, § 129.52a, § 129.52b, § 129.52c or § 129.52d or in combination with a flexible packaging printing press subject to § 129.67a (relating to control of VOC emissions from flexible packaging printing presses) have the potential to emit or have emitted VOCs into the outdoor atmosphere in quantities greater than 1,000 pounds (460 kilograms) per day or 100 tons (90,900 kilograms) per year during any calendar year since January 1, 1987.

(2) This section applies to the owner and operator of a flexographic or rotogravure printing press that prints flexible packaging materials subject to § 129.67a(a)(1)(ii) if the owner or operator was required to install a control device under this section prior to June 28, 2014.

(3) This section does not apply to the owner or operator of a flexible packaging printing press subject to § 129.67a(a)(1)(i).

(b) A person may not permit the emission into the outdoor atmosphere of VOCs from a rotogravure or flexographic printing press subject to this section unless one of the following limitations is met:

(1) The volatile fraction of the ink, as applied to the substrate, contains 25% or less by volume of VOC and 75% or more by volume of water.

(2) The ink, as applied to the substrate, less water, contains 60% by volume or more of solid material.

(3) The owner or operator installs and operates a carbon adsorption system, an incineration system or an alternative VOC emission reduction system which recovers or destroys at least 90% of the VOCs entering the system. The overall level of emission recovery or destruction may not be less than that necessary to comply with subsection (c).

(c) A capture system shall be used in conjunction with the emission control systems in subsection (b)(3). The design and operation of the capture and control system shall be consistent with good engineering practice and shall be designed to provide for a contemporaneous, overall reduction in VOC emission from each ink/press of at least the following:

(1) Seventy-five percent where a publication rotogravure process is employed.
(2) Sixty-five percent where another rotogravure process is employed.
(3) Sixty percent where a flexographic printing process is employed.

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(e) To determine applicability under this section, emissions of VOCs used in clean-up operations shall be summed with emissions from surface coating and printing.

Comparison notes:

- The first sentence of Article XXI § 2105.11.a mirrors the first sentence of §129.67(a), and where the latter calls out § 129.52a, b, c and d, and 129.67a, these are analogous to Article XXI §§ 2105.77, 79, 78, 83 and 81, respectively. No substantive differences.
- Article XXI § 2105.11.a(1), (2) and (3) corresponds to 25 Pa. Code §129.67(b), except Article XXI does include the last sentence of 25 Pa. Code §129.67 (b)(3). But, this is not a substantive differences and has no impact on stringency comparison.
- Article XXI § 2105.11.a captures the language of 25 Pa. Code §129.67(e) with the phrase ‘including emissions from solvents used for clean-up and purging.” No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.11 Graphic Arts Systems (continued)

c. Presses which are used only to check the quality of the image formation of newly etched or engraved printing cylinders are exempted from this Section provided the aggregate emissions from the presses do not exceed 400 pounds in any 30 day running period.

d. **Exempt Solvents.**

The solvents methyl chloroform (1, 1, 1-trichloroethane) and methylene chloride are exempt from control under this Section. No graphic arts process which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

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§129.67 Graphic arts systems

.....

(d) Presses used only to check the quality of the image formation of newly etched or engraved printing cylinders are exempted from this section if the aggregate emissions from the presses do not exceed 400 pounds in a 30-day running period.

Comparison notes:

- The language of Article XXI § 2105.11.d, "Exempt Solvents" does not appear in § 129.67. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in any other sections of the Code. EPA has an entire page on exempt solvents at Complete List of VOC Exemption Rules | US EPA
  And, as an example, this is a quote from a footnote in EPA-453/R-08-005 related to CTG for Misc Industrial Adhesives:
  "Exempt compounds are those classified by EPA as having negligible photochemical reactivity as listed in 40 CFR 51.100(s). Exempt compounds are not considered to be VOC." This footnote appears in many of the CTGs if not all. So, although Article XXI is applying the exemption more broadly than the Code, there is a basis in EPA CTGs, i.e., that these two VOCs are listed as non-reactive VOCs – though among 50 or so others. It may be useful for ACHD to process a change to delete this exemption language from § 2105.77.d and the nine other sections where it occurs, but it is not a significant difference with the Code.
- Article XXI, § 2105.11.c and Code §129.67 (d) have no substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.11 Graphic Arts Systems (continued)

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e. **Measurements.**

Measurements of the volatile fraction of inks and of volatile organic compound emissions shall be performed according to the applicable procedures established by Part G of this Article.

f. **Exempt Other.**

The owner or operator of a flexible package printing press subject to §2105.81, Control Of VOC Emissions From Flexible Package Printing, is no longer subject to all subparagraphs of §2105.11, Graphic Arts Systems, and shall be subject to all subparagraphs of §2105.81 as of January 1, 2012.

25 Pa Code
§129.67 Graphic arts systems

No section comparable to 2105.11.e, "Measurements."

(a) This section applies as follows:

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(3) This section does not apply to the owner or operator of a flexible packaging printing press subject to § 129.67a(a)(1)(i).

Comparison notes: The Code does not have language analogous to 2105.11.e, "Measurements." Article XXI is therefore more stringent.

Equivalency: Article XXI is more stringent.

Article XXI
§ 2105.12 Volatile Organic Compound Storage Tanks

{Subsection b amended October 26, 2022, effective November 5, 2022.}

a. **Capacity Greater Than or Equal to 2,000 Gallons But Less Than or Equal to 40,000 Gallons.** No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure of 1.5 psia under actual storage conditions in any above-ground stationary storage tank having a capacity equal to or greater than 2,000 gallons but less than or equal to 40,000 gallons, unless there is in operation on such tank pressure relief valves which are set to release at the higher of 0.7 psig of pressure or 0.3 psig of vacuum or at the highest possible pressure and vacuum in accordance with state or local fire codes, National Fire Prevention Association guidelines, or other national consensus standard approved in writing by the Department. Petroleum liquid storage vessels which are used to store produced crude oil and condensate prior to lease custody transfer are exempt from the requirement of this Subsection.

25 Pa Code Ch. 129
§ 129.57. Storage tanks less than or equal to 40,000 gallons capacity containing VOCs

The provisions of this § 129.57 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118. Immediately preceding text appears at serial pages (53975) to (53976).

The provisions of this section apply to above ground stationary storage tanks with a capacity equal to or greater than 2,000 gallons which contain volatile organic compounds with vapor pressure greater than 1.5 psia (10.5 kilopascals) under actual storage conditions. Storage tanks covered under this section shall have pressure relief valves which are maintained in good operating condition and which are set to release at no less than .7 psig (4.8 kilopascals) of pressure or .3 psig (2.1 kilopascals) of vacuum or the highest possible pressure and vacuum in accordance with state or local fire codes or the National Fire Prevention Association guidelines or other national consensus standards acceptable to the Department. Section 129.56(g) (relating to storage tanks greater than 40,000 gallons capacity containing VOCs) applies to this section. Petroleum liquid storage vessels which are used to store produced crude oil and condensate prior to lease custody transfer shall be exempt from the requirements of this section.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.12 Volatile Organic Compound Storage Tanks (continued)

b. **Capacity Greater Than 40,000 Gallons.** No person shall place or store, or allow to be placed or stored, a volatile organic compound having a vapor pressure greater than 1.5 psia under actual storage conditions in any stationary tank, reservoir, or other container with a capacity greater than 40,000 gallons, unless such tank, reservoir, or other container is a pressure tank capable of maintaining working pressure sufficient to at all times prevent vapor or gas loss to the atmosphere or is equipped with:

1. An external or internal floating roof, except that this control equipment shall not be permitted if the volatile organic compounds have a vapor pressure of 11.0 psia or greater under actual storage conditions; or

2. A vapor recovery and disposal system reducing uncontrolled emissions of volatile organic compounds by at least 90% by weight. Compliance testing shall be done in accordance with the provisions of Part G of this Article.

This Subsection does not apply to petroleum liquid storage tanks used to store waxy, heavy-pour crude oil or to tanks having a capacity less than 420,000 gallons used to store produced crude oil and condensate prior to lease custody transfer.

25 Pa Code Ch. 129
§ 129.56. Storage tanks greater than 40,000 gallons capacity containing VOCs

The provisions of this § 129.56 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended August 12, 1983, effective August 13, 1983, 13 Pa.B. 2478; amended September 4, 1998, effective September 5, 1998, 28 Pa.B. 4525. Immediately preceding text appears at serial pages (199522) to (199524).

(a) No person may permit the placing, storing or holding in a stationary tank, reservoir or other container with a capacity greater than 40,000 gallons of volatile organic compounds with a vapor pressure greater than 1.5 psia (10.5 kilopascals) under actual storage conditions unless the tank, reservoir or other container is a pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor or gas loss to the atmosphere or is designed and equipped with one of the following vapor loss control devices:

(1) *An external* or *an internal floating roof.* This control equipment may not be permitted if the volatile organic compounds have a vapor pressure of 11 psia (76 kilopascals) or greater under actual storage conditions.

(2) *Vapor recovery system.* A vapor recovery system, consisting of a vapor gathering system capable of collecting the volatile organic compound vapors and gases discharged and a vapor disposal system capable of processing such volatile organic vapors and gases so as to prevent their emission to the atmosphere. Tank gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place. The vapor recovery system shall be maintained in good working order and recover at least 80% of the vapors emitted by such tank.

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(d) This section does not apply to petroleum liquid storage vessels which:
(1) Are used to store waxy, heavy pour crude oil.
(2) Have capacities less than 420,000 gallons and are used to store produced crude oil and condensate prior to lease custody transfer.

Comparison notes: Article XXI mandates a higher percentage of vapor recovery. The Code does not appear to have compliance testing requirements. No other substantive difference. Article XXI is therefore more stringent.

Equivalency: Article XXI is more stringent, therefore there is no adverse impact on equivalency.

Article XXI
§ 2105.12 Volatile Organic Compound Storage Tanks (continued)

c. **Requirements for Floating Roofs.** Floating roofs required by Subsection b above shall comply with the following requirements:

1. External floating roofs shall be fitted with a primary seal and a continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal). In addition, external floating roofs shall meet all of the following equipment requirements:

A. All seal closure devices must meet the following requirements:
   i. There shall be no visible holes, tears, or other openings in the seals or seal fabric;
   ii. The seals shall be intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall; and
   iii. For tanks with vapor-mounted primary seals, the accumulated area of gaps exceeding 1/8 inch in width between the secondary seal and the tank wall shall not exceed 1.0 square inches per foot of tank diameter. Compliance with this requirement shall be determined by physically measuring the length and width of all gaps around the entire circumference of the secondary seal in each place where a 1/8 inch uniform diameter probe passes freely (without forcing or binding against the seal) between the seal and tank wall and by summing the area of the individual gaps.

B. All openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves shall be:

i. Equipped with covers, seals, or lids which are kept in the closed position except when the openings are in actual use; and,
ii. Equipped with projections into the tank which remain below the liquid surface at all times.

C. Automatic bleeder vents shall be closed at all times except when the roof is floated off or landed on the roof leg supports.
D. Rim vents shall be set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting.
E. Emergency roof drains shall be provided with slotted membrane fabric covers or equivalent covers which cover at least 90 percent of the area of the opening.

25 Pa Code Ch. 129
§ 129.56. Storage tanks greater than 40,000 gallons capacity containing VOCs

(b) An external floating roof shall be fitted with a primary seal and a continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal). The external floating roof shall meet the following equipment requirements:

(1) Seal closure devices shall meet the following requirements:
(i) There are no visible holes, tears or other openings in the seals or seal fabric.
(ii) The seals are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall.
(iii) For tanks with vapor-mounted primary seals, the accumulated area of gaps exceeding 1/8 inch in width between the secondary seal and the tank wall shall not exceed 1 square inch per foot of tank diameter. Compliance with this subsection shall be determined by physically measuring the length and width of gaps around the entire circumference of the secondary seal in each place where a 1/8 inch uniform diameter probe passes freely (without forcing or binding against the seal) between the seal and tank wall and by summing the area of the individual gaps.

(2) Openings in the external floating roof, except for automatic bleeder vents, rim space vents and leg sleeves, are as follows:
(i) Equipped with covers, seals or lids in the closed position except when the openings are in actual use.
(ii) Equipped with projections into the tank which remain below the liquid surface at all times.

(3) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports.
(4) Rim vents are set to open when the roof is being floated off the leg supports or at the recommended setting of the manufacturer.
(5) Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least 90% of the area of the opening.

Comparison notes: No substantive differences.
Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.12 Volatile Organic Compound Storage Tanks (continued)

c. ***Requirements for Floating Roofs.*** *Floating roofs required by Subsection b above shall comply with the following requirements:*

.....

2. Internal floating roofs shall be fitted with a primary seal and shall comply with all of the following equipment requirements:

A. A closure seal, or seals, to close the space between the roof edge and tank wall shall be used.

B. There shall be no holes, tears, or other openings in the seal or any seal fabric or materials.

C. All openings except stub drains shall be equipped with covers, lids, or seals such that:

i. The cover, lid, or seal is in the closed position at all times except when in actual use;

ii. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and,

iii. Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

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.....

(c) An internal floating roof shall be fitted with a primary seal and shall comply with the following equipment requirements:

(1) A closure seal or seals, to close the space between the roof edge and tank wall is used.

(2) There are no holes, tears or other openings in the seal or a seal fabric or materials.

(3) Openings except stub drains are equipped with covers, lids or seals such that:

(i) The cover, lid or seal is in the closed position at all times except when in actual use.

(ii) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports.

(iii) Rim vents, if provided are set to open when the roof is being floated off the roof leg supports or at the recommended setting of the manufacturer.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.12 Volatile Organic Compound Storage Tanks (continued)

d. For volatile organic compounds whose storage temperature is governed by ambient weather conditions, the vapor pressure under actual storage conditions shall be determined using a temperature which is representative of the average storage temperature for the hottest month of the year in which such storage takes place.

e. For purposes of this Section, existing petroleum liquid storage tanks of the following types are deemed to comply with the equipment requirements of this Section. Such tanks shall comply with the inspection and record-keeping requirements of Subsection f of this Section.

1. Tanks which contain a petroleum liquid with a true vapor pressure less than 4.0 psia and which are of welded construction and which presently possess a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid filled type seal, or other closure device of demonstrated equivalence approved in writing by the Department; and

2. Tanks which are welded construction, equipped with a metallic-type shoe primary seal and which have a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal).

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(e) For the purposes of this section, the petroleum liquid storage vessels listed in this subsection comply with the equipment requirements of this section. These tanks shall comply with the maintenance, inspection and reporting requirements of this section. These petroleum liquid storage vessels are those:

(1) Which contain a petroleum liquid with a true vapor pressure less than 4 psia (27.6 kilopascals) and which are of welded construction and which presently possess a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid filled type seal or other closure device of demonstrated equivalence approved by the Department.

(2) Which are of welded construction, equipped with a metallic-type shoe primary seal and has a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal).

****

(g) For volatile organic compounds whose storage temperature is governed by ambient weather conditions, the vapor pressure under actual storage conditions shall be determined using a temperature which is representative of the average storage temperature for the hottest month of the year in which the storage takes place.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.12 Volatile Organic Compound Storage Tanks (continued)

f. **Inspection and Record-Keeping.** Any person who operates, or allows to be operated, a petroleum liquid storage tank with a floating roof subject to this Article shall:

1. Perform routine inspections annually in order to ensure compliance with this Article, including a visual inspection of the secondary seal gap when inspecting external floating roof tanks;

2. For external floating roof tanks, measure the secondary seal gap annually in accordance with this Article when the floating roof is equipped with a vapor-mounted primary seal; and

3. Maintain records of the types of volatile petroleum liquids stored, the maximum true vapor pressure of the liquid as stored, and the results of the inspections performed pursuant to this Section. Copies of such records shall be retained for at least two years and shall be made available to the Department upon request for inspection or copying.

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§ 129.56. Storage tanks greater than 40,000 gallons capacity containing VOCs

.....

(f) The owner or operator of a petroleum liquid storage vessel with a floating roof subject to this regulation shall:

(1) Perform routine inspections annually in order to insure compliance with subsection (b) or (c). The inspection shall include a visual inspection of the secondary seal gap when inspecting external floating roof tanks.

(2) For external floating roof tanks, measure the secondary seal gap annually in accordance with subsection (b)(1)(iii) when the floating roof is equipped with a vapor-mounted primary seal.

(3) Maintain records of the types of volatile petroleum liquids stored, the maximum true vapor pressure of the liquid as stored, and the results of the inspections performed in subsection (f)(1) and (2). Copies of the records shall be retained by the owner or operator for a period of 2 years after the date on which the record was made and shall be made available to the Department upon written or verbal request at a reasonable time.

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(h) If a failure is detected during inspections required in this section, the owner or operator, or both, shall repair the items or empty and remove the storage vessel from service within 45 days. If this failure cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Department. A request for an extension shall document that alternate storage capacity is unavailable and specify a schedule of actions the owner or operator will take that will assure that the equipment will be repaired or the vessel will be emptied as soon as possible but within the additional 30-day time requested.

Comparison notes: There are no differences regarding the inspection requirements. There is no Article XXI subsection corresponding to § 129.56(h) which deals with failures detected during inspections. ACHD would handle in accordance with the enforcement rules of Article XXI. There is no adverse impact on the stringency comparison.

Equivalency: There is equivalency because there are no substantive differences surrounding the inspection requirements and ACHD can implement the repair requirements under it enforcement regime.

Article XXI
§ 2105.13 Gasoline Loading Facilities

{Subsection e amended 7/12/2022, effective 7/22/2022. Subsections b, c & f amended October 26, 2022, effective November 5, 2022.}

a. **Handling.** No person shall handle, or allow to be handled, gasoline in any bulk gasoline terminal, bulk gasoline plant, or other source subject to this Section in such manner that it is spilled, discarded in sewers, stored in open containers, or otherwise handled so as to result in uncontrolled evaporation into the open air.

25 Pa Code Ch. 129
§ 129.62. General standards for bulk gasoline terminals, bulk gasoline plants and small gasoline storage tanks.

The provisions of this § 129.62 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; corrected July 17, 1981, effective June 21, 1981, 11 Pa.B. 2570; amended August 12, 1983, effective August 13, 1983, 13 Pa.B. 2478; amended May 22, 1992, effective May 23, 1992, 22 Pa. B. 2720. Immediately preceding text appears at serial pages (159208) to (159210).

(a) Gasoline may not be spilled or discarded in sewers or stored in open containers or handled in a manner that would result in uncontrolled evaporation to the atmosphere.

Comparison notes: No substantive differences.

- Editorial Note: In the pages that follow relate to Article XXI, § 2105.13, there will be several 25 Pa. Code sections involved with the comparison.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§ 2105.13 Gasoline Loading Facilities (continued)

b. **Transfers.** No person shall transfer, or allow the transfer of, gasoline between any tank trunk or trailer and any stationary storage tank located in a bulk gasoline terminal or bulk gasoline plant, or any small gasoline storage tank to which Subsection e below applies, unless:

1. A vapor balance system is in good working order and is designed and operated during the transfer in such manner that:

   A. Gauge pressure does not exceed 18 inches of water and vacuum does not exceed six inches of water in the gasoline tank truck;
   B. Readings do not equal or exceed 100 percent of the lower explosive limit (LEL, measured as propane) at one inch from all points on the perimeter of a potential leak source when measured by the method established by Part G of this Article during transfer operations; and
   C. There are no avoidable visible liquid leaks during trans operations;

2. Any truck, vapor balance system, or vapor disposal system, where applicable, that exceeds the limits in Paragraph b.1 above is repaired and retested according to the method established by Part G of this Article within 15 days;

3. There are no visually or audibly detectable leaks in the pressure/vacuum relief valves and hatch covers of the tank truck or the pressure/relief valves and hatch covers of the trailer, the truck tanks or storage tanks, or associated vapor and liquid lines during transfer; and

4. The pressure and vacuum relief valves on stationary and vehicular tanks are set to release at no less than 0.7 psig of pressure or 0.3 psig of vacuum or the highest allowable pressure and vacuum as specified in state or local fire codes, or the National Fire Prevention Association guidelines or other national consensus standard approved in writing by the Department. Upon demonstration to the Department's written satisfaction by the owner or operator of an underground small gasoline storage tank that the vapor balance system required by Subsection e below will achieve a 90% vapor recovery efficiency without a pressure and vacuum relief valve and that an interlock system sufficient to ensure connection of the vapor recovery line prior to transfer of gasoline will be used, no pressure and vacuum relief valve shall be required. The vacuum setting on the pressure and vacuum relief valve on an underground storage tank may be set at the lowest vacuum setting which is sufficient to keep the vent closed at zero pressure and vacuum.

25 Pa Code Ch. 129

§ 129.62. General standards for bulk gasoline terminals, bulk gasoline plants and small gasoline storage tanks.

.....

(b) An owner or operator of a bulk gasoline plant, bulk gasoline terminal, tank truck or trailer or stationary storage tank to which § 129.59, § 129.60(b) or (c) or § 129.61 (relating to bulk gasoline terminals; bulk gasoline plants; and small gasoline storage tank control (Stage I control)) apply may not permit the transfer of gasoline between the tank truck or trailer and a stationary storage tank unless the following conditions are met:

(1) The vapor balance system is in good working order and is designed and operated in a manner that prevents:

(i) Gauge pressure from exceeding 18 inches of H_2O (4500 pascals) and vacuum from exceeding 6 inches of water (1500 pascals) in the gasoline tank truck.

(ii) A reading equal to or greater than 100% of the lower explosive limit—LEL, measured as propane—at 1 inch from points on the perimeter of a potential leak source when measured by the

method referenced in § 139.14 (relating to emissions of VOCs) during loading or unloading operations at small gasoline storage tanks, bulk plants and bulk terminals.

(iii) Avoidable liquid leaks during loading or unloading operations at small gasoline storage tanks, bulk plants and bulk terminals.

(2) A truck, vapor balance system or vapor disposal system, if applicable, that exceeds the limits in paragraph (1) is repaired and retested within 15 days.

(3) There are no visually- or audibly-detectable leaks in the tank truck's or trailer's pressure/vacuum relief valves and hatch covers, the truck tanks or storage tanks, or associated vapor and liquid lines during loading or unloading.

(4) The pressure and vacuum relief valves on storage vessels and tank trucks or trailers are set to release at no less than .7 psig (4.8 kilopascals) of pressure or .3 psig (2.1 kilopascals) of vacuum or the highest allowable pressure and vacuum as specified in State or local fire codes, the National Fire Prevention Association guidelines or other National consensus standards acceptable to the Department. Upon demonstration by the owner or operator of an underground small gasoline storage tank that the vapor balance system specified in paragraph (1) will achieve a 90% vapor recovery efficiency without a pressure and vacuum relief valve and that an interlock system, sufficient to ensure connection of the vapor recovery line prior to delivery of the gasoline, will be used—no pressure and vacuum relief valve is required. The vacuum setting on the pressure and vacuum relief valve on an underground storage tank may be set at the lowest vacuum setting which is sufficient to keep the vent closed at zero pressure and vacuum.

Comparison notes:

- Article XXI, Part G, incorporates by reference 25 Pa. Code Chapter 139, therefore the test methods are equivalent. No test requirement language is called out in the 25 Pa. Code § 129.62(b)(2). Article XXI is more stringent in that regard.
- No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.13 Gasoline Loading Facilities (continued)

c. **Bulk Gasoline Terminals.** No person shall load, or allow to be loaded, gasoline from a bulk gasoline terminal into a vehicular tank unless:

1. There is in operation on the gasoline loading racks a vapor collection and disposal system reducing uncontrolled emissions by at least 90% by weight or emitting no more than 0.0668 pounds of gasoline for every 100 gallons of gasoline loaded;

2. There is in operation on the gasoline loading racks a loading arm with a vapor collection adaptor and pneumatic, hydraulic or other mechanical means to force a vapor-tight seal between the adaptor and the hatch of the vehicular tank. A means shall also be provided to prevent gasoline drainage from the loading device when it is not connected to the hatch, and to accomplish complete drainage before disconnection. When loading is done by means other than hatches, all loading and vapor lines shall be equipped with fittings which make vapor-tight connections and which are closed when disconnected; and

3. Any person who operates, or allows to be operated, a bulk gasoline terminal shall maintain records of daily throughput. Such records shall be retained for not less than two years and shall be made available for inspection and copying by the Department upon request.

Compliance testing shall be done according to the provisions of Part G of this Article.

25 Pa Code Ch. 129

§ 129.59. Bulk gasoline terminals.

The provisions of this § 129.59 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended August 12, 1983, effective August 13, 1983, 13 Pa.B. 2478; amended August 2, 1991, effective August 3, 1991, 21 Pa.B. 3406. Immediately preceding text appears at serial pages (151678) to (151679).

(a) A person may not cause or permit the loading of gasoline into a vehicular tank from a bulk gasoline terminal unless the gasoline loading racks are equipped with a vapor collection and disposal system capable of processing volatile organic vapors and gases so that no more than 0.0668 pounds (30.3 grams) of gasoline (measured as propane) are emitted to the atmosphere for every 100 gallons (380 liters) of gasoline loaded.

(b) A person may not cause or permit the loading of gasoline into a vehicular tank from a bulk gasoline terminal unless the gasoline loading racks are equipped with a loading arm with a vapor collection adaptor and pneumatic, hydraulic or other mechanical means to force a vapor-tight seal between the adaptor and the hatch of the tank. A means shall be provided to prevent gasoline drainage from the loading device when it is not connected to the hatch, and to accomplish complete drainage before the removal. When loading is effected through means other than hatches, loading and vapor lines shall be equipped with fittings which make vapor-tight connections and which will be closed upon disconnection.

(c) An owner or operator of a bulk gasoline plant shall maintain records of daily throughput. These records shall be retained for at least 2 years and shall be made available to the Department on request.

Comparison notes:

- The alternative method of compliance in §2105.13(c)(1) of reducing uncontrolled emissions by at least 90% does not appear to exist in the Code. It's impossible to determine if this is more or less stringent since the Code does not have a percentage to compare against. It would seem acceptable to consider Article XXI more stringent given that, at minimum, it has a percentage reduction requirement.
- Article XXI provides compliance testing requirements where the Code does not. Article XXI is more stringent.

Equivalency: There is equivalency because there are no substantive differences, and Article XXI is to an extent more stringent.

Article XXI
§ 2105.13 Gasoline Loading Facilities (continued)

d. **Bulk Gasoline Plants.** No person shall load, or allow to be loaded, gasoline from a bulk gasoline plant stationary tank into a vehicular tank unless such loading is done by means of bottom filling with the inlet flush with the vehicular tank bottom or by means of top-submerged filling with the fill pipe extending to within six inches of the bottom of the vehicular tank throughout the loading operation.

In addition, no person shall load, or allow to be loaded, gasoline into any stationary tank of a bulk gasoline plant, or from any such stationary tank into a vehicular tank, unless:

1. There is in operation on such stationary tank:
   - A. A vapor balance system which emits no more than the amount of emissions permitted by Paragraph c.1 of this Section; or
   - B. A floating roof complying with Paragraph b.1 and Subsection c of §2105.12 under this Article and a vapor recovery and disposal system which emits no more than the amount of emissions permitted by Paragraph c.1 of this Section; and

2. Any person who operates, or allows to be operated, a bulk gasoline plant shall maintain records of daily throughput. Such records shall be retained for not less than two years and shall be made available for inspection and copying by the Department upon request.

25 Pa Code Ch. 129
§ 129.60. Bulk gasoline plants.

The provisions of this § 129.60 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended August 2, 1991, effective August 3, 1991, 21 Pa.B. 3406. Immediately preceding text appears at serial pages (151679) to (151680).

(a) A person may not cause or permit the loading of gasoline into a vehicular receiving tank from a bulk gasoline plant unless the loading is:

(1) Bottom filled with the inlet flush with the receiving vehicular tank bottom.

(2) Top-submerged filled with the fill pipe extended to within 6 inches of the bottom of the receiving vehicular tank during top-submerged filling operations.

(b) A person may not cause or permit the loading of gasoline into the stationary tanks of a bulk gasoline plant from a tank truck delivering gasoline to the bulk gasoline plant unless a vapor balancing technique is employed. The displaced vapors from the storage tank shall be transferred to the dispensing delivery tank during loading operations, and these vapors shall be processed for disposal in accordance with § 129.59 (relating to bulk gasoline terminals). This subsection is not applicable to storage tanks which conform to § 129.56(a)(1) or (2) (relating to storage tanks greater than 40,000 gallons capacity containing VOCs).

(c) A person may not cause or permit the loading of gasoline from a bulk gasoline plant with a daily throughput since January 1, 1987 of greater than 4,000 gallons (15,200 liters) into a tank truck with a capacity greater than 250 gallons (950 liters) unless a vapor balance system is employed. The displaced vapors from the tank truck shall be transferred to the stationary tanks of the bulk gasoline plant during loading operations. A storage tank at a bulk gasoline plant which is controlled under § 129.56(a)(1) or (2) shall have a vapor recovery unit and process vapors from gasoline loading in accordance with § 129.59.

(d) An owner or operator of a bulk gasoline plant shall maintain records of daily throughput. These records shall be retained for at least 2 years and shall be made available to the Department on request.

Comparison notes: Article XXI does not have the extensive language of 25 Pa. Code § 129.60(c) however, the more general language of Article XXI § 2105.13.d can be seen to pick up the necessary requirement to have a vapor balance system. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.13 Gasoline Loading Facilities (continued)

e. **Small Gasoline Storage Tanks.** No person shall load, or allow to be loaded, gasoline from any vehicular tank into any stationary storage tank having a capacity of 250 gallons or more if installed on or after January 1, 1979, or 2,000 gallons or more if installed before January 1, 1979, which is located in any gasoline handling facility unless there is in operation on such storage tank a vapor balance system which emits no more than the amount of emissions permitted by Paragraph c.1 of this Section and unless the stationary tank is equipped with a submerged fill pipe extending to within six inches of the bottom of the tank throughout the loading operation.

The dispensing delivery tank shall remain vapor tight at all times except after all vapors have been disposed of in accord with the provisions of this Section.

Stationary storage tanks with a capacity less than 550 gallons that are used for agricultural purposes and that are equipped with a submerged fill pipe shall be exempted from the provisions of this Subsection.

1. An owner or operator of a gasoline storage tank subject to this subsection may also be subject to 25 Pa. Code §129.61a, "Vapor leak monitoring procedures and other requirements for small gasoline storage tank emission control," which is hereby incorporated by reference into this Article. All terms used in 25 Pa. Code §129.61a and defined in 25 Pa. Code §121.1 are hereby incorporated by reference, except as explicitly set forth herein. Additions, revisions, or deletions to such regulation by the Commonwealth are incorporated into this Article and are effective on the date established by the state regulations, unless otherwise established by regulation under this Article.

2. For the purposes of this subsection, references in 25 Pa. Code §129.61a to:

   A. "Department" shall mean Department as defined under this Article, except at 25 Pa. Code §129.61a(k)(2) relating to PA DEP publishing notice in the Pennsylvania Bulletin of a CARB Executive Order of Certification of a second manufacturer for an enhanced conventional nozzle;
   B. 25 Pa. Code §129.61, shall mean Article XXI, §2105.13.e;
   C. 25 Pa. Code §129.127, shall mean Article XXI, Parts B and C; and
   D. "Plan approval" shall mean Installation Permit.

25 Pa Code Ch. 129
§ 129.61. Small gasoline storage tank control (Stage I control).

The provisions of this § 129.61 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended August 2, 1991, effective August 3, 1991, 21 Pa.B. 3406; amended September 15, 1995, effective September 16, 1995, 25 Pa.B. 3849; amended March 25, 2022, effective March 26, 2022, 52 Pa.B. 1875. Immediately preceding text appears at serial pages (380418) to (380419).

(a) *Applicability.* This section applies Statewide to the owner and operator of a gasoline storage tank with a capacity of greater than 2,000 gallons.

(b) *Transfer requirements.* A person may not transfer gasoline from a gasoline tank truck into a gasoline storage tank at a gasoline dispensing facility unless the displaced vapors from the storage tank are transferred to the dispensing tank of the gasoline tank truck through a vapor tight return line and unless the gasoline dispensing facility storage tank is equipped with a submerged fill pipe which extends from the filling orifice to within 6 inches of the bottom of the storage tank.

(c) *Gasoline tank truck dispensing tank requirements.* The dispensing tank of a gasoline tank truck must remain vapor tight at all times, except that the dispensing tank may be opened after the vapors are disposed of under § 129.59 or § 129.60(c).

(d) *Additional requirements.* An owner and operator of a gasoline storage tank subject to this section may also be subject to § 129.61a (relating to vapor leak monitoring procedures and other requirements for small gasoline storage tank emission control).

Comparison notes:

- Tanks covered under Art XXI include smaller tanks, 250 - 2000 gallons. The Pa Code only covers tanks greater than 2000 gallons, which makes Article XXI more stringent.
- Article XXI, § 2105.13.e exempts agricultural storage tanks smaller than 550 gallons with submerged fill pipes. There is no corresponding language in 25 Pa. Code § 129.61. However, it does not affect the stringency comparison since under the Code applicability only starts at 2000 gallons. No substantive difference.
- Article XXI incorporates by reference 25 Pa. Code § 129.61a, which results in equivalence. Article XXI is therefore as stringent than the Code.

Equivalency: There is equivalency because there are no substantive differences, and Article XXI is to an extent more stringent.

Article XXI
§ 2105.13 Gasoline Loading Facilities (continued)

f. **Gasoline Tank Trucks.** No person shall transfer, or allow the transfer of, gasoline into or from a gasoline tank truck subject to Subsections c, d, or e above unless such tank truck:

1. Has been tested within the prior 12-month period in accordance with the procedure established by Part G of this Article;

2. Sustains a pressure change no more than 3 inches of water in five minutes when pressurized to a gauge pressure of 18 inches of water or evacuated to a gauge pressure of six inches of water during such testing;

3. Is repaired and retested within 15 days of a test which does not meet the requirements of Paragraph 2 of this Subsection; and

4. Displays a clear marking near the federal Department of Transportation certification plate which shows the most recent date upon which the gasoline tank truck passed the test required by this Subsection.

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§ 129.62. General standards for bulk gasoline terminals, bulk gasoline plants and small gasoline storage tanks.

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(c) A person may not allow a gasoline tank truck subject to § 129.59, § 129.60 or § 129.61 to be filled or emptied in a geographic area specified in § 129.61(a) unless the gasoline tank truck:

(1) Has been tested by the owner or operator within the immediately preceding 12 months in accordance with § 139.14.
(2) Sustains a pressure change of no more than 750 pascals (3 inches of H_2O) in 5 minutes when pressurized to a gauge pressure of 18 inches of H_2O (4,500 pascals) or evacuated to a gauge pressure of 6 inches of H_2O (1,500 pascals) during the testing required in paragraph (1).
(3) Is repaired by the owner or operator and retested within 15 days of testing if it does not meet the criteria in paragraph (2).
(4) Displays a clear marking near the Department of Transportation Certification plate required by 49 CFR 178.340-10b (relating to certification), which shows the most recent date upon which the gasoline tank truck passed the test required in this subsection.

Comparison notes: Article XXI, Part G, incorporates by reference 25 Pa. Code Chapter 139, therefore the test methods are equivalent. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.13 Gasoline Loading Facilities (continued)

g. **Record-Keeping.** Any person who operates, or allows to be operated, a gasoline tank truck subject to the requirements of Subsection f above shall comply with the following record-keeping requirements:

1. Records of all tests and repairs shall be maintained in a legible, readily available condition for two (2) years after the date the testing or repair was completed. Such records shall include at a minimum:
   - A. The gasoline tank truck serial number and identification of the vapor collection system involved;
   - B. The date of testing;
   - C. If applicable, the type of repair and the dates of repair and retesting;
   - D. For each test or retest, the initial test pressure and the time of the reading, the final test pressure and the time of the reading, the initial test vacuum and the time of the reading, and the final test vacuum and the time of the reading;
   - E. At the top of each page, the company name, and the date and location of the tests on the page; and
   - F. The name and title of the person conducting the test; and

2. Copies of all records and reports made pursuant to this Subsection shall be made available to the Department upon request for inspection and copying. A copy of the test results for each gasoline tank truck shall be kept with the truck.

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§ 129.62. General standards for bulk gasoline terminals, bulk gasoline plants and small gasoline storage tanks.

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(d) Reporting and recordkeeping shall be as follows:

(1) The owner or operator of a source of VOCs subject to subsection (c) shall maintain records of certification testing and repairs. The records shall identify the gasoline tank truck, vapor collection system or vapor control system; the date of the test or repair; and, if applicable, the type of repair and the date of retest. The records shall be maintained in a legible, readily-available condition for 1 year after the date the testing or repair was completed.

(2) The records of certification tests required by paragraph (1) shall contain:

(i) The gasoline tank truck tank serial number.
(ii) The initial test pressure and the time of the reading.
(iii) The final test pressure and the time of the reading.
(iv) The initial test vacuum and the time of the reading.
(v) The final test vacuum and the time of the reading.
(vi) At the top of each report page, the company name and the date and location of the tests on that page.
(vii) The name and title of the person conducting the test.

(3) Copies of records and reports under this subsection shall be made available to the Department upon verbal or written request at any reasonable time. A copy of the test results for each gasoline tank shall be kept with the truck.

(e) Gasoline tank trucks with a rated capacity of less than 4,800 gallons are exempt from subsections (c) and (d).

Comparison notes:

- Art XXI requires testing records to be kept two years whereas the Code only requires retention for one year. Article XXI is at least as stringent.
- Article XXI does not appear to include language corresponding to 25 Pa. Code § 129.62(e). This makes Article XXI more applicable and therefore at least as stringent.
- No substantive differences.

Equivalency: There is equivalency because there are no substantive differences, and Article XXI is to an extent more stringent.

Article XXI
§ 2105.15 Degreasing Operations

a. **Cold Cleaning Degreaser.** No person shall operate, or allow to be operated, any cold cleaning degreaser with a degreaser opening exceeding ten (10) square feet, unless:

1. There is in operation on such degreaser:
   - A. A cover to prevent evaporation of solvent during periods of non-use;
   - B. Equipment for draining cleaned parts; and
   - C. A permanent conspicuous label summarizing the operating requirements set forth in Paragraph a.2 below; and

2. Such degreaser is operated at all times in such manner that:
   - A. Waste solvents are transferred to another party or disposed of by means insuring that no more than 20% by weight of the solvents evaporate into the open air;
   - B. Waste solvents are stored in covered containers;
   - C. The degreaser cover is closed when parts are not being processed through the degreaser; and,
   - D. Cleaned parts are drained for at least 15 seconds or until dripping ceases.

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§ 129.63. Degreasing operations.

The provisions of this § 129.63 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended September 26, 1980, effective September 27, 1980, 10 Pa.B. 3788; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended December 21, 2001, effective December 22, 2001, 31 Pa.B. 6921. Immediately preceding text appears at serial pages (199533) to (199536).

(a) *Cold cleaning machines*. Except for those subject to the Federal National emissions standards for hazardous air pollutants (NESHAP) for halogenated solvent cleaners under 40 CFR Part 63 (relating to National emission standards for hazardous air pollutants for source categories), this subsection applies to cold cleaning machines that use 2 gallons or more of solvents containing greater than 5% VOC content by weight for the cleaning of metal parts.

(1) Immersion cold cleaning machines shall have a freeboard ratio of 0.50 or greater.

(2) Immersion cold cleaning machines and remote reservoir cold cleaning machines shall:

(i) Have a permanent, conspicuous label summarizing the operating requirements in paragraph (3). In addition, the label shall include the following **discretionary** good operating practices:

(A) Cleaned parts should be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts should be positioned so that solvent drains directly back to the cold cleaning machine.

(B) When a pump-agitated solvent bath is used, the agitator should be operated to produce a rolling motion of the solvent with no observable splashing of the solvent against the tank walls or the parts being cleaned.

(C) Work area fans should be located and positioned so that they do not blow across the opening of the degreaser unit.

(ii) Be equipped with a cover that shall be closed at all times except during cleaning of parts or the addition or removal of solvent. For remote reservoir cold cleaning machines which drain directly into the solvent storage reservoir, a perforated drain with a diameter of not more than 6 inches shall constitute an acceptable cover.

(3) Cold cleaning machines shall be operated in accordance with the following procedures:

(i) Waste solvent shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

(ii) Flushing of parts using a flexible hose or other flushing device shall be performed only within the cold cleaning machine. The solvent spray shall be a solid fluid stream, not an atomized or shower spray.

(iii) Sponges, fabric, wood, leather, paper products and other absorbent materials may not be cleaned in the cold cleaning machine.

(iv) Air agitated solvent baths may not be used.

(v) Spills during solvent transfer and use of the cold cleaning machine shall be cleaned up immediately.

(4) After December 22, 2002, a person may not use, sell or offer for sale for use in a cold cleaning machine any solvent with a vapor pressure of 1.0 millimeter of mercury (mm Hg) or greater and containing greater than 5% VOC by weight, measured at 20°C (68°F) containing VOCs.

(5) On and after December 22, 2002, a person who sells or offers for sale any solvent containing VOCs for use in a cold cleaning machine shall provide, to the purchaser, the following written information:

(i) The name and address of the solvent supplier.

(ii) The type of solvent including the product or vendor identification number.

(iii) The vapor pressure of the solvent measured in mm hg at 20°C (68°F).

(6) A person who operates a cold cleaning machine shall maintain for at least 2 years and shall provide to the Department, on request, the information specified in paragraph (5). An invoice, bill of sale, certificate that corresponds to a number of sales, Material Safety Data Sheet (MSDS), or other appropriate documentation acceptable to the Department may be used to comply with this section.

(7) Paragraph (4) does not apply:

(i) To cold cleaning machines used in extreme cleaning service.

(ii) If the owner or operator of the cold cleaning machine demonstrates, and the Department approves in writing, that compliance with paragraph (4) will result in unsafe operating conditions.

(iii) To immersion cold cleaning machines with a freeboard ratio equal to or greater than 0.75.

Comparison notes:

- 25 Pa. Code § 129.63(a) mentions "Federal National emissions standards for hazardous air pollutants (NESHAP) for halogenated solvent cleaners under 40 CFR Part 63," while Article XXI §2105.15 does not. However, Article XXI does incorporate all the NESHAPs (in §2104.08), as 25 Pa. Code also does (in § 124.3). No substantive difference.
- The degreasing provisions of 25 Pa. Code § 129.63 also reflect, to an extent, the NESHAP's degreasing procedures in addressing nonhazardous air pollutant solvents. A source is subject to 25 Pa. Code § 129.63(a) if they are using two gallons or more of a solvent that is 5% VOC. Therefore, under the Code a source will always be adhering to the "NESHAP –like" procedure for its degreasing operations. While a source within Allegheny County if using a solvent that is at least 5% halogenated, is subject to the NESHAP instead of Art XXI §2105.15. If the solvent is not 5% halogenated, the source would be subject to §2105.15. Article XXI has no minimum volume use applicability criterion, and no lower limit percentage VOC content. Therefore, there is no adverse impact on the stringency comparison. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.15 Degreasing Operations (continued)

b. **Open Top Vapor Degreaser.** No person shall operate, or allow to be operated, any open top vapor degreaser with a degreaser opening exceeding ten (10) square feet, unless:

1. Such degreaser has:
   A. A freeboard ratio greater than or equal to 0.75 and, if the degreaser opening is greater than ten square feet, the degreaser cover is powered;
   B. A refrigerated chiller in operation;
   C. An enclosed design in which the cover or door opens only when the dry part is actually entering or exiting the degreaser; or
   D. A carbon adsorption system in operation:
      i. With ventilation greater than 50 cfm/ft^2 of air/vapor area when the cover is open; and
      ii. Which emits less than 25 ppm of solvent by volume averaged over one complete adsorption cycle; and,

2. There is in operation on such degreaser:
   A. A cover that can be opened and closed easily without disturbing the vapor zone;
   B. A safety switch which shuts off the sump heat if condenser coolant is either not circulating or too warm (condenser flow switch and thermostat);
   C. A safety switch shuts off the spray pump if the vapor level drops more than four inches; and
   D. A permanent conspicuous label summarizing the operating requirements set forth in Paragraph b.3 below; and

3. Such degreaser is operated at all times in such manner that:
   A. The degreaser cover is closed when parts are not being processed through the degreaser;
   B. All parts being degreased are racked to allow full drainage;
   C. Parts being degreased are moved in and out of the degreaser at less than 11 feet per minute;
   D. All pools of solvent on degreased parts are drained before the parts are removed from the degreaser;
   E. All degreased parts are drained within the degreaser for at least 15 seconds or until visually dry;
   F. Porous or absorbent materials, such as cloth, leather, wood or rope, are not degreased;
   G. Parts being degreased do not occupy more than half of the degreaser's open top area;
   H. Spraying is not done above the vapor level;
   I. Solvent leaks are immediately repaired or the degreaser immediately shut down;
   J. Waste solvents are transferred to another party or disposed of by a means insuring that no more than 20% by weight of the solvents evaporate into the open air;
   K. Waste solvents are stored in covered containers;
   L. Exhaust ventilation does not exceed 65 cfm/ft^2 of degreaser opening, unless necessary to meet federal Occupational Safety and Health Administration (OSHA) requirements;
   M. Ventilation fans are not operated near the degreaser opening; and,
   N. Water is not visually detectable in solvent exiting the water separator.

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§ 129.63. Degreasing operations

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(b) *Batch vapor cleaning machines*. Except for those subject to the Federal NESHAP for halogenated solvent cleaners under 40 CFR Part 63, this subsection applies to batch vapor cleaning machines that use solvent containing greater than 5% VOC by weight for the cleaning of metal parts.

(1) Batch vapor cleaning machines shall be equipped with:
   (i) Either a fully enclosed design or a working and downtime mode cover that completely covers the cleaning machine openings when in place, is free of cracks, holes and other defects, and can be readily opened or

closed without disturbing the vapor zone. If the solvent cleaning machine opening is greater than 10 square feet, the cover shall be powered. If a lip exhaust is used, the closed cover shall be below the level of the lip exhaust.

(ii) Sides which result in a freeboard ratio greater than or equal to 0.75.

(iii) A safety switch (thermostat and condenser flow switch) which shuts off the sump heat if the coolant is not circulating.

(iv) A vapor up control switch which shuts off the spray pump if vapor is not present. A vapor up control switch is not required if the vapor cleaning machine is not equipped with a spray pump.

(v) An automated parts handling system which moves the parts or parts baskets at a speed of 11 feet (3.4 meters) per minute or less when the parts or parts are entering or exiting the vapor zone. If the parts basket being cleaned occupy more than 50% of the solvent/air interface area, the speed of the parts or parts basket may not exceed 3 feet per minute.

(vi) A device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

(vii) A vapor level control device that shuts off the sump heat if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.

(viii) A permanent, conspicuous label summarizing the operating requirements in paragraph (4).

(2) In addition to the requirements of paragraph (1), the operator of a batch vapor cleaning machine with a solvent/air interface area of 13 square feet or less shall implement one of the following options:

(i) A working mode cover, freeboard ratio of 1.0, and superheated vapor.

(ii) A freeboard refrigeration device and superheated vapor.

(iii) A working mode cover and a freeboard refrigeration device.

(iv) Reduced room draft, freeboard ratio of 1.0 and superheated vapor.

(v) A freeboard refrigeration device and reduced room draft.

(vi) A freeboard refrigeration device and a freeboard ratio of 1.0.

(vii) A freeboard refrigeration device and dwell.

(viii) Reduced room draft, dwell and a freeboard ratio of 1.0.

(ix) A freeboard refrigeration device and a carbon adsorber which reduces solvent emissions in the exhaust to a level not to exceed 100 ppm at any time.

(x) A freeboard ratio of 1.0, superheated vapor and a carbon adsorber.

(3) In addition to the requirements of paragraph (1), the operator of a batch vapor cleaning machine with a solvent/air interface area of greater than 13 square feet shall use one of the following devices or strategies:

(i) A freeboard refrigeration device, a freeboard ratio of 1.0 and superheated vapor.

(ii) Dwell, a freeboard refrigeration device and reduced room draft.

(iii) A working mode cover, a freeboard refrigeration device and superheated vapor.

(iv) Reduced room draft, freeboard ratio of 1.0 and superheated vapor.

(v) A freeboard refrigeration device, reduced room draft and superheated vapor.

(vi) A freeboard refrigeration device, reduced room draft and a freeboard ratio of 1.0.

(vii) A freeboard refrigeration device, superheated vapor and a carbon adsorber which reduces solvent emissions in the exhaust to a level not to exceed 100 ppm at any time.

(4) Batch vapor cleaning machines shall be operated in accordance with the following procedures:

(i) Waste solvent, still bottoms and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

(ii) Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. A superheated vapor system shall be an acceptable alternate technology.

(iii) Parts or parts baskets may not be removed from the batch vapor cleaning machine until dripping has ceased.

(iv) Flushing or spraying of parts using a flexible hose or other flushing device shall be performed within the vapor zone of the batch vapor cleaning machine or within a section of the machine that is not exposed to the ambient air. The solvent spray shall be a solid fluid stream, not an atomized or shower spray.

(v) Sponges, fabric, wood, leather, paper products and other absorbent materials may not be cleaned in the batch vapor cleaning machine.

(vi) Spills during solvent transfer and use of the batch vapor cleaning machine shall be cleaned up immediately.
(vii) Work area fans shall be located and positioned so that they do not blow across the opening of the batch vapor cleaning machine.
(viii) During startup of the batch vapor cleaning machine, the primary condenser shall be turned on before the sump heater.
(ix) During shutdown of the batch vapor cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.
(x) When solvent is added to or drained from the batch vapor cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface.
(xi) The working and downtime covers shall be closed at all times except during parts entry and exit from the machine, during maintenance of the machine when the solvent has been removed and during addition of solvent to the machine.

Comparison notes:

- The requirements are very similar, with the exception of those of §129.63(b)(2) and (3), for which Article XXI does not have corresponding language. However, Article XXI, under Sections 2104.08 and 2105.15, covers the complete spectrum of VOC content levels and volume of solvent used, while at the same time providing equal stringency when the VOC in question is a HAP. When the VOC is a non-HAP, Article XXI §2105.15 is not as detailed/comprehensive as the DEP regulation. But it is as stringent as required by the CTG, and coupled with Article XXI having no lower limit on percentage VOC content, the differences are judged to be not significant and there is comparable overall stringency.

Equivalency: There is equivalency because the differences are judged to be not significant and there is comparable overall stringency.

Article XXI
§ 2105.15 Degreasing Operations (continued)

c. **Conveyorized Degreasers.** No person shall operate, or allow to be operated, any conveyorized degreaser with a degreaser opening exceeding ten (10) square feet, unless:

1. There is in operation on such degreaser:

   A. A refrigerator chiller or a carbon adsorption system, with ventilation greater than 50 cfm/ft^2 of air/vapor area when downtime covers are open and which emits less than 25 parts per million of solvent by volume averaged over one complete adsorption cycle;
   B. A drying tunnel or another means such as a rotating (tumbling) basket sufficient to prevent degreased parts from carrying solvent liquid or vapor out of the degreaser;
   C. A safety switch which shuts off the sump heat if condenser coolant is either not circulating or too warm (condenser flow switch and thermostat);
   D. A safety switch which shuts off the spray pump if the vapor level drops more than four inches;
   E. A safety switch which shuts off the sump heat when the vapor level rises too high (vapor level control thermostat);
   F. Entrances and exits which silhouette the parts to be degreased so that the average clearance between parts and the edge of the degreaser is either less than four inches or less than ten percent (10%) of the width of the opening;
   G. Covers for closing off the entrances and exits during shutdown hours; and
   H. A permanent conspicuous label summarizing the operating requirements set forth in Paragraph c.2 below; and

2. Such degreaser is operated at all times in such manner that:

   A. Exhaust ventilation does not exceed 65 cfm/ft^2 of degreaser opening, unless necessary to meet federal Occupational Safety and Health Administration (OSHA) requirements and work place fans are not used near the degreaser opening;
   B. Carry-out emissions are minimized by racking parts for best drainage and by maintaining vertical conveyor speed at less than 11 feet per minute;
   C. Waste solvents are transferred to another party or disposed of by a means insuring that no more than 20% by weight of the solvents evaporate into the open air;
   D. Waste solvents are stored in covered containers;
   E. Solvent leaks are immediately repaired or the degreaser shut down;
   F. Water is not visually detectable in solvent exiting the water separator; and,
   G. Downtime covers are placed over conveyor entrances and exits immediately after the conveyor and exhaust are shut down and immediately before they are started up.

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§ 129.63. Degreasing operations

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(c) *In-line vapor cleaning machines.* Except for those subject to the Federal NESHAP for halogenated solvent cleaners under 40 CFR Part 63, this section applies to in-line vapor cleaning machines that use solvent containing greater than 5% VOC by weight for the cleaning of metal parts.

(1) In-line vapor cleaning machines shall be equipped with:

(i) Either a fully enclosed design or a working and downtime mode cover that completely covers the cleaning machine openings when in place, is free of cracks, holesand [error in original]other defects, and can be readily opened or closed without disturbing the vapor zone.

(ii) A switch (thermostat and condenser flow switch) which shuts off the sump heat if the coolant is not circulating.

(iii) Sides which result in a freeboard ratio greater than or equal to 0.75.

(iv) A vapor up control switch.

(v) An automated parts handling system which moves the parts or parts baskets at a speed of 11 feet (3.4 meters) per minute or less when the parts are entering or exiting the vapor zone. If the parts or parts basket being cleaned occupy more than 50% of the solvent/air interface area, the speed of the parts or parts basket may not exceed 3 feet per minute.

(vi) A device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

(vii) A vapor level control device that shuts off the sump heat if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.

(viii) A permanent, conspicuous label summarizing the operating requirements in paragraph (3).

(2) In addition to the requirements of paragraph (1), the operator of an in-line vapor cleaning machine shall use one of the following devices or strategies:

(i) A freeboard ratio of 1.0 and superheated vapor.

(ii) A freeboard refrigeration device and a freeboard ratio of 1.0.

(iii) Dwell and a freeboard refrigeration device.

(iv) Dwell and a carbon adsorber which reduces solvent emissions in the exhaust to a level not to exceed 100 ppm at any time.

(3) In-line vapor cleaning machines shall be operated in accordance with the following procedures:

(i) Waste solvent, still bottoms and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

(ii) Parts shall be oriented so that the solvent drains freely from the parts. Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining.

(iii) Parts or parts baskets may not be removed from the in-line vapor cleaning machine until dripping has ceased.

(iv) Flushing or spraying of parts using a flexible hose or other flushing device shall be performed within the vapor zone of the in-line vapor cleaning machine or within a section of the machine that is not exposed to the ambient air. The solvent spray shall be a solid fluid stream, not an atomized or shower spray.

(v) Sponges, fabric, wood, leather, paper products and other absorbent materials may not be cleaned in the in-line vapor cleaning machine.

continued →

(vi) Spills during solvent transfer and use of the in-line vapor cleaning machine shall be cleaned up immediately.

(vii) Work area fans shall be located and positioned so that they do not blow across the in-line vapor cleaning machine.

(viii) During startup of the in-line vapor cleaning machine, the primary condenser shall be turned on before the sump heater.

(ix) During shutdown of the in-line vapor cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.

(x) Spraying operations shall be done in the vapor zone or within a section of the machine that is not exposed to the ambient air.

(xi) When solvent is added to or drained from the in-line vapor cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface.

Comparison notes:

The requirements are very similar, with the exception of those of §129.63(c)(2), for which Article XXI does not have corresponding language. Article XXI, under Sections 2104.08 and 2105.15, covers the complete spectrum of VOC content levels and volume of solvent used, while at the same time providing equal stringency when the VOC in question is a HAP. When the VOC is a non-HAP, Article XXI §2105.15 is not as detailed/comprehensive as the DEP regulation. However, it is also as stringent as required by the CTG, and Article XXI has no lower limit percentage VOC content. The differences are therefore judged to be not significant and there is no adverse impact on the stringency comparison.

Equivalency: There is equivalency because the differences are judged to be not significant and there is comparable overall stringency.

Article XXI
§ 2105.15 Degreasing Operations (continued)

There are no subsections of § 2105.15 that are analogous to 25 Pa. Code § 129.63(d) and (e), as well as Tables 1 and 2, below.

25 Pa Code Ch. 129
§ 129.63. Degreasing operations

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(d) *Airless cleaning machines and airtight cleaning machines*. Except for those subject to the Federal NESHAP for halogenated solvent cleaners under 40 CFR Part 63, this section applies to airless cleaning machines and airtight cleaning machines that use solvent containing greater than 5% VOC by weight for the cleaning of metal parts.

(1) The operator of each machine shall maintain a log of solvent additions and deletions for each machine including the weight of solvent contained in activated carbon or other sorbent material used to control emissions from the cleaning machine.

(2) The operator of each machine shall demonstrate that the emissions from each machine, on a 3-month rolling average, are equal to or less than the allowable limit determined by the use of the following equation:

$EL = 330\ (vol)^{0.6}$

where:

EL = the 3-month rolling average monthly emission limit (kilograms/month).

vol = the cleaning capacity of machine (cubic meters)

(3) The operator of each machine equipped with a solvent adsorber shall measure and record the concentration of solvent in the exhaust of the carbon adsorber weekly with a colorimetric detector tube designed to measure a concentration of 100 ppm by volume of solvent to air at an accuracy of ± 25 ppm by volume. This test shall be conducted while the solvent cleaning machine is in the working mode and is venting to the adsorber.

(4) The operator of each machine equipped with a solvent adsorber shall maintain and operate the machine and adsorber system so that emissions from the adsorber exhaust do not exceed 100 ppm by volume measured while the solvent cleaning machine is in the working mode and is venting to the adsorber.

(5) The machine shall be equipped with a permanent, conspicuous label summarizing the operating requirements in paragraph (6).

(6) Airless cleaning machines and airtight cleaning machines shall be operated in accordance with the following procedures:

(i) Waste solvent, still bottoms and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

(ii) Parts shall be oriented so that the solvent drains freely from the parts. Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining.

(iii) Parts or parts baskets may not be removed from the in-line vapor cleaning machine until dripping has ceased.

(iv) Sponges, fabric, wood, leather, paper products and other absorbent materials may not be cleaned in the airless cleaning machines and airtight cleaning machines.

(v) Spills during solvent transfer and use of the airless cleaning machines and airtight cleaning machines shall be cleaned up immediately.

(vi) Work area fans shall be located and positioned so that they do not blow across the airless cleaning machine and airtight cleaning machine.

(vii) Spraying operations shall be done in the vapor zone or within a section of the machine that is not exposed to the ambient air.

(viii) When solvent is added to or drained from the airless cleaning machine and airtight cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface.

(e) *Alternative provisions for solvent cleaning machines*. This section applies to all solvent cleaning machines used to process metal parts that use solvents containing greater than 5% VOC by weight. As an alternative to complying with subsections (b)—(d), the operator of a solvent cleaning machine may demonstrate compliance with paragraph (1) or (2). The operator shall maintain records sufficient to demonstrate compliance. The records shall include, at a minimum, the quantity of solvent added to and removed from the solvent cleaning machine, the dates of the addition and removal and shall be maintained for at least 2 years.

(1) If the solvent cleaning machine has a solvent/air interface, the owner or operator shall:

(i) Maintain a log of solvent additions and deletions for each solvent cleaning machine.

(ii) Ensure that the emissions from each solvent cleaning machine are equal to or less than the applicable emission limit presented in Table 1:

Table 1
Emission Limits for
Solvent Cleaning Machines with a
Solvent/Air Interface

Solvent cleaning machine	*3-month rolling average monthly emission limit* $(kg/m^2/month)$ $lb/ft^2/month$	
Batch vapor solvent cleaning machines	150	30.7
Existing in-line solvent cleaning machines	153	31.3
In-line solvent cleaning machines installed after the effective date of the regulation		

(2) If the solvent cleaning machine is a batch vapor cleaning machine and does not have a solvent/air interface, the owner or operator shall:

(i) Maintain a log of solvent additions and deletions for each solvent cleaning machine.

(ii) Ensure that the emissions from each solvent cleaning machine are equal to or less than the appropriate limits as described in paragraphs (3) and (4).

(3) For solvent cleaning machines without a solvent/air interface with a cleaning capacity that is less than or equal to 2.95 cubic meters, the emission limit shall be determined using Table 2 or the equation in paragraph (4). If the table is used, and the cleaning capacity of the cleaning machine falls between two cleaning capacity sizes, the lower of the two emission limits applies.

(4) For cleaning machines without a solvent/air interface with a cleaning capacity that is greater than 2.95 cubic meters, the emission limit shall be determined using the following equation.

$EL = 330\ (vol)^{0.6}$

where:

EL = the 3-month rolling average monthly emission limit (kilograms/month)

vol = the cleaning capacity of machine (cubic meters)

(5) Each owner or operator of a batch vapor or in-line solvent cleaning machine complying with this subsection shall demonstrate compliance with the applicable 3-month rolling average monthly emission limit on a monthly basis. If the applicable 3-month rolling average emission limit is not met, an exceedance has occurred. Exceedances shall be reported to the Department within 30 days of the determination of the exceedance.

Table 2. Emission Limits for Solvent Cleaning Machines Without a Solvent/Air Interface

Cleaning capacity (cubic meters)	*3-month rolling average monthly emission limit (kilograms/month)*	*Cleaning capacity (cubic meters)*	*3-month rolling average monthly emission limit (kilograms/month)*	*Cleaning capacity (cubic meters)*	*3-month rolling average monthly emission limit (kilograms/month)*
0.00	0	1.00	330	2.00	500
0.05	55	1.05	340	2.05	508
0.10	83	1.10	349	2.10	515
0.15	106	1.15	359	2.15	522
0.20	126	1.20	368	2.20	530
0.25	144	1.25	377	2.25	537
0.30	160	1.30	386	2.30	544
0.35	176	1.35	395	2.35	551
0.40	190	1.40	404	2.40	558
0.45	204	1.45	412	2.45	565
0.50	218	1.50	421	2.50	572
0.55	231	1.55	429	2.55	579
0.60	243	1.60	438	2.60	585
0.65	255	1.65	446	2.65	592
0.70	266	1.70	454	2.70	599
0.75	278	1.75	462	2.75	605
0.80	289	1.80	470	2.80	612
0.85	299	1.85	477	2.85	619
0.90	310	1.90	485	2.90	625
0.95	320	1.95	493	2.95	632

Comparison notes:

- Article XXI does not have a subsection corresponding to 25 Pa. Code § 129.63(d).
  In summary, Article XXI, under Sections 2104.08 and 2105.15, covers the complete spectrum of VOC content levels and volume of solvent used, while at the same time providing equal stringency when the VOC in question is a HAP and the VOC content level is 5% halogenation or greater. When the VOC is a non-HAP, Article XXI §2105.15 is not as detailed/comprehensive as the DEP regulation. However, it is also as stringent as required by the CTG and there is comparable overall stringency.

- Article XXI does not have a subsection corresponding to 25 Pa. Code § 129.63(e), and Tables 1 and 2. Because 25 Pa. Code § 129.63(e) is offering alternative provisions, that are by definition not compulsory, there is no adverse impact on the on the stringency comparison that results from the omission of corresponding language from Article XXI.

Equivalency: There is equivalency because there is comparable overall stringency.

Article XXI
§ 2105.16 Cutback Asphalt Paving

a. No person may cause, allow, or permit the use or application of cutback asphalt for paving operations except when:
   1. Long-life stockpile is necessary;
   2. Use or application between October 31 and April 30 is necessary;
   3. The cutback asphalt is used solely as a penetrating prime coat, a dust palliative, a tack coat, or a precoating of aggregate; or
   4. Skin patching is necessary during October. Skin patching shall be less than 500 feet continuous length, 1300 linear feet per mile, and 1750 square yards per lane mile.

b. No person shall use or apply emulsion asphalts that contain more than the maximum percentage of solvent shown in Table 2105.16.

TABLE 2105.16

Emulsion Grade	Type	Max. % Solvent
E-1	Rapid Setting	0
E-2	Rapid Setting (Anionic)	0
E-3	Rapid Setting (Cationic)	3
E-4	Medium Setting	12
E-5	Medium Setting	12
E-6	Slow Setting (Soft Residue)	0
E-8	Slow Setting (Hard Residue)	0
E-10	Medium Setting (High Float)	7
E-11	High Float	7
E-12	Medium Setting (Cationic)	8

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§ 129.64. Cutback asphalt paving.

The provisions of this § 129.64 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended August 12, 1983, effective August 13, 1983, 13 Pa.B. 2478; corrected September 9, 1983, effective August 13, 1983. Immediately preceding text appears at serial pages (62519) to (62520).

(a) After April 30, 1982, no person may permit the use or application of cutback asphalt for paving operations except when any of the following applies:

(1) Long-life stockpile is necessary.

(2) The use or application between October 31 and April 30, is necessary.

(3) The cutback asphalt is used solely as a tack coat, a penetrating prime coat, a dust palliative or precoating of aggregate.

(4) Skin patching is necessary during October. Skin patching shall be less than 500 feet continuous length, 1300 linear feet per mile or 1750 square yards per lane mile.

(b) After April 30, 1982, emulsion asphalts may not contain more than the maximum percentage of solvent as shown in Table 2.

TABLE 2

Emulsion Grade	*Type*	% Solvent Max
E-1	Rapid Setting	0
E-2	Rapid Setting (Anionic)	0
E-3	Rapid Setting (Cationic)	3
E-4	Medium Setting	12
E-5	Medium Setting	12
E-6	Slow Setting (Soft Residue)	0
E-8	Slow Setting (Hard Residue)	0
E-10	Medium Setting (High Float)	7
E-11	High Float	7
E-12	Medium Setting (Cationic)	8

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.18 Dry Cleaning Facilities

{Subsections a & b amended October 26, 2022, effective November 5, 2022.}

a. **Perchloroethylene Dry Cleaning Facilities.**

1. Emissions of perchloroethylene from any dry cleaning facility shall be vented through a properly functioning condenser or carbon adsorption system.
2. In addition, such dry cleaning facilities shall comply with the following:

   A. Diatomaceous earth filters shall be cooked or otherwise treated so that the residue contains no more than 25 percent by weight of volatile organic compounds;
   B. Wet waste material from all solvents stills shall be reduced to no more than 60 percent by weight of volatile organic compounds;
   C. All filtration cartridges shall be drained in the filter housing for a minimum of 24 hours before being discarded; and
   D. Any component, including hose connections, valves, machine door gaskets, pumps, storage containers, water separators, filter sludge recovery units, distillation units, cartridge filters, and lint depositories found to be leaking volatile organic compounds shall be replaced or repaired within 24 hours of discovery of the leak.

3. **Measurements.** Measurements relating to this Section shall be performed according to the applicable procedures established by Part G of this Article.

b. **Petroleum Solvent Dry Cleaning Facilities.** This Subsection applies to all petroleum solvent dry cleaning facilities, as defined in §2101.20 of this Article, that consume 100 gallons or more of petroleum solvent on a daily basis.

1. Any person who operates, or allows to be operated, any petroleum solvent dry cleaning dryer subject to this Section shall at all times limit daily VOC emissions to the atmosphere to an average of 3.5 pounds of VOCs per 100 pounds dry weight of articles dry cleaned; or shall install, maintain, and operate a solvent recovery dryer in a manner such that the dryer remains closed and the recovery phase continues until a final recovered solvent flow rate of no more than 50 milliliters per minute is attained and maintained.

2. Any person who operates, or allows to be operated, any petroleum solvent filtration system subject to this Section shall at all times reduce the VOC content in all filtration wastes to one (1) pound or less per 100 pounds dry weight of article dry cleaned, before disposal and possible exposure to the atmosphere; or shall install, maintain, and operate a cartridge filtration system, and drain the filter cartridges in their sealed housings for eight (8) hours or more before their removal.

3. Any person who operates, or allows to be operated, any petroleum solvent dry cleaning facility subject to this Section shall repair all petroleum solvent vapor and liquid leaks within three (3) working days after identifying the sources of the leaks. If necessary repair parts are not in hand, such parts shall be ordered within three (3) working days, and repair the leaks no later than three (3) working days following the arrival of the necessary parts.

4. Any person who operates, or allows to be operated, any petroleum solvent dry cleaning facility subject to this Section shall install, maintain, and operate equipment consistent with manufacturer's specifications and recommendations in order to minimize VOC emissions. In addition, all fugitive VOC emissions from the storage, handling, and transfer of petroleum solvent and petroleum solvent containing materials shall be minimized through employment of appropriate operating practice or procedures to reduce solvent loss and evaporation to the atmosphere.

5. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall demonstrate compliance as follows:

A. For any dryer:

i. Calculate, record, and report to the Department the weight of VOCs vented from the dryer emission control device calculated by using the appropriate method established by Part G of this Article;
ii. Calculate, record, and report to the Department the dry weight of articles dry cleaned; and
iii. Repeat Subparagraphs 5.A.i and 5.A.ii above for normal operating conditions that encompass at least 30 dryer loads, which total not less than 4,000 lbs. dry weight, and represent a normal range of variations in fabric, solvents, load weights, temperatures, flow rates, and process deviations;

B. When a solvent recovery dryer is used, verify that the flow rate of recovered solvent from the solvent recovery dryer at the termination of the recovery phase is no greater than 50 milliliters per minute. This one-time procedure shall be conducted for a duration of no less than two weeks during which no less than 50 percent of the dryer loads shall be monitored for their final recovered solvent rate. The flow rate of recovered solvent shall be measured from the solvent-water separator unless otherwise approved in writing by the Department. Near the end of the recovery cycle, the flow of recovered solvent shall be diverted to a graduated cylinder. The cycle shall continue until the maximum flow of solvent is no more than 50 milliliters per minute. The dry weight and type of article cleaned and the total length of the cycle shall be recorded and reported to the Department; and

C. Where employing a petroleum solvent filtration system, but not employing cartridge filters:

i. Calculate, record, and report to the Department the weight of VOCs contained in each of at least five 3-pound samples of filtration waste material taken at intervals of at least one week by employing the appropriate method established by Part G of this Article;
ii. Calculate, record, and report to the Department the total dry weight of articles dry cleaned during the intervals between removal of filtration waste samples, as well as the total mass of filtration waste produced in the same period; and
iii. Calculate, record, and report to the Department the weight of VOCs contained in filtration waste material per 100 pounds dry weight of articles dry cleaned.

6. Inspection and maintenance.

A. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall submit for approval to the Department an inspection and maintenance protocol including daily inspections of washers, dryers, solvent filters, settling tanks, vacuum stills, and all containers and conveyors of petroleum solvent to identify perceptible vapor or liquid leaks. A daily log shall be maintained to record the inspection and maintenance activities conducted under the approved protocol. The log shall be prepared and maintained in a format to be approved by the Department as part of the approved protocol.

B. Dry cleaning system components found leaking liquid solvent shall be repaired immediately. Pipes, hoses, and fittings shall be examined for active dripping or dampness. Pumps and filters shall be closely inspected for leaks around seals and access covers. There shall be no visible signs of liquid solvent.

C. Solvent vapor leaks shall be controlled by reducing the number of sources where solvent is exposed to the atmosphere. Under no circumstances shall there be any open containers (cans, buckets, barrels) of solvent or solvent-containing material. Equipment containing solvent (washers, dryers, extractors, and filters) shall remain closed at all times other than during maintenance or load transfer. Lint filter and button trap covers shall remain closed except when solvent-laden lint and debris are removed. Gaskets and seals should be inspected and replaced when found weak and defective. Solvent-laden clothes shall never be allowed to set exposed to the atmosphere for longer periods than are necessary for load transfers. Vents on solvent-containing waste and new solvent storage tanks shall be constructed and maintained in a manner that minimizes solvent vapor emissions.

7. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall install, operate, and maintain equipment consistent with manufacturer's specifications and recommendations.

8. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall maintain copies of all manufacturer's specifications and recommendations for dry cleaning equipment operated at the facility and records of operations, inspections, and maintenance such that the Department can determine compliance. These records shall be retained at the facility for a period of at least two (2) years, shall be made available to the Department for inspection and copying upon request, and shall, at a minimum, include:

   A. Information on purchases, inventory, and daily consumption of petroleum solvents;
   B. Operational information on washers, dryers, and solvent filtration systems, including daily hours of operation, cycle times, and dry weight of articles cleaned; and
   C. Information on leak inspections and repairs for all equipment and components handling petroleum solvents.

9. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall submit reports to the Department summarizing information on daily operations, inspections, and maintenance activities, and such other information as is required by the Department to determine compliance, on a schedule and in a form and manner as is prescribed by the Department.

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25 Pa. Code § 129.63b "Control of VOC emissions from large petroleum dry cleaning facilities" *The provisions of this § 129.63b added January 20, 2023, effective January 21, 2023, 53 Pa.B. 465*.

Article XXI already includes the bulk of 25 Pa. Code § 129.63b "Control of VOC emissions from large petroleum dry cleaning facilities," which was recently added to the Code effective January 21, 2023.

ACHD SIP Revision 103, which is in progress and is discussed near the end of this document, will make a small change to Article XXI to add recordkeeping requirements, as described below.

Comparison notes: No substantive differences.

- The federal NESHAP includes criteria for perchloroethylene dry cleaning facilities. The Code incorporates by reference all NESHAPs at 25 Pa. Code § 124.3. However, there are no NESHAP provisions addressing petroleum solvent dry cleaning facilities. Allegheny County no longer has any petroleum dry cleaning facilities.
- Article XXI § 2105.18 is in the process of being revised by SIP Revision 103 (see near the end of this document), now in the approval cycle. Revision 103 will add subsection § 2105.18.b.10 requiring 'small' petroleum dry cleaning facilities to record their use of solvent in order to demonstrate that they do not have the usage to be covered by 25 Pa. Code § 129.63b.
- The Code does not have a paragraph analogous to §2105.18.b.4.
- There are requirements in Article XXI at §2105.18.b.6, 7, 8 and 9, that are not in the Code.
- Article XXI is therefore at least as stringent as the Code.

Equivalency: There is equivalency because Article XXI §2105.18.b is at least as stringent as 25 Pa. Code § 129.63b.

Article XXI
§ 2105.19 Synthetic Organic Chemical and Polymer Manufacturing – Fugitive Sources

{Subsection c amended October 26, 2022, effective November 5, 2022.}

a. This Section applies to sources with synthetic organic chemical and polymer manufacturing sources, other than equipment exempt under Subsection b below, having a design capacity to manufacture a total of 4,000 tons per year or more of any one or a combination of the following:

1. Synthetic organic chemicals listed in 40 CFR 60.489, as amended;
2. Methyl tert-butyl ether (MTBE);
3. Polyethylene;
4. Polypropylene; and
5. Polystyrene.

b. This Section shall not apply to:

1. Equipment operated entirely under a vacuum;
2. Equipment processing only fluids containing less than ten percent (10%) by weight of volatile organic compounds; nor
3. Equipment processing only fluids having a vapor pressure of less than 0.044 pounds per square inch absolute under standard conditions.

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§ 129.71. Synthetic organic chemical and polymer manufacturing—fugitive sources.

The provisions of this § 129.71 adopted May 6, 1988, effective May 7, 1988, 18 Pa.B. 2098; corrected May 20, 1988, effective May 7, 1988, 18 Pa.B. 2298; corrected July 1, 1988, effective May 7, 1988, 18 Pa.B. 2903; amended May 22, 1992, effective May 23, 1992, 22 Pa. B. 2720. Immediately preceding text appears at serial pages (159220) and (162531) to (162532).

(a) This section applies to surface active agent manufacturing facilities subject to § 129.72 (relating to manufacture of surface active agents) and to a facility with design capability to manufacture 1,000 tons per year or more of one or a combination of the following:

(1) Synthetic organic chemicals listed in 40 CFR 60.489 (relating to list of chemicals provided by affected facilities).
(2) Methyl tert-butyl ether.
(3) Polyethylene.
(4) Polypropylene.
(5) Polystyrene.

(b) Exempt from this section are systems operated entirely under a vacuum, or process fluids that contain less than 10% by weight of VOCs and systems in service handling compounds with vapor pressures less than 0.044 psia at 68° F.

Comparison notes: Article XXI has a higher manufactured tonnage threshold. Which would make Article XXI less applicable. However, Allegheny County no longer has any sources to which § 2105.19 applies. ACHD does not consider the difference significant for purposes of this CTG review given that there are no such sources in the County.

Equivalency: Article XXI does not have the same range of applicability with respect to the amount of manufactured tonnage. The Article XXI SOCMI regulation is not wholly equivalent to the Code SOCMI regulation, therefore, but it does not matter since Allegheny County no longer has any sources to which this regulation applies.

Article XXI

§ 2105.19 Synthetic Organic Chemical and Polymer Manufacturing – Fugitive Sources (continued)

c. Any person who operates, or allows to be operated, a source subject to this Section shall, as a condition to any Installation Permit for such source:

1. Install a second valve, blind flange, plug, cap, or other equivalent sealing system on all open ended lines, except those equipped with safety pressure relief valves; and

2. Develop and initiate a leak detection and repair program for all pumps, values, compressors, and safety pressure relief valves collectively referred to as components. The leak detection and repair program shall include, at a minimum, the following:

A. Attachment of an identification tag to or placement of any other permanent identification marking on each component. The identification shall be waterproof, be readily visible, and bear an identification number;

B. A leak check every three (3) months of all components and at any time of any component with a leak that is detected by sight, sound, or smell, by methods established by Part G of this Article;

C. Attachment of a leak detection tag to each leaking component having a volatile organic compound leak equal to or greater than 10,000 ppm. The leak detection tag shall be waterproof, be readily visible, be a color that contrasts with the permanent identification, bear a leak detection number and the date on which the leak was detected, and indicate if the component cannot be repaired until a process shutdown and a shutdown is not scheduled to occur within 15 days from the date of detection. The leak detection tag shall not be removed from the component until the component has been repaired and retested, and the test indicates that the component does not have a volatile organic compound leak equal to or greater than 10,000 ppm;

D. Repair and retest of each leaking component within 15 days of detection or as soon as possible if a shutdown is required to make the repair;

E. A leak check of each safety/relief valve within 24 hours after such valve has been vented to the atmosphere, by methods established by Part G of this Article; and

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§ 129.71. Synthetic organic chemical and polymer manufacturing—fugitive sources.

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(c) The owner or operator of a newly affected facility shall complete the following by May 24, 1993.

(1) Install a second valve, blind flange, plug, cap or other equivalent sealing system on open ended lines, except for safety pressure relief valves.

(2) Develop and initiate a leak detection program including liquid leaks for pumps, valves, compressors, vessels and safety pressure relief valves and a repair program for these components that cause a hydrocarbon detection instrument reading equal to or greater than 10,000 ppm. The leak detection and repair program shall include the following:

(i) A leak check during every calendar quarter of the components, by methods referenced in § 139.14 (relating to emissions of VOCs).

(ii) Attachment of an identification tag to the leaking component causing an instrument reading equal to or greater than 10,000 ppm. The identification tag shall be waterproof, readily visible, bear an identification number, the date on which the leak was detected and indicate if the component cannot be repaired until a process shutdown that will not occur within 15 days from the date of detection.

(iii) Repair and retest of a leaking component within 15 days or as soon as possible if a shutdown is required to make the repair.
(iv) A weekly visual check of pumps in light liquid service for indications of leaks.
(v) Check, by methods referenced in § 139.14, a safety relief valve within 24 hours after it has vented to the atmosphere to assure that the safety relief valve has resealed.

Comparison notes:

- Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A.
- Note the last sentence of Article XXI subsection (c)(2)(C) for which no comparable Code provision exists. Article XXI is more stringent in this regard.
- There is not an Art XXI counterpart for §129.71(c)(2)(iv). This is judged to not be a significant difference. Allegheny County no longer has any sources to which § 2105.19 applies.
- No other substantive differences and Allegheny County no longer has any sources to which § 2105.19 applies.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.19 Synthetic Organic Chemical and Polymer Manufacturing – Fugitive Sources (continued)

c. Any person who operates...

.....

2. ..... shall include, at a minimum, the following:

F. Initiation and maintenance of a log of all components subject to leak inspection and maintenance. The log shall contain, at a minimum, the following:

i. The identification number of each component;
ii. The date on which each component was checked;
iii. The total number of components checked;
iv. The identification and leak detection number of each component found leaking;
v. The location of each leaking component;
vi. The type of each leaking component (for example: valve, seal, etc.);
vii. The date on which each leaking component was discovered to be leaking;
viii. The date of each repair;
ix. The total number of components found leaking;
x. The leak detection instrument readings before and after each repair;
xi. Each component that can not be repaired until a process shutdown that will not occur within 15 days of detection; and
xii. A record of the calibration of the leak detection monitoring instrument.

The monitoring log shall be retained for two (2) years after the date on which any leak check was made. The log shall be made available to the Department for inspection and copying at any time upon oral or written request.

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.....

(c) The owner or operator ....

(2)... shall include the following:

(vi) The initiation and maintenance of a log of leaking components. The log shall contain, at a minimum, the total number of components checked, the total number of components found leaking, the location of the leaking component, the type of component—for example, valve, seal and the like—the tag identification number, the date on which the component was discovered to be leaking, date of repair, leak detection instrument reading after repairs, the components that cannot be repaired until a process shutdown that will not occur within 15 days from the date of detection and a record of the calibration of the leak detection monitoring instrument. The monitoring log shall be retained by the owner for 2 years after the date on which an entry was made. The log shall be made available to the Department upon oral or written request.

Comparison notes:
The Code does not have a comparable provision for Article XXI subsection (c)(2)(F)(ii). This is judged to not be a significant difference. No substantive differences. Also, Allegheny County no longer has any sources to which § 2105.19 applies.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.19 Synthetic Organic Chemical and Polymer Manufacturing – Fugitive Sources (continued)

d. Any person who operates, or allows to be operated, a source subject to this Section may submit to the Department for approval an alternative plan for the control of leaks from components, including a plan with less frequent testing based on superior past performance. The Department shall approve any plan that is equivalent to or better than the requirements of this Section in terms of leak control efficiency and enforceability. A plan approved by the Department under this Subsection shall not be effective until it is either approved by the EPA as a revision to the County's portion of the applicable SIP or becomes a part of a federally enforceable permit or order, whichever is first.

e. Any person who operates, or allows to be operated, a source subject to this Section may submit to the Department for approval a list of components the inspection of which would involve a significant element of danger. The Department shall exempt the components on the list from the requirements of this Section if such person can demonstrate to the satisfaction of the Department that a significant element of danger exists which cannot be reasonably eliminated, and that the exemptions will not result in a significant reduction of the volatile organic compound emission control effectiveness.

25 Pa Code Ch. 129
§ 129.71. Synthetic organic chemical and polymer manufacturing—fugitive sources.

.....

(d) The owner or operator of a facility subject to this section may submit to the Department an alternative plan for the control of leaks from components. If the Department finds that the alternative plan will achieve an emission reduction which is equivalent to or greater than the reduction which can be achieved under this section and that the alternative plan is as enforceable as this section, the Department may approve the alternative plan.

(e) The owner or operator of a facility subject to this section may submit to the Department a list of components the inspection of which would involve a significant element of danger. The Department may exempt the components on the list from the requirements of this section if the owner or operator can demonstrate to the satisfaction of the Department that a significant element of danger exists which cannot be reasonably eliminated, and that these exemptions will not result in a significant reduction of the VOC emission control effectiveness.

Comparison notes:
Article XXI requires EPA approval or that the permit is federally enforceable. The Code does not include similar language. Article XXI is more stringent is this case. Also, Allegheny County no longer has any sources to which § 2105.19 applies.

Equivalency: Article XXI is more stringent to a limited extent.

Article XXI
§ 2105.70 Petroleum Refineries

{Subsection b amended October 26, 2022, effective November 5, 2022.}

a. **Specific Sources.**

1. **Wastewater Separators.** No person shall cause or permit the use of any compartment of any single or multiple compartment volatile organic compound wastewater separator which compartment receives effluent water containing 200 gallons a day or more of any VOC from equipment processing, refining, treating, storing, or handling VOCs unless such compartment is equipped with one of the following vapor loss control devices, properly installed, in good working order, and in operation, as follows:

   A. A container having all openings sealed and totally enclosing the liquid contents. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place; or
   B. A container equipped with a floating roof, consisting of a pontoon-type roof, double-deck-type roof, or internal floating cover, which will rest on the surface of the contents and be equipped with a closure seal or seals to close the space between the roof edge and container wall. All gauging and sampling devices shall be gas tight except when gauging or sampling is taking place.

2. **Pumps and Compressors.** All pumps and compressors handling VOCs with a vapor pressure of greater than 1.5 psi at actual conditions shall have mechanical seals. For the purpose of determining vapor pressure, a temperature no greater than 100ºF (37.8ºC) shall be used.

3. **Vacuum-Producing Systems.** Vacuum producing systems shall conform with the following:

   A. No person shall operate, or allow to be operated, a vacuum-producing system at a petroleum refinery in such manner that there are any emission of VOCs from the condensers, hot wells, or accumulators of the system; and
   B. The emission limit under Subparagraph 3.A of this Subsection shall be achieved by one of the following:
      i. Piping the vapors to a firebox or a incinerator;
      ii. Compressing the vapors and adding them to the refinery fuel gas; or
      iii. Any method approved by the Department which recovers no less than 90% by weight of uncontrolled VOCs that would otherwise be emitted to the atmosphere.

4. **Process Unit Turnarounds.** Purging of VOCs during depressurization of reactors, fractionating columns, pipes, or vessels during unit shutdown, repair, inspection, or start-up shall be performed in such a manner as to direct the VOCs to a fuel gas system, flare, or vapor recovery system until the internal pressure in such equipment reaches 19.7 psia.

25 Pa Code Ch. 129
§ 129.55. Petroleum refineries—specific sources.

The provisions of this § 129.55 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118. Immediately preceding text appears at serial page (53973).

(a) *Wastewater separators.* No person may permit the use of a compartment of a single or multiple compartment volatile organic compound wastewater separator which compartment receives effluent water containing 200 gallons a day or more of any volatile organic compound from equipment processing, refining, treating, storing or handling volatile organic compounds unless the compartment is equipped with one of the following vapor loss control devices—properly installed, in good working order, and in operation—as follows:

(1) A container having openings sealed and totally enclosing the liquid contents. Gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(2) A container equipped with a floating roof—consisting of a pontoon-type roof, double-deck-type roof or internal floating cover—which will rest on the surface of the contents and be equipped with a closure seal or seals to close the space between the roof edge and container wall. Gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(b) *Pumps and compressors.* Pumps and compressors handling volatile organic compounds with a vapor pressure of greater than 1.5 psi (10.3 kilopascals) at actual conditions shall have mechanical seals. For the purpose of determining vapor pressure, a temperature no greater than 100° F shall be used.

(c) *Vacuum-producing systems.* Vacuum producing systems shall conform with the following:

(1) The owner or operator of any vacuum-producing systems at a petroleum refinery may not permit the emission of volatile organic compounds from the condensers, hot wells or accumulators of the system.

(2) The emission limit under paragraph (1) shall be achieved by one of the following:

(i) Piping the vapors to a firebox or incinerator.

(ii) Compressing the vapors and adding them to the refinery fuel gas.

(iii) A method approved by the Department which recovers no less than 90% by weight of uncontrolled volatile organic compounds that would otherwise be emitted to the atmosphere.

(d) *Process unit turnarounds.* Purging of volatile organic compounds during depressurization of reactors, fractionating columns, pipes or vessels during unit shutdown, repair, inspection or startup shall be performed in such a manner as to direct the volatile organic vapors to a fuel gas system, flare or vapor recovery system until the internal pressure in such equipment reaches 19.7 psia (136 kilopascals).

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.70 Petroleum Refineries (continued)

b. **Fugitive Sources.**

1. The owner or operator of a petroleum refinery shall:

   A. Develop and conduct a monitoring program consistent with the provisions of Paragraphs 4, 5, and 6 of this Subsection b.
   B. Record leaking refinery components which have a VOC concentration exceeding 10,000 ppm when tested in accordance with the provisions of Part G of this Article, relating to emissions of VOCs, and place an identifying tag on each refinery component consistent with the provisions of Paragraph 6 of this Subsection b.
   C. Repair and retest the leaking refinery components as soon as possible. Every reasonable effort shall be made to repair each leak within 15 days unless a refinery unit shutdown is required to make the necessary repair.
   D. Identify leaking refinery components which cannot be repaired until the unit is shutdown for turnaround.

2. No person shall install or operate, or allow the installation or operation of, a valve at a petroleum refinery at the end of a pipe or line containing VOCs unless the pipe or line is sealed with a second valve, a blind flange, a plug, or a cap, except for safety pressure relief valves and fittings on valves one inch or smaller. The sealing device may be removed only when a sample is being taken or during maintenance operations.

3. Pipeline valves and pressure relief valves in gaseous VOC service shall be marked in some manner that will be readily obvious to both refinery personnel performing monitoring and the Department

25 Pa Code Ch. 129
§ 129.58. Petroleum refineries—fugitive sources.

The provisions of this § 129.58 adopted April 27, 1979, effective August 1, 1979, 9 Pa.B. 1447; corrected May 11, 1979, effective August 1, 1979, 9 Pa.B. 1534; amended August 12, 1983, effective August 13, 1983, 13 Pa.B. 2478. Immediately preceding text appears at serial pages (62507) to (62510).

(a) The owner or operator of a petroleum refinery shall do the following:

(1) Develop and conduct a monitoring program consistent with the provisions of subsection (d).
(2) Record leaking refinery components which have a VOC concentration exceeding 10,000 ppm when tested in accordance with the provisions of § 139.14 (relating to emissions of VOCs) and place an identifying tag on each refinery component consistent with the provisions in subsection (d)(3).
(3) Repair and retest the leaking refinery components as soon as possible. Every reasonable effort shall be made to repair each leak within 15 days unless a refinery unit shutdown is required to make the necessary repair.
(4) Identify leaking refinery components which cannot be repaired until the unit is shutdown for turnaround.

(b) Except for safety pressure relief valves and fittings on valves 1 inch or smaller, no owner or operator of a petroleum refinery shall install or operate a valve at the end of a pipe or line containing VOCs unless the pipe or line is sealed with a second valve, a blind flange, a plug or a cap. The sealing device may be removed only when a sample is being taken or during maintenance operations.

(c) Pipeline valves and pressure relief valves in gaseous VOC service shall be marked in some manner that will be readily obvious to both refinery personnel performing monitoring and the Department.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.70 Petroleum Refineries (continued)

b. **Fugitive Sources.**

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4. Any person operating, or allowing the operation of, a petroleum refinery shall conduct a monitoring program consistent with the following requirements:

   A. Check yearly, by methods referenced in Part G of this Article, pump seals and pipeline valves in liquid service.
   B. Check quarterly by methods referenced in Part G of this Article, compressor seals, pipeline valves in gaseous service, and pressure relief valves in gaseous service.
   C. Check monthly, by visual methods, all pump seals.
   D. Check within 24 hours, by methods referenced in Part G of this Article, pump seal from which VOC liquids are observed to be dripping.
   E. Check, by methods referenced in Part G of this Article, relief valve within 24 hours after it has vented to the atmosphere.
   F. Check within 24 hours after repair, by methods referenced in Part G of this Article, refinery component that was found leaking.

5. Pressure relief devices which are connected to an operating flare header, vapor recovery devices, inaccessible valves, storage tank valves, and valves that are not externally regulated are exempt from the monitoring requirements in Paragraph 4 of this Subsection b.

6. Any person operating, or allowing the operation of, a petroleum refinery, upon the detection of a leaking refinery component, shall affix a weatherproof and readily visible tag, bearing an identification number and the date upon which the leak is located to the leaking refinery component. This tag shall remain in place until the leaking refinery component is repaired.

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§ 129.58. Petroleum refineries—fugitive sources.

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(d) Monitoring shall be done as follows:

(1) The owner or operator of a petroleum refinery shall conduct a monitoring program consistent with the following requirements:

(i) Check yearly, by methods referenced in § 139.14, pump seals and pipeline valves in liquid service.
(ii) Check quarterly, by methods referenced in § 139.14, compressor seals, pipeline valves in gaseous service, and pressure relief valves in gaseous service.
(iii) Check monthly, by visual methods, pump seals.
(iv) Check within 24 hours, by methods referenced in § 139.14, a pump seal from which VOC liquids are observed to be dripping.
(v) Check, by methods referenced in § 139.14, a relief valve within 24 hours after it has vented to the atmosphere.
(vi) Check within 72 hours after repair, by methods referenced in § 139.14, a refinery component that was found leaking.

(2) Pressure relief devices which are connected to an operating flare header, vapor recovery devices, inaccessible valves, storage tank valves and valves that are not externally regulated are exempt from the monitoring requirements in paragraph (1).

(3) The owner or operator of a petroleum refinery, upon the detection of a leaking refinery component, shall affix a weatherproof and readily visible tag, bearing an identification number and the date upon which the leak is located to the leaking refinery component. This tag shall remain in place until the leaking refinery component is repaired.

Comparison notes:

- Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent.
- Article XXI requires a check within 24 hours after a repair whereas the Code allows for up to 72 hours. Article XXI is more stringent in this regard
- No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.70 Petroleum Refineries (continued)

b. **Fugitive Sources.**

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7. Any person operating, or allowing the operation of, a petroleum refinery shall maintain a leaking refinery components monitoring log which shall contain, at a minimum, the following data:

   A. The name and process unit where the refinery component is located.
   B. The type of refinery component, for example, valve, seal.
   C. The tag number of refinery component.
   D. The dates on which the leaking refinery component was discovered and repaired.
   E. The date and instrument reading of the recheck procedure after a leaking refinery component was repaired.
   F. A record of the calibration of the monitoring instrument.
   G. Those leaks that cannot be repaired until turnaround.
   H. The total number of refinery components checked and the total number of refinery components found leaking.

8. Copies of the monitoring log shall be retained by the owner or operator for two years after the date on which the record was made or the report was prepared, whichever is later.

9. Copies of the monitoring log shall immediately be made available to the Department for inspection and copying, upon verbal or written request, at any reasonable time.

10. The person operating, or allowing the operation of, a petroleum refinery, within 30 days following the end of each calendar year, shall:

    A. Submit a written report to the Department for such calendar year that lists all leaking refinery components that were located during such year but not repaired within 15 days, all leaking refinery components awaiting unit turnaround as of the end of the year, the total number of refinery components inspected, and the total number of refinery components found leaking.

    B. Submit a signed statement with the report attesting to the fact that, with the exception of those leaking refinery components listed in Subparagraph A of this Paragraph b.10, monitoring and repairs were performed as stipulated in the monitoring program.

25 Pa Code Ch. 129
§ 129.58. Petroleum refineries—fugitive sources.

.....

(e) Record keeping shall comply with the following:

(1) The owner or operator of a petroleum refinery shall maintain a leaking refinery components' monitoring log which shall contain, at a minimum, the following data:

(i) The name of the process unit where the refinery component is located.
(ii) The type of refinery component—for example, valve, seal.
(iii) The tag number of refinery component.
(iv) The dates on which the leaking refinery component was discovered and repaired.
(v) The date and instrument reading of the recheck procedure after a leaking refinery component was repaired.
(vi) A record of the calibration of the monitoring instrument.
(vii) Those leaks that cannot be repaired until turnaround.
(viii) The total number of refinery components checked and the total number of refinery components found leaking.

(2) Copies of the monitoring log shall be retained by the owner for 2 years after the date on which the record was made or the report was prepared.
(3) Copies of the monitoring log shall immediately be made available to the Department, upon verbal or written request, at any reasonable time.

(f) Reporting shall comply with the following:

(1) The owner or operator of a petroleum refinery, upon completion of each yearly and quarterly monitoring procedure, shall do the following:

(i) Submit a report to the Department by the last business day of January, April, July and October that lists leaking refinery components that were located during the previous calendar quarter but not repaired within 15 days, leaking refinery components awaiting unit turnaround, the total number of refinery components inspected and the total number of refinery components found leaking.
(ii) Submit a signed statement with the report attesting to the fact that, with the exception of those leaking refinery components listed in subparagraph (i), monitoring and repairs were performed as stipulated in the monitoring program.

Comparison notes:
Article XXI only requires one report a year while the Code requires a report every quarter. Article XXI is less stringent in this regard. However, this is judged to be not significant for the purposes of this CTG comparison.
No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.70 Petroleum Refineries (continued)

b. **Fugitive Sources.**

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11. The owner or operator of a petroleum refinery may submit an alternative plan for the control of leaks from petroleum refinery equipment to the Department. If the Department finds that the alternative plan will achieve an emission reduction which is equivalent to or greater than the reduction which can be achieved under this Section and that the alternative plan is as enforceable as this Section, then the Department will allow the implementation of this alternative plan.

12. The owner or operator of a petroleum refinery may submit to the Department a list of refinery components the inspection of which would involve a significant element of danger. The Department may exempt the refinery components on this list from the requirements of this Section if it is demonstrated to the satisfaction of the Department that a significant element of danger exists which cannot be reasonably eliminated and that these exemptions will not result in a significant reduction in the effectiveness in the control of VOC emissions.

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§ 129.58. Petroleum refineries—fugitive sources.

.....

(g) The owner or operator of a petroleum refinery may submit an alternative plan for the control of leaks from petroleum refinery equipment to the Department. If the Department finds that the alternative plan will achieve an emission reduction which is equivalent to or greater than the reduction which can be achieved under the provisions of this section and that the alternative plan is as enforceable as this section, then the Department will allow the implementation of this alternative plan.

(h) The owner or operator of a petroleum refinery may submit to the Department a list of refinery components the inspection of which would involve a significant element of danger. The Department may exempt the refinery components on this list from the requirements of this section if the owner or operator can demonstrate to the satisfaction of the Department that a significant element of danger exists which cannot be reasonably eliminated and that these exemptions will not result in a significant reduction in the effectiveness in the control of VOC emissions.

Comparison notes: No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.71 Pharmaceutical Products

a. **Manufacture of synthesized pharmaceutical products.** This Subsection applies to synthesized pharmaceutical manufacturing sources.

1. Any person who operates, or allows the operation of, a synthesized pharmaceutical manufacturing source subject to this Subsection shall control the VOC emissions from reactors, distillation operations, crystallizers, centrifuges, and vacuum dryers that emit 15 pounds per day or more of VOCs. Surface condensers or equivalent controls shall be used and if:

   A. Surface condensers are used, the condenser outlet gas temperature shall not exceed:
      i. Minus 25°C when condensing VOCs of vapor pressure greater than 5.8 psi when measured at 68°F.
      ii. Minus 15°C when condensing VOCs of vapor pressure greater than 2.9 psi when measured at 68°F.
      iii. 0°C when condensing VOCs of vapor pressure greater than 1.5 psi when measured at 68°F.
      iv. 10°C when condensing VOCs of vapor pressure greater than one psi when measured at 68°F.
      v. 25°C when condensing VOCs of vapor pressure greater than 0.5 psi when measured at 68°F.
   B. Equivalent controls are used, the VOC emissions shall be reduced by an equivalent or greater amount than would be required in Subparagraph 1.A of this Subsection.

2. Any person who operates, or allows the operation of, a synthetic pharmaceutical manufacturing source subject to this Section shall reduce the VOC emissions from air dryers and production equipment exhaust systems:
   A. By at least 90% if uncontrolled emissions are 220 pounds per day per day) or more of VOCs; or
   B. To 33 pounds per day or less if uncontrolled emissions are less than 220 pounds per day of VOCs.

3. Any person who operates, or allows the operation of, a synthesized pharmaceutical manufacturing source subject to this Section shall enclose centrifuges, rotary vacuum filters, and other filters having an exposed liquid surface, where the liquid contains VOCs and exerts a total VOC vapor pressure of 0.5 psi or more at 20 C.

4. Any person who operates, or allows the operation of, a synthesized pharmaceutical source subject to this Section shall install covers on in-process tanks containing a VOC at any time. These covers shall remain closed except during production, sampling, maintenance or inspection procedures that require operator access.

5. Any person who operates, or allows the operation of, a synthesized pharmaceutical manufacturing source subject to this Section shall repair leaks from which a liquid, containing VOCs, can be observed running or dripping. The repair shall be completed the first time the equipment is off-line for a period of time long enough to complete the repair.

25 Pa Code Ch. 129
§ 129.68. Manufacture of synthesized pharmaceutical products.

The provisions of this § 129.68 adopted June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended August 2, 1991, effective August 3, 1991, 21 Pa.B. 3406. Immediately preceding text appears at serial pages (151694) to (151695).

(a) This section applies to synthesized pharmaceutical manufacturing facilities.

(b) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this section shall control the VOC emissions from reactors, distillation operations, crystallizers, centrifuges and vacuum dryers that emit 15 pounds per day or more of VOC. Surface condensers or equivalent controls shall be used if:
(1) Surface condensers are used, the condenser outlet gas temperature may not exceed:

(i) -25°C when condensing VOC of vapor pressure greater than 5.8 psi (40 kilopascals) when measured at 68°F.
(ii) -15°C when condensing VOC of vapor pressure greater than 2.9 psi (20 kilopascals) when measured at 68°F.
(iii) 0°C when condensing VOC of vapor pressure greater than 1.5 psi (10 kilopascals) when measured at 68°F.
(iv) 10°C when condensing VOC of vapor pressure greater than 1 psi (7 kilopascals) when measured at 68°F.
(v) 25°C when condensing VOC of vapor pressure greater than .5 psi (3.5 kilopascals) when measured at 68°F.

(2) Equivalent controls are used, the VOC emissions shall be reduced by an equivalent or greater amount than would be required in paragraph (1).

(c) The owner or operator of a synthetic pharmaceutical manufacturing facility subject to this section shall reduce the VOC emissions from air dryers and production equipment exhaust systems:

(1) By at least 90% if emissions are 220 pounds per day (100 kilograms per day) or more of VOC.
(2) To 33 pounds per day or less if emissions are less than 220 pounds per day of VOC.

(d) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this section shall enclose centrifuges, rotary vacuum filters and other filters having an exposed liquid surface, where the liquid contains VOC and exerts a total VOC vapor pressure of .5 psi (3.5 kilopascals) or more at 20°C.

(e) The owner or operator of a synthesized pharmaceutical facility subject to this section shall install covers on in-process tanks containing a VOC at any time. These covers shall remain closed, unless production, sampling, maintenance or inspection procedures require operator access.

(f) The owner or operator of a synthesized pharmaceutical manufacturing facility subject to this section shall repair leaks from which a liquid, containing VOC, can be observed running or dripping. The repair shall be completed the first time the equipment is off-line for a period of time long enough to complete the repair.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.71 Pharmaceutical Products (continued)

b. **Pharmaceutical tablet coating.** This Subsection applies to pharmaceutical tablet coating at pharmaceutical manufacturing sources that emit greater than 50 tons of VOCs per year.

1. Any person who operates, or allows the operation of, any pharmaceutical manufacturing source subject to this Subsection shall control VOC emissions from pharmaceutical tablet coating equipment that has a potential to emit more than 33 pounds per day of VOCs. VOC emissions from such equipment shall be reduced:
   A. By at least 90% overall on a daily basis, if uncontrolled VOC emissions are 330 pounds per day or more; or
   B. To 33 pounds per day, or less, if uncontrolled VOC emissions are less than 330 pounds per day.

2. Carbon adsorption or incineration shall be used to effect compliance with Paragraph 1 of this Subsection. Control equipment shall be installed, operated, and maintained consistent with the manufacturer's specifications and recommendations.

3. Any person who operates, or allows the operation of, any affected pharmaceutical tablet coating source shall demonstrate compliance by:
   A. Certifying in writing to the Department that the appropriate control equipment is in place and in use, including compliance with applicable installation permit and operating license requirements;
   B. Providing the Department, upon request, with certified written analyses of all tablet coatings in place and in use. The analyses shall include determinations of VOC content and solids content and any other determinations requested by the Department. Analyses shall be provided by the owner-operator of the source, the manufacturer of the coating solution, or an independent laboratory acceptable to the Department;
   C. Maintaining VOC purchasing, inventory, and daily consumption records such that the Department can determine compliance;
   D. Maintaining daily operating records for all equipment connected to the VOC control equipment;
   E. Maintaining the appropriate control equipment in a manner consistent with manufacturer's specifications and recommendations; and
   F. Maintaining daily operating, inspection, and maintenance records for VOC control equipment in a manner approved by the Department.

4. Any person who operates, or allows the operation of, any affected pharmaceutical tablet coating source shall maintain copies of all manufacturer's specifications and recommendations for VOC control equipment operated at the source, all records of operations, inspections, and maintenance required under Paragraphs 3 and 4 of this Subsection, and all other records that are necessary for the Department to determine compliance. These records shall be retained at the source for a period of at least two (2) years and shall be made available to the Department for inspection and copying upon request.

5. Any person who operates, or allows the operation of, any affected pharmaceutical tablet coating source shall submit reports to the Department summarizing information on daily operations, inspections, and maintenance activities, and such other information as is required by the Department to determine compliance, on a schedule and in a form and manner as prescribed by the Department.

25 Pa Code Ch. 129

There is no comparable 25 Pa. Code section.

Comparison notes: Article XXI developed this subsection for its ozone SIP for control technique guidelines. Allegheny County no longer has any pharmaceutical tablet coating sources. State does not have any pharmaceutical tablet coating sources. **No CTG comparison implications.**

Article XXI
§ 2105.72 Manufacture of Pneumatic Rubber Tires

a. This Section applies to pneumatic rubber tire manufacturing sources. For purposes of this Section, pneumatic rubber tire manufacturing means the production of pneumatic rubber passenger-type tires on a mass production basis. Passenger-type tires are agricultural, airplane, industrial, mobile home, light- or medium-duty truck, or passenger vehicle tires with bead diameters up to 20 inches and cross-sectional dimensions up to 12.8 inches. With prior written approval from the Department, the production of specialty tires for antique or other vehicles when produced on an irregular basis or with short production runs and when produced on equipment separate from normal production lines for passenger-type tires are exempt from the requirements of this Section.

b. Any person who operates, or allows the operation of, an undertread cementing, tread-end cementing, or bead dipping operation subject to this Section shall:

1. Install and operate a capture system designed to achieve maximum reasonable capture, of at least 85% by weight of VOCs emitted, from undertread cementing, tread-end cementing, and bead dipping operations. Maximum reasonable capture shall be consistent with the following documents:
   A. Industrial Ventilation, A Manual of Recommended Practices, 14th Edition, American Federation of Industrial Hygienists.
   B. Recommended Industrial Ventilation Guidelines, United States Department of Human Services National Institute of Occupational Safety and Health.

2. Install and operate a control device that meets the requirements of one of the following:
   A. A carbon adsorption system designed and operated in a manner so that there is at least a 95% removal of VOCs by weight from the gases ducted to the control device.
   B. An incineration system that reduces VOCs by at least 90%.

c. Any person who operates, or allows the operation of, a green-tire spraying operation subject to this Section shall implement one of the following means of reducing VOC emissions:

1. Substitute water-based sprays for the normal solvent-based mold release compound.
2. Install a capture system designed and operated in a manner that will capture and transfer at least 90% of the VOCs emitted by the green-tire spraying operation to a control device that meets the requirements in Paragraph b.2 of this Section.

d. Notwithstanding the other provisions of this Section, the Department may allow a pneumatic rubber tire manufacturing source to implement permanent and enforceable measures including recordkeeping and reporting requirements, which are approved by the Department and the EPA as RACT

25 Pa Code Ch. 129
§ 129.69. Manufacture of pneumatic rubber tires.

The provisions of this § 129.69 adopted June 19, 1981, effective June 20, 1981, 11 Pa.B. 2118; amended May 22, 1992, effective May 23, 1992, 22 Pa. B. 2720. Immediately preceding text appears at serial pages (159218) to (159219).

(a) This section applies to pneumatic rubber tire manufacturing facilities. For purposes of this section, pneumatic rubber tire manufacturing means the production of pneumatic rubber passenger-type tires on a mass production basis. Passenger-type tires are agricultural, airplane, industrial, mobile home, light- or medium-duty truck or passenger vehicle tires with bead diameters up to 20 inches (50.8 centimeters) and cross-sectional dimensions up to 12.8 inches (32.5 centimeters). With prior written approval from the Department, the production of speciality tires for antique or other vehicles when produced on an irregular basis or with short production runs and when produced on equipment separate from normal production lines for passenger-type tires are exempt from the requirements of this section.

(b) The owner or operator of an undertread cementing, tread-end cementing or bead dipping operation subject to this section shall comply with the following:

(1) Install and operate a capture system designed to achieve maximum reasonable capture, of at least 85% by weight of VOC emitted, from undertread cementing, tread-end cementing and bead dipping operations. Maximum reasonable capture shall be consistent with the following documents:

(i) *Industrial Ventilation, A Manual of Recommended Practices*, 14th Edition, American Federation of Industrial Hygienists.
(ii) *Recommended Industrial Ventilation Guidelines, United States Department of Human Services National Institute of Occupational Safety and Health.*

(2) Install and operate a control device that meets the requirements of one of the following:

(i) A carbon adsorption system designed and operated in a manner so that there is at least a 95% removal of VOC by weight from the gases ducted to the control device.
(ii) An incineration system that oxidizes at least 90% of the nonmethane VOCs which enter the incinerator to carbon dioxide and water

(c) The owner or operator of a green-tire spraying operation subject to this section shall implement one of the following means of reducing VOC emissions:

(1) Substitute water-based sprays for the normal solvent-based mold release compound.
(2) Install a capture system designed and operated in a manner that will capture and transfer at least 90% of the VOC emitted by the green-tire spraying operation to a control device that meets the requirements in subsection (b)(2).

(d) Notwithstanding the provisions of this section, the Department may allow a pneumatic rubber tire manufacturing facility to implement permanent and enforceable measures, including recordkeeping and reporting requirements, which are approved by the Department and the EPA as reasonably available control technology.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.74 Aerospace Manufacturing and Rework *{effective July 10, 2003}*

a. **Applicability**. Except as provided in Subsection b, this section applies to the manufacture or rework of commercial, civil, or military aerospace vehicles or components at any facility which has the potential to emit 25 tons per year of VOCs or more.

b. **Exceptions**. This section does not apply to cleaning and coating of aerospace components and vehicles as follows:

1. At any source conducting research and development for the research and development activities;
2. For quality control and laboratory testing;
3. For production of electronic parts and assemblies (except for cleaning and coating of completed assemblies); and
4. For rework operations performed on antique aerospace vehicles or components.

c. **Exemption from Limits**. Subsection d does not apply to cleaning and coating of aerospace components and vehicles in the following circumstances:

1. The use of touchup, aerosol, and Department of Defense "classified" coatings;
2. The coating of space vehicles; and
3. At facilities that use separate formulations in volumes less than 50 gallons per year to a maximum exemption of 200 gallons per year of all the coatings in aggregate for these formulations.

d. **Limits**. A person may not apply to aerospace vehicles or components, aerospace specialty coatings, primers, topcoats, and chemical milling maskants including VOC-containing materials added to the original coating supplied by the manufacturer, that contain VOCs in excess of the limits specified in Table 2105.74.

1. Aerospace coatings that meet the definitions of the specific coatings in Table 2105.74 shall meet those allowable coating VOC limits.
2. All other aerospace primers, aerospace topcoats and chemical milling maskants are subject to the general coating VOC limits for aerospace primers, aerospace topcoats, and aerospace chemical milling maskants.

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The provisions of this § 129.73 adopted April 9, 1999, effective April 10, 1999, 29 Pa.B. 1879; amended August 10, 2018, effective August 11, 2018, 48 Pa.B. 4814. Immediately preceding text appears at serial pages (380460) to (380467).

Except as provided in paragraph (1), this section applies to the manufacture or rework of commercial, civil or military aerospace vehicles or components at any facility which has the potential to emit 25 tons per year of VOCs or more.

(1) This section does not apply to cleaning and coating of aerospace components and vehicles as follows:
(i) At any source conducting research and development for the research and development activities.
(ii) For quality control and laboratory testing.
(iii) For production of electronic parts and assemblies (except for cleaning and coating of completed assemblies).
(iv) For rework operations performed on antique aerospace vehicles or components.

(2) Paragraph (3) does not apply to cleaning and coating of aerospace components and vehicles in the following circumstances:
(i) The use of touchup, aerosol and Department of Defense ‘‘classified’’ coatings.
(ii) The coating of space vehicles.

(iii) At facilities that use separate formulations in volumes less than 50 gallons per year to a maximum exemption of 200 gallons per year of all the coatings in aggregate for these formulations.

(3) Beginning April 10, 1999, a person may not apply to aerospace vehicles or components, aerospace specialty coatings, primers, topcoats and chemical milling maskants including VOC-containing materials added to the original coating supplied by the manufacturer, that contain VOCs in excess of the limits specified in Table II.

(i) Aerospace coatings that meet the definitions of the specific coatings in Table II shall meet those allowable coating VOC limits.

(ii) All other aerospace primers, aerospace topcoats and chemical milling maskants are subject to the general coating VOC limits for aerospace primers, aerospace topcoats and aerospace chemical milling maskants.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.74 Aerospace Manufacturing and Rework (continued)

d. **Limits**

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TABLE 2105.74
Allowable Content of VOCs in Aerospace Coatings
Allowable VOC Content
Weight of VOC Per Volume of Coating (Minus Water and Exempt Solvents)

	LIMIT	
	POUNDS PER	GRAMS PER
COATING TYPE	GALLON	LITER
Specialty Coatings		
1. Ablative Coating	5.0	600
2. Adhesion Promoter	7.4	890
3. Adhesive Bonding Primers:		
a. Cured at 250°F or below	7.1	850
b. Cured above 250°F	8.6	1030
4. Adhesives:		
a. Commercial interior Adhesive	6.3	760
b. Cyanoacrylate Adhesive	8.5	1020
c. Fuel Tank Adhesive	5.2	620
d. Nonstructural Adhesive	3.0	360
e. Rocket Motor Bonding Adhesive	7.4	890
f. Rubber-Based Adhesive	7.1	850
g. Structural Autoclavable Adhesive	0.5	60
h. Structural Nonautoclavable Adhesive	7.1	850
5. Antichafe Coating	5.5	660
6. Chemical Agent-Resistant Coating	4.6	550
7. Clear coating	6.0	720
8. Commercial Exterior Aerodynamic Structure Primer	5.4	650
9. Compatible Substrate Primer	6.5	780
10.Corrosion Prevention Compound	5.9	710
11.Cryogenic Flexible Primer	5.4	645
12.Cryoprotective Coating	5.0	600
13.Electric or Radiation-Effect Coating	6.7	800
14.Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	6.7	800

Allowable Content of VOCs in Aerospace Coatings
Allowable VOC Content
Weight of VOC Per Volume of Coating (Minus Water and Exempt Solvents)

	LIMIT	
	POUNDS PER	GRAMS PER
COATING TYPE	GALLON	LITER
Specialty Coatings (continued)		
15. Elevated Temperature Skydrol Resistant Commercial Primer	6.2	740
16. Epoxy Polyamide Topcoat	5.5	660
17. Fire-Resistant (Interior) Coating	6.7	800

18. Flexible Primer	5.4		640	
19. Flight-Test Coatings:				
a. Missile or Single Use Aircraft	3.5		420	
b. All Other	7.0		840	
20. Fuel-Tank Coating	6.0		720	
a. High Temperature Coating	7.1		850	
21. Insulation Covering	6.2		740	
22. Intermediate Release Coating	6.2		750	
23. Lacquer	6.9		830	
24. Maskants:				
a. Bonding Maskant	10.2		1230	
b. Critical Use and Line Sealer Maskant	8.6		1020	
c. Seal Coat Maskant	10.2		1230	
25. Metalized Epoxy Coating	6.2		740	
26. Mold Release	6.5		780	
27. Optical Anti-Reflective Coating	6.2		750	
28. Part Marking Coating	7.1		850	
29. Pretreatment Coating	6.5		780	
30. Rain Erosion-Resistant Coating		7.1		850
31. Rocket Motor Nozzle Coating	5.5		660	
32. Scale Inhibitor	7.3		880	
33. Screen Print Ink	7.0		840	
34. Sealant:				
a. Extrudable/Rollable/Brushable Sealant	2.0		240	
b. Sprayable Sealant	5.0		600	
35. Self Priming Topcoat	3.5		420	
36. Silicone Insulation Material	7.1		850	
37. Solid Film Lubricant	7.3		880	
38. Specialized Function Coating	7.4		890	
39. Temporary Protective Coating	2.7		320	
40. Thermal Control Coating	6.7		800	
41. Wet Fastner Installation Coating	5.6		675	
42. Wing Coating	7.1		850	

Aerospace Primers, Aerospace Topcoats, and Aerospace Chemical Milling Maskants

1. Primers	2.9		350	
2. Topcoats	3.5		420	
3. Chemical Milling Maskants (Type I/II)	1.3		160	

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TABLE II
Allowable Content of VOCs in Aerospace Coatings
Weight of VOC Per Volume of Coating (Minus Water and Exempt Solvents)

COATING TYPE	*LIMIT* POUNDS PER GALLON	GRAMS PER LITER
Specialty Coatings		
(1) Ablative Coating	5.0	600
(2) Adhesion Promoter	7.4	890
(3) Adhesive Bonding Primers:		
(a) Cured at 250°F or below	7.1	850
(b) Cured above 250°F	8.6	1,030
(4) Adhesives:		
(a) Commercial Interior Adhesive	6.3	760
(b) Cyanoacrylate Adhesive	8.5	1,020
(c) Fuel Tank Adhesive	5.2	620
(d) Nonstructural Adhesive	3.0	360
(e) Rocket Motor Bonding Adhesive	7.4	890
(f) Rubber-Based Adhesive	7.1	850
(g) Structural Autoclavable Adhesive	0.5	60
(h) Structural Nonautoclavable Adhesive	7.1	850
(5) Antichafe Coating	5.5	660
(6) Chemical Agent-Resistant Coating	4.6	550
(7) Clear Coating	6.0	720
(8) Commercial Exterior Aerodynamic Structure Primer	5.4	650
(9) Compatible Substrate Primer	6.5	780
(10) Corrosion Prevention Compound	5.9	710
(11) Cryogenic Flexible Primer	5.4	645
(12) Cryoprotective Coating	5.0	600
(13) Electric or Radiation-Effect Coating	6.7	800
(14) Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	6.7	800

TABLE II (continued)

Allowable Content of VOCs in Aerospace Coatings
Allowable VOC Content

Weight of VOC Per Volume of Coating (Minus Water and Exempt Solvents)

(15) Elevated Temperature Skydrol Resistant Commercial Primer	6.2	740
(16) Epoxy Polyamide Topcoat	5.5	660
(17) Fire-Resistant (Interior) Coating	6.7	800
(18) Flexible Primer	5.4	640
(19) Flight-Test Coatings:		
(a) Missile or Single Use Aircraft	3.5	420
(b) All Other	7.0	840
(20) Fuel-Tank Coating	6.0	720
(21) High-Temperature Coating	7.1	850

(22) Insulation Covering	6.2	740
(23) Intermediate Release Coating	6.2	750
(24) Lacquer	6.9	830
(25) Maskants:		
(a) Bonding Maskant	10.2	1,230
(b) Critical Use and Line Sealer Maskant	8.6	1,020
(c) Seal Coat Maskant	10.2	1,230
(26) Metallized Epoxy Coating	6.2	740
(27) Mold Release	6.5	780
(28) Optical Anti-Reflective Coating	6.2	750
(29) Part Marking Coating	7.1	850
(30) Pretreatment Coating	6.5	780
(31) Rain Erosion-Resistant Coating	7.1	850
(32) Rocket Motor Nozzle Coating	5.5	660
(33) Scale Inhibitor	7.3	880
(34) Screen Print Ink	7.0	840
(35) Sealants:		
(a) Extrudable/Rollable/Brushable Sealant	2.0	240
(b) Sprayable Sealant	5.0	600
(36) Self-Priming Topcoat	3.5	420
(37) Silicone Insulation Material	7.1	850
(38) Solid Film Lubricant	7.3	880
(39) Specialized Function Coating	7.4	890
(40) Temporary Protective Coating	2.7	320
(41) Thermal Control Coating	6.7	800
(42) Wet Fastener Installation Coating	5.6	675
(43) Wing Coating	7.1	850
Aerospace Primers, Aerospace Topcoats and Aerospace Chemical Milling Maskants		
(1) Primers	2.9	350
(2) Topcoats	3.5	420
(3) Chemical Milling Maskants (Type I/II)	1.3	160

Comparison notes:
There appear to be more categories in the Code, but that is not the case. From 48 Pa.B 4814, § 129.73, Aerospace manufacturing and rework:

> *"Table II (relating to allowable content of VOCs in aerospace coatings) was amended to correct a numbering error as published at 29 Pa.B. 1879 (April 10, 1999). The coating type "high-temperature coating" was incorrectly numbered as (20)(a) and was renumbered as (21). The succeeding coating types are renumbered accordingly. The redundant phrase "allowable VOC content" is deleted from the heading of Table II. Revisions were not made in this final-form rulemaking to Table II."*

No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

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§ 2105.74 Aerospace Manufacturing and Rework (continued)

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e. **Calculation**. The mass of VOC per combined volume of VOC and coating solids, less water and exempt compounds shall be calculated for each coating by the following equation:

$$VOC = \frac{(W_v - W_w - W_{ex})(D_c)}{100\% - (W_w)(D_c/D_w) - (W_{ex})(D_c/D_{ex})}$$

Where:

VOC = VOC content in grams per liter (g/l) of each coating less water and exempt solvents
W_v = Weight of total volatiles, % (100%-Weight % Nonvolatiles)
W_w = Weight of water, %
W_{ex} = Weight of exempt solvent, %
D_c = Density of coating, g/l at 25°C
D_w = Density of water, 0.997×10^3 g/l at 25°C
D_{ex} = Density of exempt solvent, g/l, at 25°C

To convert from grams per liter (g/l) to pounds per gallon (lb/gal), multiply the result (VOC content) by 8.345×10^{-3} (lb/gal/g/l).

f. **Application Techniques**. Except as provided in Subsection g, a person shall use one or more of the following application techniques in applying primer or topcoat to aerospace vehicles or components:

1. Flow/curtain coat;
2. Dip coat;
3. Roll coating;
4. Brush coating;
5. Cotton-tipped swab application;
6. Electrodeposition (DIP) coating;
7. High volume low pressure (HVLP) spraying; and
8. Electrostatic spray.

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(4) The mass of VOC per combined volume of VOC and coating solids, less water and exempt compounds shall be calculated for each coating by the following equation:

$$VOC = \frac{(W_v - W_w - W_{ex})(D_c)}{100\% - (W_w)(D_c/D_w) - (W_{ex})(D_c/D_{ex})}$$

Where:

VOC = VOC content in grams per liter (g/l) of each coating less water and exempt solvents
W_v = Weight of total volatiles, % (100%-Weight % Nonvolatiles)
W_w = Weight of water, %
W_{ex} = Weight of exempt solvent, %
D_c = Density of coating, g/l at 25°C
D_w = Density of water, 0.997×10^3 g/l at 25°C
D_{ex} = Density of exempt solvent, g/l, at 25°C

To convert from grams per liter (g/l) to pounds per gallon (lb/gal), multiply the result (VOC content) by 8.345 x 10^{-3} (lb/gal/g/l).

(5) Except as provided in paragraph (6), beginning April 10, 1999, a person shall use one or more of the following application techniques in applying primer or topcoat to aerospace vehicles or components:
(i) Flow/curtain coat.
(ii) Dip coat.
(iii) Roll coating.
(iv) Brush coating.
(v) Cotton-tipped swab application.
(vi) Electrodeposition (DIP) coating.
(vii) High volume low pressure (HVLP) spraying.
(viii) Electrostatic spray.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

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§ 2105.74 Aerospace Manufacturing and Rework (continued)

g. **Exemption from Application Techniques**. The following situations are exempt from application equipment requirements listed in Subsection f:

1. Any situation that normally requires the use of an airbrush or an extension on the spray gun to properly apply coatings to limited access spaces;
2. The application of specialty coatings;
3. The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and that the applicant has demonstrated and the Department has determined cannot be applied by any of the application methods specified in Subsection f;
4. The application of coatings that normally have a dried film thickness of less than 0.0013 centimeter (0.0005 in.) when the applicant has demonstrated and the Department has determined cannot be applied by any of the application methods specified in Subsection f;
5. The use of airbrush application methods for stenciling, lettering and other identification markings;
6. The use of hand-held spray can application methods; and
7. Touch-up and repair operations

h. **Cleaning Solvents**. Except as provided in Subsection i, a person may not use solvents for hand-wipe cleaning of aerospace vehicles or components unless the cleaning solvents do one of the following:

1. Meet the definition of "aqueous cleaning solvent" in §2101.20 (relating to definitions);
2. Have a VOC composite vapor pressure less than or equal to 45 millimeters (mmHg) at 20°C; or
3. Is composed of a mixture of VOCs and has a maximum vapor pressure of 7 millimeters (mmHg) at 20°C (3.75 inches water at 68°F) and contains no hazardous air pollutants (HAP) or ozone depleting compounds.

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(6) The following situations are exempt from application equipment requirements listed in paragraph (5):
(i) Any situation that normally requires the use of an airbrush or an extension on the spray gun to properly apply coatings to limited access spaces.
(ii) The application of specialty coatings.
(iii) The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and that the applicant has demonstrated and the Department has determined cannot be applied by any of the application methods specified in paragraph (5).
(iv) The application of coatings that normally have a dried film thickness of less than 0.0013 centimeter (0.0005 in.) when the applicant has demonstrated and the Department has determined cannot be applied by any of the application methods specified in paragraph (5).
(v) The use of airbrush application methods for stenciling, lettering and other identification markings.
(vi) The use of hand-held spray can application methods.
(vii) Touch-up and repair operations.

(7) Except as provided in paragraph (8), beginning April 10, 1999, a person may not use solvents for hand-wipe cleaning of aerospace vehicles or components unless the cleaning solvents do one of the following:
(i) Meet the definition of ‘‘aqueous cleaning solvent’’ in § 121.1 (relating to definitions).
(ii) Have a VOC composite vapor pressure less than or equal to 45 millimeters (mmHg) at 20°C.
(iii) Is composed of a mixture of VOCs and has a maximum vapor pressure of 7 millimeters (mmHg) at 20°C (3.75 inches water at 68°F) and contains no hazardous air pollutants (HAP) or ozone depleting compounds.

Comparison notes: No substantive differences.
Equivalency: There is equivalency because there are no substantive differences.

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§ 2105.74 Aerospace Manufacturing and Rework (continued)
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i. **Exemption from Cleaning Solvents**. The following aerospace vehicle and component solvent cleaning operations are exempt from Subsection h:

1. Cleaning during the manufacture, assembly, installation, maintenance or testing of components of breathing oxygen systems that are exposed to the breathing oxygen;
2. Cleaning during the manufacture, assembly, installation, maintenance or testing of parts, subassemblies or assemblies that are exposed to strong oxidizers or reducers (for example, nitrogen tetroxide, liquid oxygen, hydrazine);
3. Cleaning and surface activation prior to adhesive bonding;
4. Cleaning of electronics parts and assemblies containing electronics parts;
5. Cleaning of aircraft and ground support equipment fluid systems that are exposed to the fluid, including air-to-air heat exchangers and hydraulic fluid systems;
6. Cleaning of fuel cells, fuel tanks and confined spaces;
7. Surface cleaning of solar cells, coated optics and thermal control surfaces;
8. Cleaning during fabrication, assembly, installation and maintenance of upholstery, curtains, carpet and other textile materials used in or on the interior of the aircraft;
9. Cleaning of metallic and nonmetallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components;
10. Cleaning of aircraft transparencies, polycarbonate or glass substrates;
11. Cleaning and solvent usage associated with research and development, quality control or laboratory testing;
12. Cleaning operations, using nonflammable liquids, conducted within 5 feet of any alternating current (AC) or direct current (DC) electrical circuit on an assembled aircraft once electrical power is connected, including interior passenger and cargo areas, wheel wells and tail sections; and
13. Cleaning operations identified in an essential use waiver under section 604(d)(1) of the Clean Air Act (42 U.S.C.A. § 7671c(d)(1)) or a fire suppression or explosion prevention waiver under section 604(g)(1) of the Clean Air Act which has been reviewed and approved by the EPA and the voting parties of the International Montreal Protocol Committee.

j. **Cleaning Solvent Collection**. Cleaning solvents, except for semiaqueous cleaning solvents, used in the **flush cleaning of aerospace vehicles, components, parts, and assemblies and coating unit components, shall** be emptied into an enclosed container or collection system that is kept closed when not in use or captured with wipers which comply with the housekeeping requirements of Subsection l. Aqueous cleaning solvents are exempt from these requirements.

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(8) The following aerospace vehicle and component solvent cleaning operations are exempt from paragraph (7):
(i) Cleaning during the manufacture, assembly, installation, maintenance or testing of components of breathing oxygen systems that are exposed to the breathing oxygen.
(ii) Cleaning during the manufacture, assembly, installation, maintenance or testing of parts, subassemblies or assemblies that are exposed to strong oxidizers or reducers (for example, nitrogen tetroxide, liquid oxygen, hydrazine).
(iii) Cleaning and surface activation prior to adhesive bonding.
(iv) Cleaning of electronics parts and assemblies containing electronics parts.

(v) Cleaning of aircraft and ground support equipment fluid systems that are exposed to the fluid, including air-to-air heat exchangers and hydraulic fluid systems.
(vi) Cleaning of fuel cells, fuel tanks and confined spaces.
(vii) Surface cleaning of solar cells, coated optics and thermal control surfaces.
(viii) Cleaning during fabrication, assembly, installation and maintenance of upholstery, curtains, carpet and other textile materials used in or on the interior of the aircraft.
(ix) Cleaning of metallic and nonmetallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components.
(x) Cleaning of aircraft transparencies, polycarbonate or glass substrates.
(xi) Cleaning and solvent usage associated with research and development, quality control or laboratory testing.
(xii) Cleaning operations, using nonflammable liquids, conducted within 5 feet of any alternating current (AC) or direct current (DC) electrical circuit on an assembled aircraft once electrical power is connected, including interior passenger and cargo areas, wheel wells and tail sections.
(xiii) Cleaning operations identified in an essential use waiver under section 604(d)(1) of the Clean Air Act (42 U.S.C.A. § 7671c(d)(1)) or a fire suppression or explosion prevention waiver under section 604(g)(1) of the Clean Air Act which has been reviewed and approved by the EPA and the voting parties of the International Montreal Protocol Committee.

(9) Cleaning solvents, except for semiaqueous cleaning solvents, used in the flush cleaning of aerospace vehicles, components, parts, and assemblies and coating unit components, shall be emptied into an enclosed container or collection system that is kept closed when not in use or captured with wipers which comply with the housekeeping requirements of paragraph (11). Aqueous cleaning solvents are exempt from these requirements.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

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§ 2105.74 Aerospace Manufacturing and Rework (continued)

k. **Spray Guns**. Spray guns used to apply aerospace coatings shall be cleaned by one of the following:

1. An enclosed spray gun cleaning system that is kept closed when not in use. Leaks, including visible leakage, misting and clouding, shall be repaired within 14 days from when the leak is first discovered. Each owner or operator using an enclosed spray gun cleaner shall visually inspect the seals and all other potential sources of leaks at least once per month. The results of each inspection shall be recorded, and the record shall indicate the date of the inspection, the person who conducted the inspection and whether components were leaking. Records of the inspections shall be maintained for at least 2 years. Each inspection shall occur while the spray gun cleaner is in operation. If the leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired or its use is permanently discontinued;

2. Unatomized discharge of solvent into a waste container that is kept closed when not in use;
3. Disassembly of the spray gun and cleaning in a vat that is kept closed when not in use; or
4. Atomized spray into a waste container that is fitted with a device designed to capture atomized solvent emissions.

l. **Housekeeping**. The owner or operator of an affected facility shall implement the following housekeeping measures for cleaning solvents:

1. Fresh and used cleaning solvents, except aqueous and semiaqueous cleaning solvents, used in solvent cleaning operations shall be stored in nonabsorbent, nonleaking containers. The containers shall be kept closed at all times except when filling or emptying;

2. Cloth and paper, or other absorbent applicators, moistened with cleaning solvents, except aqueous cleaning solvents, shall be stored in closed, nonabsorbent, nonleaking containers. Cotton-tipped swabs used for very small cleaning operations are exempt; and

3. Handling and transfer procedures shall minimize spills during filling and transferring the cleaning solvent, except aqueous cleaning solvents, to or from enclosed systems, vats, waste containers and other cleaning operation equipment that holds or stores fresh or used cleaning solvents.

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(10) Spray guns used to apply aerospace coatings shall be cleaned by one of the following:

(i) An enclosed spray gun cleaning system that is kept closed when not in use. Leaks, including visible leakage, misting and clouding, shall be repaired within 14 days from when the leak is first discovered. Each owner or operator using an enclosed spray gun cleaner shall visually inspect the seals and all other potential sources of leaks at least once per month. The results of each inspection shall be recorded, and the record shall indicate the date of the inspection, the person who conducted the inspection and whether components were leaking. Records of the inspections shall be maintained for at least 2 years. Each inspection shall occur while the spray gun cleaner is in operation. If the leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired or its use is permanently discontinued.

(ii) Unatomized discharge of solvent into a waste container that is kept closed when not in use.

(iii) Disassembly of the spray gun and cleaning in a vat that is kept closed when not in use.

(iv) Atomized spray into a waste container that is fitted with a device designed to capture atomized solvent emissions.

(11) The owner or operator of an affected facility shall implement the following housekeeping measures for cleaning solvents:

(i) Fresh and used cleaning solvents, except aqueous and semiaqueous cleaning solvents, used in solvent cleaning operations shall be stored in nonabsorbent, nonleaking containers. The containers shall be kept closed at all times except when filling or emptying.
(ii) Cloth and paper, or other absorbent applicators, moistened with cleaning solvents, except aqueous cleaning solvents, shall be stored in closed, nonabsorbent, nonleaking containers. Cotton-tipped swabs used for very small cleaning operations are exempt.
(iii) Handling and transfer procedures shall minimize spills during filling and transferring the cleaning solvent, except aqueous cleaning solvents, to or from enclosed systems, vats, waste containers and other cleaning operation equipment that holds or stores fresh or used cleaning solvents.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

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§ 2105.74 Aerospace Manufacturing and Rework (continued)

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m. **Approved Equipment**. The owner or operator of an affected facility may comply with this section by using approved air pollution control equipment provided that the following exist:

1. The control system has a combined VOC emissions capture and control equipment efficiency of at least 81% by weight and is operated and maintained in accordance with good air pollution control practices that minimize VOC emissions;

2. The owner or operator received approval from the Department of a monitoring plan that specifies the applicable operating parameter value, or range of values, to ensure ongoing compliance with this section. The monitoring device shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's specifications, and the Department's approval; and
3. The owner or operator shall record monitoring parameters as specified in the approved monitoring plan

n. **Records**. The owner or operator of an affected facility shall maintain records in accordance with §2105.01-2105.10, including:

1. A current list of coatings in use categorized in accordance with Table 2105.74 showing VOC content as applied and usage on an annual basis;
2. A current list of cleaning solvents used and annual usage for hand wiping solvents including the water content of aqueous and semiaqueous solvents and the vapor pressure and composite vapor pressure of all vapor pressure compliant solvents and solvent blends; and
3. A current list and annual usage information for exempt hand-wipe cleaning solvents with a vapor pressure greater than 45 millimeters of mercury (mmHg) used in exempt hand-wipe cleaning operations.

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§ 129.73. Aerospace manufacturing and rework.

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(12) The owner or operator of an affected facility may comply with this section by using approved air pollution control equipment provided that the following exist:

(i) The control system has combined VOC emissions capture and control equipment efficiency of at least 81% by weight.

(ii) The owner or operator received approval from the Department of a monitoring plan that specifies the applicable operating parameter value, or range of values, to ensure ongoing compliance with this section. The monitoring device shall be installed, calibrated, operated and maintained in accordance with the manufacturer's specifications, good air pollution control practices that minimize VOC emissions, and the Department's approval.

(iii) The owner or operator shall record monitoring parameters as specified in the approved monitoring plan.

(13) The owner or operator of an affected facility shall maintain records in accordance with § § 129.51 and 129.52 (relating to general; and surface coating processes) including:

(i) A current list of coatings in use categorized in accordance with Table II showing VOC content as applied and usage on an annual basis.

(ii) A current list of cleaning solvents used and annual usage for hand wiping solvents including the water content of aqueous and semiaqueous solvents and the vapor pressure and composite vapor pressure of all vapor pressure compliant solvents and solvent blends.

(iii) A current list and annual usage information for exempt hand-wipe cleaning solvents with a vapor pressure greater than 45 millimeters of mercury (mmHg) used in exempt hand-wipe cleaning operations.

Comparison notes: In Paragraph (12)(ii), the Code makes mention of "good air pollution control practices that minimize VOC emissions," whereas Article XXI does not. However, Article XXI § 2105.02 states that all air pollution control equipment required by this Article "…shall be properly installed, maintained, and operated consistent with good air pollution control practice." No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations

{Effective July 10, 2003. Subsections d & g amended October 26, 2022, effective November 5, 2022.}

a. **General Provisions and Applicability**. This section applies to each wood furniture manufacturing facility located in the county that emits or has the potential to emit 25 tons or more per year of VOCs from wood furniture manufacturing operations.

1. The owner or operator of an existing wood furniture manufacturing facility subject to this section must comply with this section by the effective date.

2. An existing wood furniture manufacturing facility that increases its actual emissions or potential to emit to 25 tons per year or more of VOCs from wood furniture manufacturing operations shall comply with this section within 1 year after becoming subject to this section.

3. At a minimum, a new source installed at an existing facility that is subject to the requirements of this section shall comply with the emission standards of Subsection b upon installation of the new source.

4. Except for Paragraph c.7 of this section, the owner or operator of a wood furniture manufacturing facility subject to this section and §2105.10 must comply with the more stringent emissions limitation or applicable requirement for wood furniture manufacturing operations in this section or §2105.10.

5. The VOC standards in Table 2105.76 do not apply to a coating used exclusively for determining product quality and commercial acceptance, touch-up and repair, and other small quantity coatings if the coating meets the following criteria:

A. The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

B. The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

25 Pa Code Ch. 129
§ 129.101. General provisions and applicability.

The provisions of this § 129.101 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

(a) Beginning June 10, 2000, this section and § § 129.102—129.107 apply to each wood furniture manufacturing facility located in a county included in the northeast ozone transport region or in a county designated as severe, serious, moderate or marginal ozone nonattainment that emits or has the potential to emit 25 tons or more per year of VOCs from wood furniture manufacturing operations.

(b) The owner or operator of an existing wood furniture manufacturing facility subject to subsection (a) shall comply with this section and § § 129.102—129.107 by June 11, 2001, except for those facilities which have RACT determinations approved by the EPA as revisions to the SIP prior to June 10, 2000.

(c) An existing wood furniture manufacturing facility that increases its actual emissions or potential to emit to 25 tons per year or more of VOCs from wood furniture manufacturing operations shall comply with this section and § § 129.102—129.107 within 1 year after becoming subject to subsection (a), except for those facilities which have RACT determinations approved by the EPA as revisions to the SIP prior to June 10, 2000.

(d) At a minimum, a new source installed at an existing facility that is subject to the requirements of subsection (a) shall comply with the emission standards of § 129.102 (relating to emission standards) upon installation of the new source.

(e) The owner or operator of a wood furniture manufacturing facility subject to this section, § § 129.52 and 129.102—129.107 shall comply with the more stringent emissions limitation or applicable requirement for wood furniture manufacturing operations in § 129.52 or this section and § § 129.102—129.107.

(f) The VOC standards in § 129.102 Table IV do not apply to a coating used exclusively for determining product quality and commercial acceptance, touch-up and repair and other small quantity coatings if the coating meets the following criteria:

(1) The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

(2) The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

Comparison notes: Article XXI § 2105.76 does not include language similar to the clauses in § 129.101(b) and (c) above that state, "except for those facilities which have RACT determinations approved by the EPA as revisions to the SIP prior to June 10, 2000." However, ACHD considers the Article XXI language to be more conservative in that the Article XXI language applies the requirements to a broader range of facilities, i.e., since it does not have the exception. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

b. **Emission Standards**. An owner or operator of a facility subject to this section shall limit VOC emissions from wood furniture manufacturing operations by:

1. Applying either waterborne topcoats or a combination of sealers and topcoats and strippable spray booth coatings with a VOC content equal to or less than the standards specified in Table 2105.76:

Table 2105.76
Emission Limits of VOC for Wood Furniture Manufacturing Sealers, Topcoats and Strippable Spray Booth Coatings As Applied, in Pounds of VOC Per Pound of Coating Solids (kg VOC/kg of Coating Solids), by Category

1) Waterborne Topcoats	0.8
2) High solids coating systems	
Sealer	1.9
Topcoat	1.8
3) Acid-cured alkyd amino systems	
i. Acid-cured alkyd amino sealer	2.3
Acid-cured alkyd amino conversion varnish topcoat	2.0
ii. Other sealer	1.9
Acid-cured alkyd amino conversion varnish topcoat	2.0
iii. Acid-cured alkyd amino sealer	2.3
Other topcoat	1.8
4) Waterborne strippable spray booth coating	0.8

2. Using an emissions averaging program which meets the requirements in Subsection g (relating to special provisions for facilities using an emissions averaging approach).

3. Using a control system that will achieve a reduction in emissions equivalent to 0.8 lb VOC/lb solids for topcoats or 1.8 lbs VOC/lb solids for topcoats and 1.9 lbs VOC/lb solids for sealers.

4. Using a combination of the methods specified in Paragraphs b.1-3 above.

25 Pa Code Ch. 129
§ 129.102. Emission standards.

The provisions of this § 129.102 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

An owner or operator of a facility subject to this section, § § 129.101 and 129.103—129.107 shall limit VOC emissions from wood furniture manufacturing operations by:

(1) Applying either waterborne topcoats or a combination of sealers and topcoats and strippable spray booth coatings with a VOC content equal to or less than the standards specified in Table IV:

Table IV
Emission Limits of VOC for Wood Furniture Manufacturing Sealers, Topcoats and Strippable Spray Booth Coatings As Applied, in Pounds of VOC Per Pound of Coating Solids (kg VOC/kg of Coating Solids), by Category

(1) Waterborne Topcoats	0.8
(2) High solids coating systems	
Sealer	1.9
Topcoat	1.8
(3) Acid-cured alkyd amino systems	

	(i)	Acid-cured alkyd amino sealer	2.3
		Acid-cured alkyd amino conversion varnish topcoat	2.0
	(ii)	Other sealer	1.9
		Acid-cured alkyd amino conversion varnish topcoat	2.0
	(iii)	Acid-cured alkyd amino sealer	2.3
		Other topcoat	1.8
(4)	Waterborne strippable spray booth coating		0.8

(2) Using an emissions averaging program which meets the requirements in § 129.107 (relating to special provisions for facilities using an emissions averaging approach).

(3) Using a control system that will achieve a reduction in emissions equivalent to 0.8 lb VOC/lb solids for topcoats or 1.8 lbs VOC/lb solids for topcoats and 1.9 lbs VOC/lb solids for sealers.

(4) Using a combination of the methods specified in paragraphs (1)—(3).

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

c. **Work practice standards**.

1. Work practice implementation plan. Within 60 days after the compliance date specified in Subsection a, an owner or operator of a facility subject to the requirements in this section must:
   A. Prepare and maintain a written work practice implementation plan that defines work practices for each wood furniture manufacturing operation and addresses the provisions in Paragraphs c.2-10 below. The owner or operator of the facility shall comply with the work practice implementation plan.
   B. Make available the written work practice implementation plan for inspection by the Department upon request. If the Department determines that the work practice implementation plan does not adequately address the criteria specified in Paragraphs c.2-10 below, the Department may require that the facility owner or operator modify the plan.

2. Operator training program. New and existing personnel, including contract personnel, who are involved in coating, cleaning or washoff operations, or implementation of the requirements of this section must complete an operator training program.

   A. New personnel must be trained upon hiring.
   B. Existing personnel must be trained at least 6 months before the compliance date specified in Subsection a.
   C. Personnel shall be given refresher training annually.
   D. A copy of the written operator training program shall be maintained with the work practice implementation plan. The operator training program shall include the following:

      i. A list of all current personnel by name and job description that are required to be trained.
      ii. An outline of the subjects to be covered in the initial and annual refresher training sessions for each position or group of personnel.
      iii. Lesson plans for courses to be given at the initial and annual refresher training sessions that include, at a minimum, appropriate application techniques, appropriate cleaning and washoff procedures, appropriate equipment setup and adjustment to minimize coating usage and overspray and appropriate management of cleanup wastes.
      iv. A description of the methods to be used at the completion of the initial or annual refresher training sessions to demonstrate and document successful completion.
      v. A record of the date each employee is trained.

25 Pa Code Ch. 129
§ 129.103. Work practice standards

The provisions of this § 129.103 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

(a) *Work practice implementation plan*. Within 60 days after the compliance date specified in § 129.101(b) or (c) (relating to general provisions and applicability), an owner or operator of a facility subject to the requirements in this section and § § 129.101, 129.102 and 129.104—129.107 shall:

(1) Prepare and maintain a written work practice implementation plan that defines work practices for each wood furniture manufacturing operation and addresses the provisions in subsections (b)—(j). The owner or operator of the facility shall comply with the work practice implementation plan.

(2) Make available the written work practice implementation plan for inspection by the Department upon request. If the Department determines that the work practice implementation plan does not adequately address the criteria specified in subsections (b)—(j), the Department may require that the facility owner or operator modify the plan.

(b) *Operator training program*. New and existing personnel, including contract personnel, who are involved in coating, cleaning or washoff operations or implementation of the requirements of this section, § § 129.101, 129.102 and 129.104—129.107 shall complete an operator training program.

(1) For a facility subject to § 129.101(b), new personnel hired after June 10, 2000, shall be trained upon hiring. For a facility subject to the requirements of § 129.101(c), new personnel shall be trained upon hiring.
(2) For a facility subject to § 129.101(b), existing personnel hired before June 10, 2000, shall be trained by December 11, 2000. For a facility subject to § 129.101(c), existing personnel shall be trained at least 6 months before the compliance date.
(3) Personnel shall be given refresher training annually.
(4) A copy of the written operator training program shall be maintained with the work practice implementation plan. The operator training program shall include the following:
(i) A list of all current personnel by name and job description that are required to be trained.
(ii) An outline of the subjects to be covered in the initial and annual refresher training sessions for each position or group of personnel.
(iii) Lesson plans for courses to be given at the initial and annual refresher training sessions that include, at a minimum, appropriate application techniques, appropriate cleaning and washoff procedures, appropriate equipment setup and adjustment to minimize coating usage and overspray and appropriate management of cleanup wastes.
(iv) A description of the methods to be used at the completion of the initial or annual refresher training sessions to demonstrate and document successful completion.
(v) A record of the date each employe is trained.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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c. **Work practice standards**.

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3. Leak inspection and maintenance plan. An owner or operator of a facility shall prepare and maintain with the work practice implementation plan a written leak inspection and maintenance plan which shall include the following:

   A. A minimum visual inspection frequency of once per month for all equipment used to transfer or apply coatings or solvents.
   B. An inspection schedule.
   C. The methods for documenting the date and results of each inspection and any repairs that were made.
   D. The time frame between identifying a leak and making the repair, which shall adhere to the following schedule:
      i. A first attempt at repairs, including tightening of packing glands, shall be made within 5 working days after the leak is detected.
      ii. Final repairs shall be made within 15 working days, unless the leaking equipment is to be replaced by a new purchase, in which case repairs shall be completed within 3 months.

25 Pa Code Ch. 129
§ 129.103. Work practice standards

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(c) *Leak inspection and maintenance plan.* An owner or operator of a facility shall prepare and maintain with the work practice implementation plan a written leak inspection and maintenance plan which shall include the following:

(1) A minimum visual inspection frequency of once per month for all equipment used to transfer or apply coatings or solvents.
(2) An inspection schedule.
(3) The methods for documenting the date and results of each inspection and any repairs that were made.
(4) The time frame between identifying a leak and making the repair, which shall adhere to the following schedule:
(i) A first attempt at repairs, including tightening of packing glands, shall be made within 5 working days after the leak is detected.
(ii) Final repairs shall be made within 15 working days, unless the leaking equipment is to be replaced by a new purchase, in which case repairs shall be completed within 3 months.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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c. **Work practice standards**.

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4. Cleaning and washoff solvent accounting system. A solvent accounting form shall be developed to account for solvents used in cleaning and washoff operations. The information recorded on the form shall include the following:

   A. The total number of pieces processed through washoff operations each month and the reason for the washoff operations.
   B. The name and total quantity of each solvent used each month for:
      i. Cleaning activities.
      ii. Washoff operations.
   C. The name and total quantity of each solvent evaporated to the atmosphere each month from:
      i. Cleaning activities.
      ii. Washoff operations.

5. Spray booth cleaning. An owner or operator of a facility may not use compounds containing more than 8.0% by weight of VOC for cleaning spray booth components other than conveyors, continuous coaters and their enclosures, or metal filters, unless the spray booth is being refurbished. If the spray booth is being refurbished, that is, the spray booth coating or other material used to cover the booth is being replaced, the facility shall use no more than 1.0 gallon of solvent to prepare the booth prior to applying the booth coating.

6. Storage requirements. An owner or operator of a facility shall use normally closed containers for storing coating, cleaning and washoff materials.

25 Pa Code Ch. 129
§ 129.103. Work practice standards

(d) *Cleaning and washoff solvent accounting system*. A solvent accounting form shall be developed to account for solvents used in cleaning and washoff operations. The information recorded on the form shall include the following:

(1) The total number of pieces processed through washoff operations each month and the reason for the washoff operations.
(2) The name and total quantity of each solvent used each month for:
   (i) Cleaning activities.
   (ii) Washoff operations.
(3) The name and total quantity of each solvent evaporated to the atmosphere each month from:
   (i) Cleaning activities.
   (ii) Washoff operations.

(e) *Spray booth cleaning.* An owner or operator of a facility may not use compounds containing more than 8.0% by weight of VOC for cleaning spray booth components other than conveyors, continuous coaters and their enclosures, or metal filters, unless the spray booth is being refurbished. If the spray booth is being refurbished, that is, the spray booth coating or other material used to cover the booth is being replaced, the facility shall use no more than 1.0 gallon of solvent to prepare the booth prior to applying the booth coating.

(f) *Storage requirements.* An owner or operator of a facility shall use normally closed containers for storing coating, cleaning and washoff materials.

Comparison notes: No substantive differences.
Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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c. **Work practice standards**.

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7. Application equipment requirements. An owner or operator of a facility may not use conventional air spray guns to apply coatings except under any of the following circumstances:

   A. To apply coatings that have a VOC content no greater than 1.0 lb VOC/lb solids (1.0 kg VOC/kg solids), as applied.
   B. For touch-up and repair coatings under one of the following circumstances:
      i. The coatings are applied after completion of the wood furniture manufacturing operation.
      ii. The coatings are applied after the stain and before any other type of coating is applied, and the coatings are applied from a container that has a volume of no more than 2.0 gallons.

   C. The spray is automated, that is, the spray gun is aimed and triggered automatically, not manually.
   D. The emissions from the surface coating process are directed to a VOC control system.
   E. The conventional air spray gun is used to apply coatings and the cumulative total usage of those coatings is no more than 5.0% of the total gallons of coating used during each semiannual reporting period.

   F. The conventional air spray gun is used to apply stain on a part for which the Department notifies the operator, in writing, of its determination that it is technically or economically infeasible to use any other spray application technology. To support the facility's claim of technical or economic infeasibility, a video tape, a technical report, or other documentation shall be submitted to the Department showing either independently or in combination, the following:

      i. The production speed is too high or the part shape is too complex for one operator to coat the part, and the application station is not large enough to accommodate an additional operator.
      ii. The excessively large vertical spray area of the part makes it difficult to avoid sagging or runs in the stain.

8. Line cleaning. The solvent used for line cleaning shall be pumped or drained into a normally closed container.
9. Spray gun cleaning. The solvent used to clean spray guns shall be collected into a normally closed container.

10. Washoff operations. The emissions from washoff operations shall be controlled by the following:
    A. Using normally closed containers for washoff operations.
    B. Minimizing dripping by tilting or rotating the part to drain as much solvent as possible.

25 Pa Code Ch. 129
§ 129.103. Work practice standards

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(g) *Application equipment requirements.* An owner or operator of a facility may not use conventional air spray guns to apply coatings except under any of the following circumstances:

(1) To apply coatings that have a VOC content no greater than 1.0 lb VOC/lb solids (1.0 kg VOC/kg solids), as applied.

(2) For touch-up and repair coatings under one of the following circumstances:

(i) The coatings are applied after completion of the wood furniture manufacturing operation.

(ii) The coatings are applied after the stain and before any other type of coating is applied, and the coatings are applied from a container that has a volume of no more than 2.0 gallons.

(3) The spray is automated, that is, the spray gun is aimed and triggered automatically, not manually.

(4) The emissions from the surface coating process are directed to a VOC control system.
(5) The conventional air spray gun is used to apply coatings and the cumulative total usage of those coatings is no more than 5.0% of the total gallons of coating used during each semiannual reporting period.
(6) The conventional air spray gun is used to apply stain on a part for which the Department notifies the operator, in writing, of its determination that it is technically or economically infeasible to use any other spray application technology. To support the facility's claim of technical or economic infeasibility, a videotape, a technical report or other documentation shall be submitted to the Department showing either independently or in combination, the following:
(i) The production speed is too high or the part shape is too complex for one operator to coat the part, and the application station is not large enough to accommodate an additional operator.
(ii) The excessively large vertical spray area of the part makes it difficult to avoid sagging or runs in the stain.

(h) *Line cleaning.* The solvent used for line cleaning shall be pumped or drained into a normally closed container.

(i) *Spray gun cleaning.* The solvent used to clean spray guns shall be collected into a normally closed container.

(j) *Washoff operations.* The emissions from washoff operations shall be controlled by the following:
(1) Using normally closed containers for washoff operations.
(2) Minimizing dripping by tilting or rotating the part to drain as much solvent as possible.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)
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d. **Compliance procedures and monitoring requirements**.

1. Compliance methods. An owner or operator of a facility subject to the emission standards in Subsection b shall demonstrate compliance with those provisions by using one or more of the following methods:

A. To support that each sealer, topcoat and strippable spray booth coating meets the requirements of Paragraph b.1 of this section:
   i. Maintain CPDSs for each of the coatings.
   ii. Maintain documentation showing the VOC content of the as applied coating in lbs VOC/lb solids, if solvent or other VOC is added to the coating before application.
   iii. Perform sampling and testing in accordance with the procedures and test methods in Part G.

B. To comply through the use of a control system as described in Paragraph b.3:
   i. Calculate the required overall control efficiency needed to demonstrate compliance using the following equation:

$$O = (1 - E/C) \times 100$$

Where:
C = the VOC content of the as applied coating, lbs VOC/lb solids
E = the Table 2105.76 emission limit which shall be achieved by the affected emission point(s), lbs VOC/lb solids
O = the overall control efficiency of the control system, expressed as a percentage

   ii. Document that the value of C in the equation in Subparagraph d.1.B.i above is obtained from the VOC and solids content of the as applied coating.

   iii. Determine the overall control efficiency of the control system using the procedures and test methods in Part G and demonstrate that the value of O calculated by the following equation is equal to or greater than the value of O calculated by the equation Subparagraph d.1.B.i above:

$$O = (F \times N)\ (100)$$

Where:
F = the control device efficiency, expressed as a fraction
N = the capture device efficiency, expressed as a fraction

25 Pa Code Ch. 129
§ 129.104. Compliance procedures and monitoring requirements.
The provisions of this § 129.104 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

(a) *Compliance methods.* An owner or operator of a facility subject to the emission standards in § 129.102 (relating to emission standards) shall demonstrate compliance with those provisions by using one or more of the following methods:

(1) To support that each sealer, topcoat and strippable spray booth coating meets the requirements of § 129.102(1) (relating to emission standards):
   (i) Maintain CPDSs for each of the coatings.
   (ii) Maintain documentation showing the VOC content of the as applied coating in lbs VOC/lb solids, if solvent or other VOC is added to the coating before application.
   (iii) Perform sampling and testing in accordance with the procedures and test methods in Chapter 139 (relating to sampling and testing).

(2) To comply through the use of a control system as described in § 129.102(3):

(i) Calculate the required overall control efficiency needed to demonstrate compliance using the following equation:

$$O = (1 - E/C) \times 100$$

Where:

C = the VOC content of the as applied coating, lbs VOC/lb solids

E = the Table IV emission limit which shall be achieved by the affected emission point(s), lbs VOC/lb solids

O = the overall control efficiency of the control system, expressed as a percentage

(ii) Document that the value of C in the equation in subparagraph (i) is obtained from the VOC and solids content of the as applied coating.

(iii) Determine the overall control efficiency of the control system using the procedures and test methods in Chapter 139 and demonstrate that the value of O calculated by the following equation is equal to or greater than the value of O calculated by the equation in subparagraph (i):

$$O = (F \times N) (100)$$

Where:

F = the control device efficiency, expressed as a fraction

N = the capture device efficiency, expressed as a fraction

Comparison notes: Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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d. **Compliance procedures and monitoring requirements**.

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2. Initial compliance.

A. Compliant coatings. An owner or operator of a facility subject to Paragraph b.1 that is complying through the procedures in Subparagraph d.1.A shall submit an initial compliance status report as required by Paragraph f.1 (relating to reporting requirements), stating that compliant sealers, top coats, and strippable spray booth coatings are being used by the facility.

B. Continuous coaters. An owner or operator of a facility subject to Paragraph b.1 that is complying through the procedures in Subparagraph d.1.A and is applying sealers, topcoats, or both, using continuous coaters shall demonstrate initial compliance by either:

i. Submitting an initial compliance status report as required by Paragraph f.1 stating that compliant sealers, topcoats, or both, as determined by the VOC content of the coating in the reservoir and as calculated from records, are being used.
ii. Submitting an initial compliance status report as required by Paragraph f.1 stating that compliant sealers, topcoats, or both, as determined by the VOC content of the coating in the reservoir, are being used and the viscosity of the coating in the reservoir is being monitored. The facility shall also provide data that demonstrates the correlation between the viscosity and the VOC content of the coating in the reservoir.

C. Control systems. An owner or operator of a facility using a control system to comply with this section shall demonstrate initial compliance by submitting a report to the Department that:

i. Identifies the operating parameter value to be monitored for the capture device and discusses why the parameter is appropriate for demonstrating ongoing compliance.
ii. Includes the results of the initial performance testing using the procedures and test methods specified in Part G.
iii. Includes calculations of the overall control efficiency (O) using the equation in Subparagraph d.1.B.iii.
iv. Defines those operating conditions of the control system critical to determining compliance and establishes operating parameter values that will ensure compliance with the standard:

(a) For compliance with a thermal incinerator, minimum combustion temperature shall be the operating parameter value.
(b) For compliance with another control system, the operating parameter value shall be established using the procedures identified in Subparagraph d.3.C.iv.

v. An owner or operator of a facility complying with this subparagraph shall calculate the site-specific operating parameter value as the arithmetic average of the maximum or minimum operating parameter values, as appropriate, that demonstrate compliance with the standards, using the procedures in Part G.

D. Work practice implementation plan. An owner or operator of a facility subject to the work practice standards of Subsection c shall submit an initial compliance status report as required by Paragraph f.1, stating that the work practice implementation plan has been developed and procedures have been established for implementing the provisions of the plan.

25 Pa Code Ch. 129
§ 129.104. Compliance procedures and monitoring requirements.

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(b) Initial compliance.

(1) Compliant coatings. An owner or operator of a facility subject to § 129.102(1) that is complying through the procedures in subsection (a)(1) shall submit an initial compliance status report as required by § 129.106(a) (relating to reporting requirements), stating that compliant sealers, topcoats and strippable spray booth coatings are being used by the facility.

(2) Continuous coaters. An owner or operator of a facility subject to § 129.102(1) that is complying through the procedures in subsection (a)(1) and is applying sealers, topcoats, or both, using continuous coaters shall demonstrate initial compliance by either:

(i) Submitting an initial compliance status report as required by § 129.106(a) stating that compliant sealers, topcoats, or both, as determined by the VOC content of the coating in the reservoir and as calculated from records, are being used.

(ii) Submitting an initial compliance status report as required by § 129.106(a) stating that compliant sealers, topcoats, or both, as determined by the VOC content of the coating in the reservoir, are being used and the viscosity of the coating in the reservoir is being monitored. The facility shall also provide data that demonstrates the correlation between the viscosity and the VOC content of the coating in the reservoir.

(3) Control systems. An owner or operator of a facility using a control system to comply with this section and § § 129.101—129.103 and 129.105—129.107 shall demonstrate initial compliance by submitting a report to the Department that:

(i) Identifies the operating parameter value to be monitored for the capture device and discusses why the parameter is appropriate for demonstrating ongoing compliance.

(ii) Includes the results of the initial performance testing using the procedures and test methods specified in Chapter 139.

(iii) Includes calculations of the overall control efficiency (O) using the equation in subsection (a)(2)(iii).

(iv) Defines those operating conditions of the control system critical to determining compliance and establishes operating parameter values that will ensure compliance with the standard:

(A) For compliance with a thermal incinerator, minimum combustion temperature shall be the operating parameter value.

(B) For compliance with another control system, the operating parameter value shall be established using the procedures identified in subsection (c)(3)(iv).

(v) An owner or operator of a facility complying with this paragraph shall calculate the site-specific operating parameter value as the arithmetic average of the maximum or minimum operating parameter values, as appropriate, that demonstrate compliance with the standards, using the procedures in Chapter 139.

(4) Work practice implementation plan. An owner or operator of a facility subject to the work practice standards of § 129.103 (relating to work practice standards) shall submit an initial compliance status report as required by § 129.106(a), stating that the work practice implementation plan has been developed and procedures have been established for implementing the provisions of the plan.

Comparison notes: Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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d. **Compliance procedures and monitoring requirements**.

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3. Continuous compliance demonstrations. An owner or operator of a facility subject to the requirements of this section shall submit, in writing, to the Department a compliance certification with the semiannual report required by Paragraph f.2.

A. Compliant coatings. An owner or operator of a facility subject to Subsection b that is complying through the procedures specified in Subparagraph d.1.A shall demonstrate continuous compliance by the following:

i. Using compliant coatings.
ii. Maintaining records that demonstrate the coatings are compliant.

iii. Submitting a compliance certification which states that compliant sealers, topcoats, or both, and strippable spray booth coatings have been used each day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

B. Continuous coaters. An owner or operator of a facility subject to Subsection b that is complying through the procedures specified in Subparagraph d.1.A and is applying sealers, topcoats, or both, using continuous coaters shall demonstrate continuous compliance by either:

i. Using compliant coatings as determined by the VOC content of the coating in the reservoir and as calculated from records, and submitting a compliance certification which states that compliant sealers, topcoats, or both, have been used each day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

ii. Using compliant coatings, as determined by the VOC content of the coating in the reservoir, maintaining a viscosity of the coating in the reservoir that is no less than the viscosity of the initial coating by monitoring the viscosity with a viscosity meter or by testing the viscosity of the initial coating and retesting the viscosity of the coating in the reservoir each time solvent is added, maintaining records of solvent additions and submitting a compliance certification which states that compliant sealers, topcoats, or both, as determined by the VOC content of the coating in the reservoir, have been used each day in the semiannual reporting period. Additionally, the certification shall state that the viscosity of the coating in the reservoir has not been less than the viscosity of the initial coating, that is, the coating that is initially mixed and placed in the reservoir, for any day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

25 Pa Code Ch. 129
§ 129.104. Compliance procedures and monitoring requirements.

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(c) *Continuous compliance demonstrations.* An owner or operator of a facility subject to the requirements of this section and § § 129.101—129.103 and 129.105—129.107 shall submit, in writing, to the Department a compliance certification with the semiannual report required by § 129.106(b).

(1) *Compliant coatings.* An owner or operator of a facility subject to § 129.102 that is complying through the procedures specified in subsection (a)(1) shall demonstrate continuous compliance by the following:

(i) Using compliant coatings.

(ii) Maintaining records that demonstrate the coatings are compliant.
(iii) Submitting a compliance certification which states that compliant sealers, topcoats, or both, and strippable spray booth coatings have been used each day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

(2) *Continuous coaters.* An owner or operator of a facility subject to § 129.102 that is complying through the procedures specified in subsection (a)(1) and is applying sealers, topcoats, or both, using continuous coaters shall demonstrate continuous compliance by either:

(i) Using compliant coatings as determined by the VOC content of the coating in the reservoir and as calculated from records, and submitting a compliance certification which states that compliant sealers, topcoats, or both, have been used each day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

(ii) Using compliant coatings, as determined by the VOC content of the coating in the reservoir, maintaining a viscosity of the coating in the reservoir that is no less than the viscosity of the initial coating by monitoring the viscosity with a viscosity meter or by testing the viscosity of the initial coating and retesting the viscosity of the coating in the reservoir each time solvent is added, maintaining records of solvent additions and submitting a compliance certification which states that compliant sealers, topcoats, or both, as determined by the VOC content of the coating in the reservoir, have been used each day in the semiannual reporting period. Additionally, the certification shall state that the viscosity of the coating in the reservoir has not been less than the viscosity of the initial coating, that is, the coating that is initially mixed and placed in the reservoir, for any day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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d. **Compliance procedures and monitoring requirements**.

.....

3. Continuous compliance demonstrations...

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C. Control systems. An owner or operator of a facility subject to Subsection b that is complying through the use of a control system shall demonstrate continuous compliance by the following:

i. Installing, calibrating, maintaining and operating monitoring equipment approved, in writing, by the Department.

ii. Using a device to monitor the site-specific operating parameter value established in accordance with Subparagraph d.2.C.i.

iii. When a thermal incinerator is used, a temperature monitoring device equipped with a continuous recorder is required and shall be installed in the firebox or in the ductwork immediately downstream of the firebox at a location before any substantial heat exchange occurs.

iv. An owner or operator using a control system not listed in this section shall submit, in writing, to the Department a description of the system, test data verifying the performance of the system, the appropriate operating parameter values that will be monitored and the monitoring device that will be used to demonstrate continuous compliance with the standard and receive, in writing, the Department's approval prior to use.

v. An owner or operator of a facility may not operate the control system at a daily average value greater than or less than (as appropriate) the operating parameter value. The daily average value shall be calculated as the average of all values for a monitored parameter recorded during the operating day.

vi. Submitting a compliance certification which states that the control system has not been operated at a daily average value greater than or less than (as appropriate) the operating parameter value for each day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

D. Work practice implementation plan. An owner or operator of a facility subject to the work practice standards of Subsection c shall demonstrate continuous compliance by following the work practice implementation plan and submitting a compliance certification which states that the work practice implementation plan is being followed, or should otherwise identify the periods of noncompliance with the work practice standards and the reasons for noncompliance.

4. Compliance certification requirements. The compliance certification shall be signed by a responsible official of the company that owns or operates the facility. In addition to the certification requirements of this section, the certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the documents are true, accurate and complete.

25 Pa Code Ch. 129
§ 129.104. Compliance procedures and monitoring requirements.

.....

(c) *Continuous compliance demonstrations*...

.....

(3) *Control systems.* An owner or operator of a facility subject to § 129.102 that is complying through the use of a control system shall demonstrate continuous compliance by the following:

(i) Installing, calibrating, maintaining and operating monitoring equipment approved, in writing, by the Department.
(ii) Using a device to monitor the site-specific operating parameter value established in accordance with subsection (b)(3)(i).
(iii) When a thermal incinerator is used, a temperature monitoring device equipped with a continuous recorder is required and shall be installed in the firebox or in the ductwork immediately downstream of the firebox at a location before any substantial heat exchange occurs.
(iv) An owner or operator using a control system not listed in this section shall submit, in writing, to the Department a description of the system, test data verifying the performance of the system, the appropriate operating parameter values that will be monitored and the monitoring device that will be used to demonstrate continuous compliance with the standard and receive, in writing, the Department's approval prior to use.
(v) An owner or operator of a facility may not operate the control system at a daily average value greater than or less than (as appropriate) the operating parameter value. The daily average value shall be calculated as the average of all values for a monitored parameter recorded during the operating day.
(vi) Submitting a compliance certification which states that the control system has not been operated at a daily average value greater than or less than (as appropriate) the operating parameter value for each day in the semiannual reporting period or should otherwise identify the days of noncompliance and the reasons for noncompliance.

(4) *Work practice implementation plan.* An owner or operator of a facility subject to the work practice standards of § 129.103 shall demonstrate continuous compliance by following the work practice implementation plan and submitting a compliance certification which states that the work practice implementation plan is being followed, or should otherwise identify the periods of noncompliance with the work practice standards and the reasons for noncompliance.

(d) *Compliance certification requirements.* The compliance certification shall be signed by a responsible official of the company that owns or operates the facility. In addition to the certification requirements of this section, the certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the documents are true, accurate and complete.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

e. **Recordkeeping requirements**.

1. Requirement. The owner or operator of a wood furniture manufacturing operation shall keep records to demonstrate compliance with this section. The records shall be maintained for at least 5 years.

2. Compliant coatings. The following records shall be maintained to demonstrate compliance with Subsection b (relating to emission standards).

   A. A certified product data sheet for each coating and strippable spray booth coating subject to the emission limits of Subsection b.
   B. The VOC content as applied, lbs VOC/lb solids (kg VOC/kg solids), of each coating and strippable spray booth coating subject to the emission limits of Subsection b, and copies of data sheets documenting how the as applied values were determined.

3. Continuous coaters. The owner or operator of a facility subject to the emission limits of Subsection b that is complying through the procedures specified in Subparagraph d.1.A and is applying sealers, topcoats, or both, using continuous coaters shall maintain the records required by Paragraphs e.1 and e.2 and records of the following:

   A. Solvent and coating additions to the continuous coater reservoir.
   B. Viscosity measurements.

4. Control systems. The owner or operator of a facility complying through the procedures in Subparagraph d.1.B by using a control system shall maintain the following records:

   A. Copies of the calculations to support the equivalency of using a control system, as well as the data that are necessary to support the calculation of C and E in Subparagraph d.1.B.i and O in Subparagraph d.1.B.iii.
   B. Records of the daily average value of each continuously monitored parameter for each operating day. If all recorded values for a monitored parameter are within the range established during the initial performance test, the owner or operator may record that all values were within the range rather than calculating and recording an average for that day.

5. Work practice implementation plan. The owner or operator of a facility subject to the work practice standards of Subsection c shall maintain onsite copies of the work practice implementation plan and all records associated with fulfilling the requirements of that plan, including:

   A. Records demonstrating that the operator training program is in place.
   B. Records maintained in accordance with the leak inspection and maintenance plan.
   C. Records associated with the cleaning and washoff solvent accounting system.

   D. Records associated with the limitation on the use of conventional air spray guns showing total coating usage and the percentage of coatings applied with conventional air spray guns for each semiannual reporting period.
   E. Records showing the VOC content of compounds used for cleaning booth components, except for solvent used to clean conveyors, continuous coaters and their enclosures or metal filters.
   F. Copies of logs and other documentation developed to demonstrate that the other provisions of the work practice implementation plan are followed.

6. In addition to the recordkeeping requirements of Paragraph e.1, the owner or operator of a facility that complies with Subsection c or Subparagraph d.1.A shall maintain a copy of the compliance certifications submitted in accordance with Paragraph f.2 for each semiannual period following the compliance date.

7. The owner or operator of a facility shall maintain a copy of the other information submitted with the initial status report required by Paragraph f.1 and the semiannual reports required by Paragraph f.2.

25 Pa Code Ch. 129
§ 129.105. Recordkeeping requirements.

The provisions of this § 129.105 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

(a) *Requirement.* The owner or operator of a wood furniture manufacturing operation shall keep records to demonstrate compliance with this section and § § 129.101—129.104, 129.106 and 129.107. The records shall be maintained for at least 5 years.

(b) *Compliant coatings.* The following records shall be maintained to demonstrate compliance with § 129.102 (relating to emission standards).

(1) A certified product data sheet for each coating and strippable spray booth coating subject to the emission limits of § 129.102.

(2) The VOC content as applied, lbs VOC/lb solids (kg VOC/kg solids), of each coating and strippable spray booth coating subject to the emission limits of § 129.102, and copies of data sheets documenting how the as applied values were determined.

(c) *Continuous coaters.* The owner or operator of a facility subject to the emission limits of § 129.102 that is complying through the procedures specified in § 129.104(a)(1) (relating to compliance procedures and monitoring requirements) and is applying sealers, topcoats, or both, using continuous coaters shall maintain the records required by subsections (a) and (b) and records of the following:

(1) Solvent and coating additions to the continuous coater reservoir.

(2) Viscosity measurements.

(d) *Control systems.* The owner or operator of a facility complying through the procedures in § 129.104(a)(2) by using a control system shall maintain the following records:

(1) Copies of the calculations to support the equivalency of using a control system, as well as the data that are necessary to support the calculation of C and E in § 129.104(a)(2)(i) and O in § 129.104(a)(2)(iii).

(2) Records of the daily average value of each continuously monitored parameter for each operating day. If all recorded values for a monitored parameter are within the range established during the initial performance test, the owner or operator may record that all values were within the range rather than calculating and recording an average for that day.

(e) *Work practice implementation plan.* The owner or operator of a facility subject to the work practice standards of § 129.103 (relating to work practice standards) shall maintain onsite copies of the work practice implementation plan and all records associated with fulfilling the requirements of that plan, including:

(1) Records demonstrating that the operator training program is in place.

(2) Records maintained in accordance with the leak inspection and maintenance plan.

(3) Records associated with the cleaning and washoff solvent accounting system.

(4) Records associated with the limitation on the use of conventional air spray guns showing total coating usage and the percentage of coatings applied with conventional air spray guns for each semiannual reporting period.

(5) Records showing the VOC content of compounds used for cleaning booth components, except for solvent used to clean conveyors, continuous coaters and their enclosures or metal filters.

(6) Copies of logs and other documentation developed to demonstrate that the other provisions of the work practice implementation plan are followed.

(f) In addition to the recordkeeping requirements of subsection (a), the owner or operator of a facility that complies with § 129.103 or § 129.104(a)(1) shall maintain a copy of the compliance certifications submitted in accordance with § 129.106(b) (relating to reporting requirements) for each semiannual period following the compliance date.

(g) The owner or operator of a facility shall maintain a copy of the other information submitted with the initial status report required by § 129.106(a) and the semiannual reports required by § 129.106(b).

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

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f. **Reporting requirements**.

1. Initial compliance report date. The initial compliance report must be submitted to the Department within 60 days after the compliance date specified in Subsection a. The report shall include the items required by Paragraph d.2.

2. Semiannual compliance report dates. When demonstrating compliance in accordance with Subparagraphs d.1.A or d.1.B, a semiannual report covering the previous 6 months of wood furniture manufacturing operations shall be submitted to the Department according to the following schedule:

   A. The first report shall be submitted within 30 calendar days after the end of the first 6-month period following the compliance date specified in Subsection a.
   B. Subsequent reports shall be submitted within 30 calendar days after the end of each 6-month period following the first report.
   C. Each semiannual report shall include the information required by Paragraphs d.3 and d.4, a statement of whether the facility was in compliance or noncompliance and, if the facility was in noncompliance, the measures taken to bring the facility into compliance.

25 Pa Code Ch. 129
§ 129.106. Reporting requirements.

The provisions of this § 129.106 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

(a) *Initial compliance report date.* The initial compliance report shall be submitted to the Department within 60 days after the compliance date specified in § 129.101(b) and (c) (relating to general provisions and applicability). The report shall include the items required by § 129.104(b) (relating to compliance procedures and monitoring requirements).

(b) *Semiannual compliance report dates.* When demonstrating compliance in accordance with § 129.104(a)(1) or (2), a semiannual report covering the previous 6 months of wood furniture manufacturing operations shall be submitted to the Department according to the following schedule:

(1) The first report shall be submitted within 30 calendar days after the end of the first 6-month period following the compliance date specified in § 129.101(b) and (c).
(2) Subsequent reports shall be submitted within 30 calendar days after the end of each 6-month period following the first report.
(3) Each semiannual report shall include the information required by § 129.104(c) and (d), a statement of whether the facility was in compliance or noncompliance and, if the facility was in noncompliance, the measures taken to bring the facility into compliance.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

g. **Special provisions for facilities using an emissions averaging approach**.

1. Emissions averaging approach. An owner or operator of a facility subject to the emission limitations in Subsection b may use an emissions averaging approach which meets the equivalency requirements in §2105.01 (relating to equivalent compliance techniques) to achieve compliance with §2105.10 (relating to surface coating processes) or this section.

2. Additional requirement. When complying with the requirements of §2105.10 or this section through emissions averaging, an additional 10% reduction in emissions shall be achieved when compared to a facility using a compliant coatings approach to meet the requirements of this section.

3. Program goals and rationale. When using an emissions averaging program, the following shall be submitted to the Department in writing:

A. A summary of the reasons why the facility would like to comply with the emission limitations through an equivalency determination using emissions averaging procedures.
B. A summary of how averaging can be used to meet the emission limitations.

4. Program scope. A description of the types of coatings that will be included in the facility's emissions averaging program shall also be submitted to the Department in writing:

A. Stains, basecoats, washcoats, sealers and topcoats may all be used in the emissions averaging program.

B. The owner or operator of the facility may choose other coatings for its emissions averaging program, if the program meets the equivalency requirements in §2105.01.

C. Coatings that are applied using continuous coaters may only be used in an emissions averaging program if the owner or operator of the facility can determine the amount of coating used each day.

D. A daily averaging period shall be used, except under the following conditions:

i. A longer averaging period may be used if the owner or operator of the facility demonstrates in writing to the satisfaction of the Department that the emissions do not fluctuate significantly on a day-to-day basis.

ii. The owner or operator of the facility requests in writing and the Department approves in writing the longer averaging period.

25 Pa Code Ch. 129
§ 129.107. Special provisions for facilities using an emissions averaging approach.

The provisions of this § 129.107 adopted June 9, 2000, effective June 10, 2000, 30 Pa.B. 2995.

(a) *Emissions averaging approach.* An owner or operator of a facility subject to the emission limitations in § 129.102 (relating to emission standards) may use an emissions averaging approach which meets the equivalency requirements in § 129.51(a) (relating to general) to achieve compliance with § 129.52 (relating to surface coating processes) or this section and § § 129.101—129.106.

(b) *Additional requirement.* When complying with the requirements of § 129.52 or this section and § § 129.101—129.106 through emissions averaging, an additional 10% reduction in emissions shall be achieved when compared to a facility using a compliant coatings approach to meet the requirements of this section and § § 129.101—129.106.

(c) *Program goals and rationale.* When using an emissions averaging program, the following shall be submitted to the Department in writing:

(1) A summary of the reasons why the facility would like to comply with the emission limitations through an equivalency determination using emissions averaging procedures.

(2) A summary of how averaging can be used to meet the emission limitations.

(d) *Program scope.* A description of the types of coatings that will be included in the facility's emissions averaging program shall also be submitted to the Department in writing:

(1) Stains, basecoats, washcoats, sealers and topcoats may all be used in the emissions averaging program.

(2) The owner or operator of the facility may choose other coatings for its emissions averaging program, if the program meets the equivalency requirements in § 129.51(a).

(3) Coatings that are applied using continuous coaters may only be used in an emissions averaging program if the owner or operator of the facility can determine the amount of coating used each day.

(4) A daily averaging period shall be used, except under the following conditions:

(i) A longer averaging period may be used if the owner or operator of the facility demonstrates in writing to the satisfaction of the Department that the emissions do not fluctuate significantly on a day-to-day basis.

(ii) The owner or operator of the facility requests in writing and the Department approves in writing the longer averaging period.

Comparison notes: No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.76 Wood Furniture Manufacturing Operations (continued)

g. **Special provisions for facilities using an emissions averaging approach**.

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5. Program baseline. The baseline for each coating included in the emissions averaging program shall be the lower of the actual or allowable emission rate as of the effective date. The facility baseline emission rate may not be higher than what was presumed in the 1990 emissions inventory for the facility unless the Department has accounted for the increase in emissions as growth.

6. Quantification procedures. The emissions averaging program shall specify methods and procedures for quantifying emissions. Quantification procedures for VOC content are included in Part G (relating to sampling and testing). The quantification procedures shall also include methods to determine the usage of each coating and shall be accurate enough to ensure that the facility's actual emissions are less than the allowable emissions.

7. Monitoring, recordkeeping and reporting. A written summary of the monitoring, recordkeeping, and reporting procedures that will be used to demonstrate compliance on a daily basis, when using an emissions averaging approach, shall be submitted to the Department.

   A. The monitoring, recordkeeping, and reporting procedures shall be structured so that inspectors and facility owners or operators can determine a facility's compliance status for any day.

   B. The monitoring, recordkeeping, and reporting procedures shall include methods for determining required data when monitoring, recordkeeping, and reporting violations result in missing, inadequate, or erroneous monitoring and recordkeeping.

25 Pa Code Ch. 129
§ 129.107. Special provisions for facilities using an emissions averaging approach

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(e) *Program baseline.* The baseline for each coating included in the emissions averaging program shall be the lower of the actual or allowable emission rate as of June 10, 2000. The facility baseline emission rate may not be higher than what was presumed in the 1990 emissions inventory for the facility unless the Department has accounted for the increase in emissions as growth.

(f) *Quantification procedures.* The emissions averaging program shall specify methods and procedures for quantifying emissions. Quantification procedures for VOC content are included in Chapter 139 (relating to sampling and testing). The quantification procedures shall also include methods to determine the usage of each coating and shall be accurate enough to ensure that the facility's actual emissions are less than the allowable emissions.

(g) *Monitoring, recordkeeping and reporting.* A written summary of the monitoring, recordkeeping and reporting procedures that will be used to demonstrate compliance on a daily basis, when using an emissions averaging approach, shall be submitted to the Department.

(1) The monitoring, recordkeeping and reporting procedures shall be structured so that inspectors and facility owners or operators can determine a facility's compliance status for any day.

(2) The monitoring, recordkeeping and reporting procedures shall include methods for determining required data when monitoring, recordkeeping and reporting violations result in missing, inadequate or erroneous monitoring and recordkeeping.

Comparison notes: Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.77 Control of VOC Emissions from Large Appliance and Metal Furniture Surface Coating Processes

{Added May 14, 2010, effective May 24, 2010. Subsection b amended October 26, 2022, effective November 5, 2022.}

a. **Applicability.** Beginning January 1, 2011, this section applies to the owner or operator of a large appliance or metal furniture surface coating process, where the total actual VOC emissions from all large appliance or metal furniture surface coating operations, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period. The limits from §2105.10 and Table §2105.10 no longer apply to the large appliance and metal furniture surface coating process as of January 1, 2011.

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a large appliance or metal furniture surface coating process unless one of the following limitations is met:

1. The VOC content of each as applied coating is equal to or less than the standard specified in Table 2105.77.

A. The VOC content of the as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$$\mathbf{VOC = (W_o)(D_c)/V_n}$$

Where:

VOC =	VOC content in lb VOC/gal of coating solids
W_o =	Weight percent of VOC (W_v-W_w-W_{ex})
W_v =	Weight percent of total volatiles (100%-weight percent solids)
W_w =	Weight percent of water
W_{ex} =	Weight percent of exempt solvent(s)
D_c =	Density of coating, lb/gal, at 25°C
V_n =	Volume percent of solids of the as applied coating

25 Pa Code Ch. 129
§ 129.52a. Control of VOC emissions from large appliance and metal furniture surface coating processes.

The provisions of this § 129.52a adopted September 10, 2010, effective September 11, 2010, 40 Pa.B. 5132.

(a) *Applicability.* This section applies as follows:

(1) This section applies to the owner and operator of a large appliance or metal furniture surface coating process if the total actual VOC emissions from all large appliance or metal furniture surface coating operations, including related cleaning activities, at the facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls.

(2) The emission limits and other requirements of this section supersede the emission limits and other requirements of § 129.52 (relating to surface coating processes) for large appliance and metal furniture surface coating processes.

(b) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued to the owner or operator of a source subject to subsection (a)(1) prior to January 1, 2011, under § § 129.91—129.95 (relating to stationary sources of NOx and VOCs) to control, reduce or minimize VOCs from a large appliance or metal furniture surface coating operation, except to the extent the RACT permit contains more stringent requirements.

(c) *Emission limits.* Beginning January 1, 2011, a person subject to this section may not cause or permit the emission into the outdoor atmosphere of VOCs from a large appliance or metal furniture surface coating process, unless one of the following limitations is met:

(1) The VOC content of each as applied coating is equal to or less than the limit specified in Table I or Table II (relating to emission limits of VOCs for large appliance surface coatings; and emission limits of VOCs for metal furniture surface coatings).

(i) The VOC content of the as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$VOC = (W_o)(D_c)/V_n$

Where:

VOC = VOC content in lb VOC/gal of coating solids

W_o = Weight percent of VOC (W_v-W_w-W_{ex})

W_v = Weight percent of total volatiles (100%-weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvent(s)

D_c = Density of coating, lb/gal, at 25° C

V_n = Volume percent of solids of the as applied coating

Comparison notes: Article XXI does not have language corresponding to § 129.52a(b) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.52a(b). No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.77 Control of VOC Emissions from Large Appliance and Metal Furniture Surface Coating Processes (continued)

B. The VOC content of a dip coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\Sigma_i (W_{oi} \times D_{ci} \times Q_i) + \Sigma_J (W_{oJ} \times D_{dJ} \times Q_J)}{\Sigma_i (V_{ni} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/gal of coating solids for a dip coating, calculated on a 30-day rolling average basis

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)

D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon

Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons

V_{ni} = Percent solids by volume of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction

W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction

D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon

Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

C. The VOC content limits of subparagraphs A and B may be met by averaging the VOC content of materials used on a single surface coating process line each day (i.e., daily within-coating unit averaging).

D. Sampling and testing shall be done in accordance with the procedures and test methods established by Part G (Methods).

25 Pa Code Ch. 129
§ 129.52a. Control of VOC emissions from large appliance and metal furniture surface coating processes.

(ii) The VOC content of a dip coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{SUM_i (W_{oi} \times D_{ci} \times Q_i) + SUM_J (W_{oJ} \times D_{dJ} \times Q_J)}{SUM_i (V_{ni} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/gal of coating solids for a dip coating, calculated on a 30-day rolling average basis

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)

D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon

Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons

V_{ni} = Percent solids by volume of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction

W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction
D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon
Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

(iii) Sampling and testing shall be done in accordance with the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

Comparison notes: The Article XXI §2105.77.b.1.C language regarding averaging does not appear in the Code. However, it appears in the CTG EPA 453/R-07-004 dated September 2007. Therefore, Article XXI is acceptable in this difference. No substantive difference.

Equivalency: There is equivalency because there is no substantive difference.

Article XXI
§ 2105.77 (continued)

(c) *Emission limits.* (continued)

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2. The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method which is acceptable under §2105.01 (Equivalent Compliance Techniques). The overall efficiency of a control system, as determined by the test methods and procedures established by Part G, shall be no less than 90% as calculated by the following equation:

90% = (1 - E/V) x 100

Where:

V = The VOC content of the as applied coating, in lb VOC/gal of coating solids

E = The Table 2105.77 limit for large appliances and metal furniture surface coatings in lbs VOC per gallon of coating solids

3. A combination of the methods listed in paragraphs 1 and 2.

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§ 129.52a. Control of VOC emissions from large appliance and metal furniture surface coating processes.

(2) The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method that is acceptable under § 129.51(a) (relating to general). The overall efficiency of a control system, as determined by the test methods and procedures specified in Chapter 139, may be no less than 90% or may be no less than the equivalent efficiency as calculated by the following equation, whichever is less stringent:

O = (1 - E/V) x 100

Where:

V = The VOC content of the as applied coating, in lb VOC/gal of coating solids.

E = The Table I or Table II limit in lb VOC /gal of coating solids.

O = The overall required control efficiency.

Comparison notes:

- Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent.
- Although the equation in Article XXI §2105.77.b.2 looks different than what is in the Code, the outcome is still to apply a control efficiency limit of no less than 90%.
- The language of Article XXI §2105.77.b.3, *"A combination of the methods listed in paragraphs 1 and 2"* does not appear in the Code. However, this statement seems to be a logical implication of the language found in the first sentence of Subsection b, *"…unless one of the following limitations is met."*

Therefore, no substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§ 2105.77 (continued)

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c. **Records.** A facility, regardless of the facility's annual emission rate, which contains large appliance or metal furniture surface coating processes, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating, thinner and other component as supplied:
   - A. The coating, thinner or component name and identification number;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, solids and exempt solvents;
   - F. The volume percent of solids, Table 2105.77 for large appliances or metal furniture, for each coating used in the surface coating process.
2. The VOC content of each coating, thinner and other component as supplied.
3. The VOC content of each as applied coating.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

25 Pa Code Ch. 129

§ 129.52a. Control of VOC emissions from large appliance and metal furniture surface coating processes.

(d) *Compliance monitoring procedures.* The owner or operator of a facility subject to this section shall maintain records sufficient to demonstrate compliance with this section. At a minimum, the owner or operator shall maintain daily records of:

(1) The following parameters for each coating, thinner, component and cleaning solvent as supplied:

(i) Name and identification number.
(ii) Volume used.
(iii) Mix ratio.
(iv) Density or specific gravity.
(v) Weight percent of total volatiles, water, solids and exempt solvents.
(vi) Volume percent of solids for each Table I or Table II coating used in the surface coating process.

(2) The VOC content of each coating, thinner, component and cleaning solvent as supplied.

(3) The VOC content of each as applied coating or cleaning solvent.

(e) *Recordkeeping and reporting requirements.* The records required under subsection (d) shall be:

(1) Maintained for 2 years, unless a longer period is required under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements).

(2) Submitted to the Department upon receipt of a written request.

Comparison notes:

- Article XXI requires records be maintained for "…and other component as supplied." While the Code requires records be maintained for "… and cleaning solvent as supplied." Thus, Article XXI is not addressing cleaning solvent directly. It could be the case that for Article XXI, "cleaning solvent" is being addressed as part of addressing the "other component…." There are three mentions of "cleaning solvent" in the Code which are not in the corresponding Article XXI passage. However, Article XXI § 2105.77.a, "Applicability" clearly states that VOC emissions from cleaning activities are a part of the overall emissions to be considered in the applicability determination, therefore the impact of this difference is limited to recordkeeping and not actual emission reduction impact. No substantive difference.
- There are some minor differences in the report submittal requirements. However, Article XXI is more stringent.

Equivalency: There is equivalency because there are no substantive difference.

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No large appliance or metal furniture surface coating process which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Application Techniques.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of large appliance or metal furniture surface coatings unless the coatings are applied using one or more of the following coating application methods:

1. Electrostatic spraying;
2. Roller coating;
3. Flow coating;
4. Dip coating, including electrodeposition;
5. High volume-low pressure (HVLP) spraying;
6. Brush coating;
7. Other coating application method that the person demonstrates and the Department determines achieves emission reductions equivalent to HVLP or electrostatic spray application methods.

f. **Emission Limitations.** If more than one emission limitation in Table 2105.77 for large appliances or metal furniture applies to a specific coating, the least stringent emission limitation applies.

g. **Exempt Other.** The VOC coating content standards in Table 2105.77 for large appliances or metal furniture do not apply to a coating used exclusively for stencil coatings, safety-indicating coatings, solid-film lubricants, electric-insulating coatings, thermal-conducting coatings, touch-up and repair coatings, coating applications using hand-held aerosol cans, coatings used exclusively for determining product quality and commercial acceptance, and other small quantity coatings if the coating meets the following criteria:

1. The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

1. The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

h. **Housekeeping.** The following work practices for coating-related activities and cleaning materials apply to the owner or operator of a large appliance or metal furniture surface coating process:

1. Store all VOC-containing coatings, thinners, coating–related waste materials, cleaning materials and used shop towels in closed containers.
2. Ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials and cleaning materials are kept closed at all times except when depositing or removing these materials.
3. Minimize spills of VOC-containing coatings, thinners, coating–related waste materials and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing coatings, thinners, coating–related waste materials and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions from cleaning of storage, mixing and conveying equipment.

25 Pa Code Ch. 129

§ 129.52a. Control of VOC emissions from large appliance and metal furniture surface coating processes.

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(f) *Coating application methods.* A person subject to this section may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of large appliance or metal furniture surface coatings, unless the coatings are applied using one or more of the following coating application methods:

(1) Electrostatic coating.
(2) Roller coating.
(3) Flow coating.
(4) Dip coating, including electrodeposition.
(5) High volume-low pressure (HVLP) spray.
(6) Brush coating.
(7) Other coating application method, if approved in writing by the Department prior to use.

(i) The coating application method must be capable of achieving a transfer efficiency equivalent to or better than that achieved by the methods listed in paragraphs (1)—(6).

(ii) The request for approval must be submitted in writing.

(g) *Exempt coatings and coating operations.* The VOC coating content limits in Table I and Table II do not apply to the following types of coatings and coating operations:

(1) Stencil coatings.
(2) Safety-indicating coatings.
(3) Solid-film lubricants.
(4) Electric-insulating coatings.
(5) Thermal-conducting coatings.
(6) Touch-up and repair coatings.
(7) Coating applications using hand-held aerosol cans.
(8) A coating used exclusively for determining product quality and commercial acceptance and other small quantity coatings, if the coating meets the following criteria:

(i) The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

(ii) The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

(h) *Work practice requirements for coating-related activities.* The owner or operator of a large appliance or metal furniture surface coating process subject to this section shall comply with the following work practices for coating-related activities:

(1) Store all VOC-containing coatings, thinners and coating-related waste materials in closed containers.
(2) Ensure that mixing and storage containers used for VOC-containing coatings, thinners and coating-related waste materials are kept closed at all times except when depositing or removing these materials.
(3) Minimize spills of VOC-containing coatings, thinners and coating-related waste materials and clean up spills immediately.
(4) Convey VOC-containing coatings, thinners and coating-related waste materials from one location to another in closed containers or pipes.

(i) *Work practice requirements for cleaning materials.* The owner or operator of a large appliance or metal furniture surface coating process subject to this section shall comply with the following work practices for cleaning materials:

(1) Store all VOC-containing cleaning materials and used shop towels in closed containers.
(2) Ensure that mixing and storage containers used for VOC-containing cleaning materials are kept closed at all times except when depositing or removing these materials.
(3) Minimize spills of VOC-containing cleaning materials and clean up spills immediately.
(4) Convey VOC-containing cleaning materials from one location to another in closed containers or pipes.
(5) Minimize VOC emissions from cleaning of storage, mixing and conveying equipment.

Comparison notes:

- The language of Article XXI § 2105.77.d, "Exempt Solvents" does not appear in § 129.52a. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in any other sections of the Code. EPA has an entire page on exempt solvents at Complete List of VOC Exemption Rules | US EPA
  And, as an example, this is a quote from a footnote in EPA-453/R-08-005 related to CTG for Misc Industrial Adhesives:
  "Exempt compounds are those classified by EPA as having negligible photochemical reactivity as listed in 40 CFR 51.100(s). Exempt compounds are not considered to be VOC." This footnote appears in many of the CTGs if not all. So, although it appears that Article XXI is applying the exemption more broadly than the Code, there is a basis in EPA CTGs, i.e., that these two VOCs are listed as non-reactive VOCs – though among 50 or so others. It is not a significant difference with the Code.
- The Article XXI § 2105.77.e.7 requirements for "Other coating application methods" regarding the mechanics of submitting such method to the Department, and approval thereby, are not as explicit as those in the Code at § 129.52a(f)(7). However, is not a significant difference.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§ 2105.77 (continued)

Table 2105.77
Emission Limits of VOCs for Large Appliance and Metal Furniture Surface Coatings

	Weight of VOC per Volume of Coating Solids			
	Baked		Air Dried	
Surface Coating Process Category	kg/l	lb/gal	kg/l	lb/gal
1. Large Appliance coating				
(a) general, one component	0.40	3.3	0.40	3.3
(b) general, multi-component	0.40	3.3	0.55	4.5
(c) extreme high gloss	0.55	4.62	0.55	4.5
(d) extreme performance	0.55	4.62	0.55	4.62
(e) heat resistant	0.55	4.62	0.55	4.62
(f) metallic	0.55	4.62	0.55	4.62
(g) pretreatment coatings	0.55	4.62	0.55	4.62
(h) solar absorbent	0.55	4.62	0.55	4.62
2. Metal Furniture coating				
(a) general, one component	0.40	3.3	0.40	3.3
(b) general, multi-component	0.40	3.3	0.55	4.5
(c) extreme high gloss	0.61	5.06	0.55	4.5
(d) extreme performance	0.61	5.06	0.61	5.06
(e) heat resistant	0.61	5.06	0.61	5.06
(f) metallic	0.61	5.06	0.61	5.06
(g) pretreatment coatings	0.61	5.06	0.61	5.06
(h) solar absorbent	0.61	5.06	0.61	5.06

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§ 129.52a. Control of VOC emissions from large appliance and metal furniture surface coating processes.

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Table I

Emission Limits of VOCs for Large Appliance Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

Coating Type	*Baked*		*Air Dried*	
	kg/l	lb/gal	kg/l	lb/gal
General, One Component	0.40	3.34	0.40	3.34
General, Multi- Component	0.40	3.34	0.55	4.62
Extreme High Gloss	0.55	4.62	0.55	4.62
Extreme Performance	0.55	4.62	0.55	4.62
Heat Resistant	0.55	4.62	0.55	4.62
Metallic	0.55	4.62	0.55	4.62
Pretreatment	0.55	4.62	0.55	4.62
Solar Absorbent	0.55	4.62	0.55	4.62

Table II

Emission Limits of VOCs for Metal Furniture Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

Coating Type	*Baked*	*Air Dried*

	kg/l	lb/gal	kg/l	lb/gal
General, One Component	0.40	3.34	0.40	3.34
General, Multi- Component	0.40	3.34	0.55	4.62
Extreme High Gloss	0.61	5.06	0.55	4.62
Extreme Performance	0.61	5.06	0.61	5.06
Heat Resistant	0.61	5.06	0.61	5.06
Metallic	0.61	5.06	0.61	5.06
Pretreatment	0.61	5.06	0.61	5.06
Solar Absorbent	0.61	5.06	0.61	5.06

Comparison notes:
There is a discrepancy in the tables. The Article XXI table that shows 0.55kg/l equal to 4.5 lb/gal while the Code shows 4.62 lb/gal. The CTG shows 4.5. The CTG states that it is using a conversion factor of 7.36 pounds per gallon, but it should be kg/l x 8.36 = lb/gal. The discrepancy makes Article XXI slightly more stringent. No substantive difference.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI

§2105.78 Control of VOC Emissions from Flat Wood Paneling Coating Processes *{Added May 14, 2010, effective May 24, 2010. Subsection b amended October 26, 2022, effective November 5, 2022.}*

a. Applicability. Beginning January 1, 2011, this section applies to the owner or operator of a flat wood paneling coating process, where the total actual VOC emissions from all flat wood panel surface coating operations, including related cleaning activities, at the facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period.

b. Limitations. A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a flat wood paneling coating process, unless one of the following limitations is met:

1. The VOC content of each as applied coating is equal to or less than 2.9 lbs VOC per gallon of coating solids (0.35 kg VOC per liter of coating solids).

A. The VOC content of each as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$$\mathbf{VOC = (W_o)(D_c)/V_n}$$

Where:

VOC =	VOC content in lb VOC/gal of coating solids
W_o =	Weight percent of VOC (W_v-W_w-W_{ex})
W_v =	Weight percent of total volatiles (100%-weight percent solids)
W_w =	Weight percent of water
W_{ex} =	Weight percent of exempt solvent(s)
D_c =	Density of coating, lb/gal, at 25°C
V_n =	Volume percent of solids of the as applied coating

B. The VOC content of a dip coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\Sigma_i (W_{oi} \times D_{ci} \times Q_i) + \Sigma_J (W_{oJ} \times D_{dJ} \times Q_J)}{\Sigma_i (V_{ni} \times Q_i)}$$

Where:

VOC_A =	VOC content in lb VOC/gal of coating solids for a dip coating, calculated on a 30-day rolling average basis
W_{oi} =	Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)
D_{ci} =	Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon
Q_i =	Quantity of each as supplied coating (i) added to the dip coating process, in gallons
V_{ni} =	Percent solids by volume of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction
W_{oJ} =	Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction
D_{dJ} =	Density of each thinner (J) added to the dip coating process, in pounds per gallon
Q_J =	Quantity of each thinner (J) added to the dip coating process, in gallons

C. The VOC content limits of subparagraphs A and B may be met by averaging the VOC content of materials used on a single surface coating process line each day (i.e., daily within-coating unit averaging).

D. Sampling and testing shall be done in accordance with the procedures and test methods established by Part G (Methods).

25 Pa Code Ch. 129

§ 129.52c. Control of VOC emissions from flat wood paneling surface coating processes.

The provisions of this § 129.52c adopted December 17, 2010, effective December 18, 2010, 40 Pa.B. 7224.

(a) *Applicability.* Except as specified in paragraphs (1)—(3), this section applies to the owner and operator of a flat wood paneling surface coating process if the total actual VOC emissions from all flat wood paneling surface coating operations listed in Table I (relating to emission limits of VOCs for flat wood paneling surface coatings), including related cleaning activities, at the facility are equal to or greater than 15 pounds (6.8 kilograms) per day, before consideration of controls. This section does not apply to the following:

(1) A field-applied coating process. Field-applied coatings are regulated under Chapter 130, Subchapter C (relating to architectural and industrial maintenance coatings).

(2) (2) A coating process regulated under § § 129.101—129.107 (relating to wood furniture manufacturing operations).

(3) (3) A coating process regulated under § § 129.52(f) and 129.52, Table I, Category 11 (relating to surface coating processes; and wood furniture manufacturing operations).

(b) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued to the owner or operator of a source subject to subsection (a) prior to January 1, 2012, under § § 129.91—129.95 (relating to stationary sources of NOx and VOCs) to control, reduce or minimize VOCs from a flat wood paneling surface coating process, except to the extent the RACT permit contains more stringent requirements.

(c) *Emission limits.* Beginning January 1, 2012, a person subject to this section may not cause or permit the emission into the outdoor atmosphere of VOCs from a flat wood paneling coating process unless one of the following limitations is met:

(1) The VOC content of each as applied coating is equal to or less than the limit specified in Table I.

(i) The VOC content of each as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$VOC = (W_o)(D_c)/V_n$

Where:
VOC = VOC content in lb VOC/gal of coating solids.
W_o = Weight percent of VOC (W_v-W_w-W_{ex}).
W_v = Weight percent of total volatiles (100%-weight percent solids).
W_w = Weight percent of water.
W_{ex} = Weight percent of exempt solvent(s).
D_c = Density of coating, lb/gal, at 25° C.
V_n = Volume percent of solids of the as applied coating.

(ii) The VOC content limits in Table I may be met by calculating a weighted average of the VOC content of all coatings used on a single flat wood paneling surface coating process line each day. The daily weighted average shall be calculated using the following equation:

$$VOC_w = \frac{\sum_{i=1}^{n} C_i V_i}{}$$

V_t

Where:

VOC_w = The daily weighted average VOC content, as applied, of all coatings used on a single flat wood paneling surface coating process line, in lb VOC/gal of coating solids.
n = The number of different coatings used each day on the single flat wood paneling surface coating process line.
V_i = The volume solids for each coating, as applied, used each day on the single flat wood paneling surface coating process line, in gallons.
C_i = The VOC content of each coating, as applied, used each day on the single flat wood paneling surface coating process line, in lb VOC/gal coating solids.
V_t = The total volume of solids for all coatings combined, as applied, used each day on the single flat wood paneling surface coating process line, in gallons.

(iii) Sampling and testing shall be done in accordance with the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

Comparison notes:

- Article XXI does not have language analogous to 25 Pa. Code § 129.52c(a)(1), (2), or (3). However, those paragraphs are informational and the absence does not impact the stringency of Article XXI.

- Article XXI does not have language corresponding to § 129.52c(b) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.52c(b).

- Article XXI does not have a table analogous to 25 Pa. Code § 129.52c Table 1. While Table 1 includes a list of " Flat Wood Paneling Categories," to which a list of "Surface Coating, Ink or Adhesives" may be applied, Article XXI simply refers to the categories as "flatwood paneling processes" and writes the table limits into §2105.78.b.1. Article XXI, while not as descriptive of the categories, still applies the same stringent limit.

- Article XXI §2105.78.b.1.B has requirements for VOC content of a dip coating to be calculated on a 30-day rolling average. Whereas, 25 Pa. Code § 129.52c(c)(1)(ii) does not mention "dip coating." Dip coating is not mentioned in the CTG for Flat Wood Paneling. It is mentioned in the CTGs related to Article XXI, §2105.77 and §2105.79 and their corresponding DEP regulations 25 Pa. Code § 129.52a and § 129.52b. All three Article XXI regulations were issued at the same time, and within a month of the DEP regulations. It is not clear why §2105.78.b mentions the dip coating equation instead of the daily averaging equation found at 25 Pa. Code § 129.52c(c)(1)(ii), however, having this equation for the specific process of dip coating does not adversely impact the stringency equivalency of Article XXI since the PA DEP regulation equation is not specifically addressing dip coating, but instead a daily averaging equation. And, as mentioned, the dip coating equation is used in two other Article XXI and DEP regulations. Also, Article XXI §2105.78.b.1.C allows for the daily averaging.

Equivalency: Each difference does not result in a difference in stringency between Article XXI and the Code.

Article XXI
§2105.78 Control of VOC Emissions from Flat Wood Paneling Coating Processes (continued)

b.2. The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method which is acceptable under §2105.01 (Equivalent Compliance Techniques). The overall efficiency of a control system, as determined by the test methods and procedures established by Part G, shall be no less than 90% as calculated by the following equation:

90% = (1 - E/V) x 100

Where:

V = The VOC content of the as applied coating, in lb VOC/gal of coating solids

E = Limit of 2.9 lbs VOC per gallon of coating solids (0.35 kg VOC per liter of coating solids)

3. A combination of the methods listed in paragraphs 1 and 2.

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains flat wood paneling coating processes, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating, thinner, and other component as supplied:
   - A. The coating, thinner or component name and identification number;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, solids and exempt solvents;
   - F. The volume percent of solids for each coating used in the flat wood paneling coating process.

2. The VOC content of each coating, thinner and other component as supplied.
3. The VOC content of each as applied coating.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

25 Pa Code Ch. 129
§ 129.52c. Control of VOC emissions from flat wood paneling surface coating processes.

(2) The overall weight of VOCs emitted to the atmosphere is reduced through the use of oxidation or solvent recovery or another method that is acceptable under § 129.51(a) (relating to general). The overall efficiency of a control system, as determined by the test methods and procedures specified in Chapter 139, may be no less than 90% or may be no less than the equivalent efficiency as calculated by the following equation, whichever is less stringent:

O = (1 – E/V) x 100

Where:
V = The VOC content of the as applied coating, in lb VOC/gal of coating solids.
E = The Table I limit in lb VOC/gal of coating solids.
O = The overall required control efficiency.

(d) *Compliance monitoring procedures*. The owner or operator of a facility subject to this section shall maintain records sufficient to demonstrate compliance with this section. The owner or operator shall maintain daily records of:

(1) The following parameters for each coating, thinner, other component or cleaning solvent as supplied:

(i) Name and identification number of the coating, thinner, other component or cleaning solvent.
(ii) Volume used.
(iii) Mix ratio.
(iv) Density or specific gravity.
(v) Weight percent of total volatiles, water, solids and exempt solvents.
(vi) Volume percent of solids for each coating used in the flat wood paneling coating process.
(vii) VOC content.

(2) The VOC content of each as applied coating or cleaning solvent.

(e) *Recordkeeping and reporting requirements.* The records required under subsection (d) shall be:

(1) Maintained for 2 years, unless a longer period is required under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements).

(2) Submitted to the Department upon receipt of a written request.

Comparison notes: Although the equation in Article XXI §2105.78.b.2 looks different than what is in the Code, the outcome is still to apply a control efficiency limit of no less than 90%.

- There is language at Article XXI §2105.78.b.3, *"A combination of the methods listed in paragraphs 1 and 2,"* that is not found in the Code. However, this statement seems to be a logical implication of the language found in the first sentence of Subsection b, *"...unless one of the following limitations is met."*

- Article XXI requires records be maintained for "…and other component as supplied." While the Code requires records be maintained for "… and cleaning solvent as supplied." Thus Article XXI is not addressing cleaning solvent directly. It could be the case that for Article XXI, "cleaning solvent" is being addressed as part of the "other component…" There are three mentions of "cleaning solvent" in the Code which are not in the corresponding Article XXI passage. However, Article XXI § 2105.78.a, "Applicability" clearly states that VOC emissions from cleaning activities are a part of the overall emissions to be considered in the applicability determination, therefore the impact of this difference is limited to recordkeeping and not actual emission reduction impact. No substantive difference.

- There are some minor differences in the report submittal requirements. However, Article XXI is more stringent.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.78 Control of VOC Emissions from Flat Wood Paneling Coating Processes (continued)

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No flat wood paneling coating process which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Application Techniques.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the flat wood paneling coatings unless the coatings are applied using one or more of the following coating application methods:

1. Electrostatic spraying;
2. Airless coating;
3. Curtain coating;
4. Roller coating;
5. Flow coating;
6. Dip coating, including electrodeposition;
7. High volume-low pressure (HVLP) spraying;
8. Hand brush or roller coat;
9. Other coating application method that the person demonstrates and the Department determines achieves emission reductions equivalent to HVLP or electrostatic spray application methods.

f. **Exempt Other.** The VOC coating content standard of 2.9 lbs VOC per gallon of coating solids (0.35 kg VOC per liter of coating solids) do not apply to a coating used exclusively for stencil coatings, touch-up and repair coatings, coating applications using hand-held aerosol cans, air atomized sprays that apply cosmetic specialty coatings, if the volume of the cosmetic specialty coatings is less than 5% by volume of the total coating used at the source or to apply finial repair coatings, coatings used exclusively for determining product quality and commercial acceptance and other small quantity coatings if the coating meets the following criteria:

1. The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

2. The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

25 Pa Code Ch. 129
§ 129.52c. Control of VOC emissions from flat wood paneling surface coating processes.

(f) *Coating application methods.* A person subject to this section may not cause or permit the emission into the outdoor atmosphere of VOCs from a flat wood paneling surface coating process unless the coatings are applied using one or more of the following coating application methods:

(1) Offset rotogravure coating.
(2) Curtain coating.
(3) Direct roll coating.
(4) Reverse roll coating.
(5) Hand brush or hand roller coating.
(6) High volume-low pressure (HVLP) spray coating.
(7) Airless spray coating.
(8) Air-assisted airless spray coating.
(9) Electrostatic coating.
(10) Other coating application method, if approved in writing by the Department prior to use.

(i) The coating application method must be capable of achieving a transfer efficiency equivalent to or better than that achieved by a method listed in paragraphs (1)—(9).

(ii) The request for approval must be submitted in writing.

(g) *Exempt coatings.* The VOC coating content standards in Table I do not apply to a coating used exclusively for determining product quality and commercial acceptance and other small quantity coatings, if the coating meets the following criteria:

(1) The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.
(2) The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

Comparison notes:

- The language of Article XXI § 2105.78.d, "Exempt Solvents" does not appear in § 129.52c. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.77.d, above. It may be useful for ACHD to process a change to delete this exemption language from § 2105.77.d and the nine other sections where it occurs, but it is not a significant difference with the Code.
- The Article XXI § 2105.78.e.9 requirements for "Other coating application methods" regarding the mechanics of submitting such method to the Department, and approval thereby, are not as explicit as those in the Code at § 129.52a(f)(7). However, this does not appear to be a significant difference.
- Article XXI includes a list of small quantity applications that the Code refers to only as "and other small quantity coating." However, this is not a significant difference.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.78 Control of VOC Emissions from Flat Wood Paneling Coating Processes (continued)

g. **Housekeeping.** The following work practices for coating-related activities and cleaning materials apply to the owner or operator of a flat wood paneling coating process:

1. Store all VOC-containing coatings, thinners, coating–related waste materials, cleaning materials and used shop towels in closed containers.
2. Ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials and cleaning materials are kept closed at all times except when depositing or removing these materials.
3. Minimize spills of VOC-containing coatings, thinners and coating–related waste materials and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing coatings, thinners, coating–related waste materials and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions during cleaning of storage, mixing, and conveying equipment.

25 Pa Code Ch. 129

§ 129.52c. Control of VOC emissions from flat wood paneling surface coating processes.

(h) *Work practice requirements for coating-related activities.* The owner or operator of a flat wood paneling surface coating process subject to this section shall comply with the following work practices for coating-related activities:

(1) Store all VOC-containing coatings, thinners and coating-related waste materials in closed containers.
(2) Minimize spills of VOC-containing coatings, thinners and coating-related waste materials and clean up spills immediately.
(3) Convey VOC-containing coatings, thinners and coating-related waste materials from one location to another in closed containers or pipes.
(4) Ensure that mixing and storage containers used for VOC-containing coatings, thinners and coating-related waste materials are kept closed at all times, except when depositing or removing these materials.

(i) *Work practice requirements for cleaning materials.* The owner or operator of a flat wood paneling surface coating process subject to this section shall comply with the following work practices for cleaning materials:

(1) Store all VOC-containing cleaning materials, waste cleaning materials and used shop towels in closed containers.
(2) Minimize spills of VOC-containing cleaning materials and waste cleaning materials and clean up spills immediately.
(3) Convey VOC-containing cleaning materials and waste cleaning materials from one location to another in closed containers or pipes.
(4) Ensure that mixing vessels and storage containers used for VOC-containing cleaning materials and waste cleaning materials are kept closed at all times, except when depositing or removing these materials.
(5) Minimize VOC emissions during cleaning of storage, mixing and conveying equipment.

Comparison notes: It can be seen, that Article XXI §2105.78.g is a combination of 25 Pa. Code § 129.52c(h) and (i). There is no substantive difference.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.78 Control of VOC Emissions from Flat Wood Paneling Coating Processes (continued)

No corresponding table in Article XXI, §2105.78

25 Pa Code Ch. 129
§ 129.52c. Control of VOC emissions from flat wood paneling surface coating processes.

Table I

Emission Limits of VOCs for
Flat Wood Paneling Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

Surface Coatings, Inks or Adhesives Applied to the Following Flat Wood Paneling Categories	*lbs VOC per gallon coating solids*	*grams VOC per liter coating solids*
Printed interior panels made of hardwood plywood or thin particleboard	2.9	350
Natural-finish hardwood plywood panels	2.9	350
Class II finishes on hardboard panels	2.9	350
Tileboard	2.9	350
Exterior siding	2.9	350

Comparison notes: Article XXI does not have a table analogous to 25 Pa. Code § 129.52c Table 1. While Table 1 in the Code includes a list of " Flat Wood Paneling Categories," to which a list of "Surface Coating, Ink or Adhesives" may be applied, Article XXI simply refers to the categories as "flatwood paneling processes" and writes the table limits into §2105.78.b.1. Article XXI, while not as descriptive of the categories, still applies the same stringent limits. No substantive difference.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.79 Control of VOC Emissions from Paper, Film, and Foil Surface Coating Processes
{Added May 14, 2010, effective May 24, 2010. Subsection b amended October 26, 2022, effective November 5, 2022.}

a. **Applicability.** Beginning January 1, 2011, this section applies to the owner or operator of a paper, film, and foil surface coating process, where the total actual VOC emissions from all paper, film, and foil surface coating operations, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period. The limits from §2105.10 and Table 2105.10 no longer apply to the paper, film, and foil surface coating process as of January 1, 2011.

25 Pa Code Ch. 129
§ 129.52b. Control of VOC emissions from paper, film and foil surface coating processes.
The provisions of this § 129.52b adopted November 19, 2010, effective November 20, 2010, 40 Pa.B. 6646.

(a) *Applicability.* This section applies to the owner and operator of a paper, film or foil surface coating process, as follows, if the surface coating process meets one or a combination of the following:

(1) The emission limits in Table I and other requirements of this section apply to the owner and operator of a paper, film or foil surface coating process if an individual paper, film or foil surface coating line has a potential to emit at least 25 tpy of VOC from coatings, prior to controls. For these processes, the emission limits and other requirements of this section supersede the emission limits and other requirements of § 129.52 (relating to surface coating processes).

(2) The emission limit in Table II and other requirements of this section apply to the owner and operator of a paper surface coating process which emits or has emitted VOCs into the outdoor atmosphere in quantities greater than 3 pounds (1.4 kilograms) per hour, 15 pounds (7 kilograms) per day or 2.7 tons (2,455 kilograms) per year during any calendar year since January 1, 1987. For these processes, the emission limit and other requirements of this section supersede the emission limit and other requirements of § 129.52.

(3) The work practice requirements for cleaning materials found in subsection (h), and the related compliance monitoring and recordkeeping and reporting requirements of subsections (d) and (e), apply to the owner and operator of a paper, film or foil surface coating process if the total actual VOC emissions from all paper, film or foil surface coating operations, including related cleaning activities, at the facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls.

(b) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued to the owner or operator of a source subject to subsection (a) prior to January 1, 2012, under § § 129.91—129.95 (relating to stationary sources of NOx and VOCs) to control, reduce or minimize VOCs from a paper, film or foil surface coating process, except to the extent the RACT permit contains more stringent requirements.

Comparison notes: There are several differences between Article XXI and the Code regarding "Applicability" language.

- § 129.52b(a) allows for meeting one or a combination of circumstances. Article XXI has no corresponding language. That is not significant though since if one of the possibilities is similar to an Article XXI condition, that would be an equivalence.
- Article XXI does not state 'applicability' in relation to potential emissions as 25 Pa. Code § 129.52b(a)(1) does, and this Code paragraph also ties to the emission limits of Code Table 1 which is equivalent to the Article XXI Table 2105.79. CTG 453/R-07-003 discusses the applicability provisions related to potential to emit in terms that indicate it is related to the 2002 NESHAP. However, Article XXI applicability provisions are still within those defined in the CTG.
- Article XXI does state applicability in relation to the overall emissions listed in § 129.52b(a)(2), but not in relation to Code Table II. Article XXI does not have the volume based limits of Code Table II. These are identified in the CTG as part of Pennsylvania's specific regulations, however, the Article XXI limits are also recognized by the CTG as valid.
- Overall, it appears that the Code is phrased somewhat awkwardly. It does not simply state the "applicability" and then set the emission limits, instead it sets the 'applicability' in terms of the emission limits. Which makes

it difficult to align with Article XXI. This may also be the reason for the "one or a combination of the following" statement.

- The language of § 129.52b(a)(3) has similar VOC emission levels, but the paragraph is applied specifically to the "work practice requirements" and the "related compliance and recordkeeping and reporting requirements" instead of simply being applicable to the entire regulation. However, this is inclusive enough to arrive at overall equivalency.
- Article XXI does not have language corresponding to § 129.52b(b) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.52b(b).

Equivalency: There is equivalency because there are no substantive difference.

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a paper, film, and foil surface coating process unless one of the following limitations is met:

1. The VOC content of each as applied coating is equal to or less than the standard specified in Table 2105.79.

A. The VOC content of the as applied coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated as follows:

$$\mathbf{VOC_B = (W_o)/(W_n)}$$

Where:

VOC_B = VOC content in lb VOC/lb of coating solids
W_o = Weight percent of VOC (W_v-W_w-W_{ex})
W_v = Weight percent of total volatiles (100%-weight percent solids)
W_w = Weight percent of water
W_{ex} = Weight percent of exempt solvents
W_n = Weight percent of solids of the as applied coating

B. The VOC content of a dip coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\Sigma_i (W_{oi} \times D_{ci} \times Q_i) + \Sigma_J (W_{oJ} \times D_{dJ} \times Q_J)}{\Sigma_i (W_{ni} \times D_{ci} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/lb of coating solids for a dip coating, calculated on a 30-day rolling average basis
W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)
D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon
Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons
W_{ni} = Percent solids by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction
W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction
D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon
Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

C. The VOC content limits of subparagraphs A and B may be met by averaging the VOC content of materials used on a single surface coating process line each day (i.e., daily within-coating unit averaging).

D. Sampling and testing shall be done in accordance with the procedures and test methods established by Part G (Methods).

(c) *Emission limits.* Beginning January 1, 2012, a person subject to subsection (a)(1) or (2) may not cause or permit the emission into the outdoor atmosphere of VOCs from a paper, film or foil surface coating process, unless one of the following limitations is met:

(1) The VOC content of each as applied coating is equal to or less than the limit specified in Table I or Table II, as applicable.

(i) The VOC content of the as applied coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated as follows:

$$VOC_B = (W_o)/(W_n)$$

Where:

VOC_B = VOC content in lb VOC/lb of coating solids
W_o = Weight percent of VOC (W_v-W_w-W_{ex})
W_v = Weight percent of total volatiles (100%-weight percent solids)
W_w = Weight percent of water
W_{ex} = Weight percent of exempt solvents
W_n = Weight percent of solids of the as applied coating

(ii) The VOC content of the as applied coating, expressed in units of weight of VOC per volume of coating solids, shall be calculated as follows:

$$VOC = (W_o)(D_c)/V_n$$

Where:

VOC = VOC Content in lb VOC/gal of coating solids
W_o = Weight percent of VOC (W_v-W_w-W_{ex})
W_v = Weight percent of total volatiles (100%-weight percent solids)
W_w = Weight percent of water
W_{ex} = Weight percent of exempt solvent(s)
D_c = Density of coating, lb/gal, at 25° C
V_n = Volume percent of solids of the as applied coating

(iii) The VOC content of a dip coating, expressed in units of weight of VOC per weight of coating solids, shall be calculated on a 30-day rolling average basis using the following equation:

$$VOC_A = \frac{\Sigma_i (W_{oi} \times D_{ci} \times Q_i) + \Sigma_J (W_{oJ} \times D_{dJ} \times Q_J)}{\Sigma_i (W_{ni} \times D_{ci} \times Q_i)}$$

Where:

VOC_A = VOC content in lb VOC/lb of coating solids for a dip coating, calculated on a 30-day rolling average basis

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction (that is 55% = 0.55)
D_{ci} = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon
Q_i = Quantity of each as supplied coating (i) added to the dip coating process, in gallons
W_{ni} = Percent solids by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction
W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction
D_{dJ} = Density of each thinner (J) added to the dip coating process, in pounds per gallon
Q_J = Quantity of each thinner (J) added to the dip coating process, in gallons

(iv) Sampling and testing shall be done in accordance with the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

Comparison notes:

- Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent. No substantive difference.
- Article XXI Table §2105.79 is similar to Table 1 of the Code, but does not state, "…if Potential VOC Emissions from a Single Line, Prior to Control, are 25 Tons per Year or More," and Table 2 expresses the limits in weight of VOC per volume of coating solids. Article XXI accurately reflects the applicability indications of CTG EPA 453/R-07-003, and does not have the limits of Code Table 2 and that is acceptable as 129.52b(c)(1) states "Table 1 or 2, as applicable." No substantive difference.
- Article XXI, §2105.79 does not have language corresponding to the weight per volume calculation at 25 Pa. Code § 129.52b(c)(1)(ii). Table 2 is optional as described in the bullet above. No substantive difference.
- Article XXI §2105.79.b.1.C features language allowing averaging of VOC content used on a single surface coating process line each day. The Code does not have that language. But, the CTG, EPA 453/R-07-003 does have this language. Article XXI is acceptable. No substantive difference.
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Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.79 Control of VOC Emissions from Paper, Film, and Foil Surface Coating Processes(continued)

2. The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method which is acceptable under §2105.01 (Equivalent Compliance Techniques). The overall efficiency of a control system, as determined by the test methods and procedures established by Part G, shall be no less than 90% as calculated by the following equation:

$$\mathbf{90\% = (1 - E/V) \times 100}$$

Where:
V = The VOC content of the as applied coating, in lb VOC/lb of coating solids
E = The Table 2105.79 limit for paper, film, and foil surface coating in lbs VOC per lbs of coating solids

3. A combination of the methods listed in paragraphs 1 and 2.

25 Pa Code Ch. 129
§ 129.52b. Control of VOC emissions from paper, film and foil surface coating processes. (continued)

(2) The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery or incineration or another method that is acceptable under § 129.51(a) (relating to general). The overall efficiency of a control system, as determined by the test methods and procedures specified in Chapter 139, may be no less than 90% or may be no less than the equivalent overall efficiency as calculated by the following equation, whichever is less stringent:

$$\mathbf{O = (1 - E/V) \times 100}$$

Where:

V = The VOC content of the as applied coating, in lb VOC/lb of coating solids or lb voc/gal of coating solids.

E = The Table I limit in lb VOC/lb of coating solids or Table II limit in lb voc/gal of coating solids.

O = The overall required control efficiency.

Comparison notes:

- Although the equation in Article XXI §2105.78.b.2 looks different than what is in the Code, the outcome is still to apply a control efficiency limit of no less than 90%. No substantive difference.
- The Article XXI §2105.79.b.3 language, *"A combination of the methods listed in paragraphs 1 and 2,"* does not appear in the Code. However, this statement seems to be a logical implication of the language found in the first sentence of Subsection b, *"...unless one of the following limitations is met."* No substantive difference.
- Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent. No substantive differences.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI

§2105.79 Control of VOC Emissions from Paper, Film, and Foil Surface Coating Processes(continued)

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains paper, film, and foil surface coating processes, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating, thinner and other component as supplied:
   - A. The coating, thinner or component name and identification number;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, solids and exempt solvents;
   - F. The volume percent of solids, Table 2105.79 for paper, film, and foil, for each coating used in the surface coating process.
2. The VOC content of each coating, thinner and other component as supplied.
3. The VOC content of each as applied coating.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

25 Pa Code Ch. 129

§ 129.52b. Control of VOC emissions from paper, film and foil surface coating processes. (continued)

(d) *Compliance monitoring procedures.* The owner or operator of a facility subject to this section shall maintain records sufficient to demonstrate compliance as follows:

(1) The owner or operator of a facility subject to subsection (a) shall maintain daily records of the following parameters for each coating, thinner, component or cleaning solvent, as supplied:

(i) Name and identification number of the coating, thinner, component or cleaning solvent.
(ii) Volume used.
(iii) Mix ratio.
(iv) Density or specific gravity.
(v) Weight percent of total volatiles, water, solids and exempt solvents.
(vi) VOC content.

(2) In addition to the records required under paragraph (1), the owner or operator of a facility subject to subsection (a)(2) shall maintain daily records of the volume percent solids for each coating, thinner or component, as supplied.

(3) The owner or operator of a facility subject to subsection (a) shall maintain daily records of the VOC content of each as applied coating or cleaning solvent.

(e) *Recordkeeping and reporting requirements.* The records required under subsection (d) shall be:

(1) Maintained for 2 years, unless a longer period is required under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements).

(2) Submitted to the Department upon receipt of a written request.

Comparison notes: Article XXI requires records be maintained for "…and other component as supplied." While the Code requires records be maintained for "… and cleaning solvent as supplied." Article XXI is not directly addressing cleaning solvent. However, in Article XXI, "cleaning solvent" is being addressed as part of the "other component." There are three mentions of "cleaning solvent" in the Code which are not in the corresponding Article XXI passage. Article XXI is less comprehensive by not having such language, however, Article XXI § 2105.79.a, "Applicability" clearly states that VOC emissions from cleaning activities are a part of the overall emissions to be considered in the applicability determination, therefore the impact of this difference is limited to recordkeeping and not actual emission reduction impact.

There are also some minor differences in the report submittal requirements. Article XXI is more stringent in that regard. No substantive differences.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.79 Control of VOC Emissions from Paper, Film, and Foil Surface Coating Processes(continued)

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No paper, film, and foil surface coating process which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Application Techniques.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of paper, film, and foil surface coatings unless the coatings are applied using one or more of the following coating application methods:

1. Rotogravure (web-fed gravure).
2. Reverse roll coating.
3. Slot die coating.
4. Knife coating.
5. Flexographic coating.
6. Mayer rod or wire-wound rod coating.
7. Dip and squeeze coating.
8. Extrusion coating, including calendaring

f. **Emission Limitations.** If more than one emission limitation in Table 2105.79 for paper, film, and foil surface coating applies to a specific coating, the least stringent emission limitation applies.

g. **Exempt Other.** The VOC coating content standards in Table 2105.79 for paper, film, and foil surface coatings do not apply to a coating used exclusively stencil coatings, touch-up and repair coatings, coating applications using hand-held aerosol cans, coatings used exclusively for determining product quality and commercial acceptance and other small quantity coatings if the coating meets the following criteria:

1. The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.
2. The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

25 Pa Code Ch. 129
129.52b. Control of VOC emissions from paper, film and foil surface coating processes (continued)

§ (f) *Coating application methods.* A person subject to subsection (a)(1) may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of paper, film or foil surface coatings, unless the coatings are applied using one or more of the following coating application methods:

(1) Rotogravure coating.
(2) Reverse roll coating.
(3) Knife coating.
(4) Dip coating.
(5) Slot die coating.
(6) Flexographic coating.
(7) Extrusion coating.
(8) Calendaring.
(9) Other coating application method, if approved in writing by the Department prior to the use of the application method.

(i) The coating application method must be capable of achieving a transfer efficiency equivalent to or better than that achieved by a method listed in paragraphs (1)—(8).

(ii) The request for approval must be submitted in writing by the owner or operator of the paper, film or foil surface coating facility.

(g) *Exempt coatings.* The VOC coating content limits in Tables I and II do not apply to a coating used exclusively for determining product quality and commercial acceptance and other small quantity coatings, if the coating meets the following criteria:

(1) The quantity of coating used does not exceed 50 gallons per year for a single coating and a total of 200 gallons per year for all coatings combined for the facility.

(2) The owner or operator of the facility requests, in writing, and the Department approves, in writing, the exemption prior to use of the coating.

Comparison notes: The language of Article XXI § 2105.79.d, "Exempt Solvents" does not appear in § 129.52b. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.77.d, above. It may be useful for ACHD to process a change to delete this exemption language from § 2105.79.d and the nine other sections where it occurs, but it is not a significant difference with the Code.

The Article XXI § 2105.79.e does not include language corresponding to Code § 129.52b(f)(9) related to "Other coating application methods" that must be submitted for DEP approval before use. But this does not lessen the stringency of Article XXI, it simply does not provide regulatory language covering "other coating application methods" not specifically regulated. While correcting this omission via a regulation update may be helpful, it is not necessary, and there is no adverse impact on stringency resulting from this difference.

Equivalency: There is equivalency because there are no substantive difference.

Article XXI
§2105.79 Control of VOC Emissions from Paper, Film, and Foil Surface Coating Processes(continued)

h. Housekeeping. The following work practices for coating-related activities and cleaning materials apply to the owner or operator of a paper, film, and foil surface coating process:

1. Store all VOC-containing coatings, thinners, coating–related waste materials, cleaning materials and used shop towels in closed containers.

2. Ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials and cleaning materials are kept closed at all times except when depositing or removing these materials.

3. Minimize spills of VOC-containing coatings, thinners, coating–related waste materials and cleaning materials, cleaning up spills immediately.

4. Convey VOC-containing coatings, thinners, coating–related waste materials and cleaning materials from one location to another in closed containers or pipes.

5. Minimize VOC emissions from cleaning of storage, mixing and conveying equipment.

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(h) *Work practice requirements for cleaning materials.* The owner or operator of a paper, film or foil surface coating process subject to subsection (a) shall comply with the following work practices for cleaning materials:

(1) Store all VOC-containing cleaning materials and used shop towels in closed containers.

(2) Ensure that mixing and storage containers used for VOC-containing cleaning materials are kept closed at all times, except when depositing or removing these materials.

(3) Minimize spills of VOC-containing cleaning materials and clean up spills immediately.

(4) Convey VOC-containing cleaning materials from one location to another in closed containers or pipes.

(5) Minimize VOC emissions from cleaning of storage, mixing and conveying equipment.

Comparison notes: Article XXI addresses cleaning materials and coatings, thinners, and coating-related waste materials. While the Code addresses only cleaning materials. Article XXI is more stringent in this case.

Equivalency: There is equivalency since Article XXI is more stringent.

Article XXI
§2105.79 Control of VOC Emissions from Paper, Film, and Foil Surface Coating Processes(continued)

Table 2105.79
Emission Limits of VOCs for Paper, Film, and Foil Surface Coatings

Weight of VOC per Weight of Solids or Coating Applied

Surface Coating Process Category	Solids Applied kg VOC/kg solids (lb VOC/lb solids)	Coating Applied kg VOC/kg coatings (lb VOC/lb coatings)
1. Pressure Sensitive Tape and Label	0.20	0.067
2. Paper, Film, and Foil (Not including Pressure Sensitive Tape and Label)	0.40	0.08

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Table I
Emission Limits of VOCs for Paper, Film and Foil Surface Coatings if Potential VOC Emissions from a Single Line, Prior to Control, are 25 Tons per Year or More

Weight of VOC per Weight of Coating Solids, as Applied

Units	*RACT Limits* *Pressure Sensitive Tape and Label Surface Coating*	*Paper, Film, and Foil Surface Coating (Not including Pressure Sensitive Tape and Label Surface Coating)*
kg VOC/kg solids (lb VOC/lb solids)	0.20	0.40
kg VOC/kg coating (lb VOC/lb coating)	0.067	0.08

Table II
Emission Limit of VOCs for Paper Coating if Actual VOC Emissions have Exceeded 3 Pounds per Hour, 15 Pounds per Day or 2.7 Tons per Year in Any Year Since January 1, 1987
Weight of VOC per Volume of Coating Solids, as Applied

Units	*RACT Limit Paper Coating*
lb voc/gal coating solids	4.84
kg voc/l coating solids	0.58

Comparison notes: Article XXI Table §2105.79 is similar to Table 1 of the § 129.52b , except that the latter is established for "…if Potential VOC Emissions from a Single Line, Prior to Control, are 25 Tons per Year or More," and Table 2 expresses the limits in weight of VOC per volume of coating solids. As described above, Article XXI accurately reflects the applicability indications of CTG EPA 453/R-07-003, and does not have the limits of Code Table 2 and that is acceptable as 129.52b(c)(1) states "Table 1 or 2, as applicable." No substantive difference.
Equivalency: There is equivalency because there are no substantive difference.

Article XXI

§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing

{Added May 29, 2013, effective June 8, 2013. Subsection g amended October 26, 2022, effective November 5, 2022.}

a. **Applicability.** Beginning January 1, 2012, this section applies to the owner or operator of an offset lithographic printing and/or letterpress printing operation, where the total actual VOC emissions from all offset lithographic printing and letterpress printing operations, with two exceptions, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period. These exceptions include heatset web offset lithographic printing operations and heatset web letterpress printing operations, for which this section only applies to those presses with potential to emit from the dryer, prior to controls, of at least 25 tons (22,680 kilograms) of VOC (petroleum ink oil) from heatset inks per twelve month rolling period.

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§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses.

The provisions of this § 129.67b adopted June 27, 2014, effective June 28, 2014, 44 Pa.B. 3929.

(a) *Applicability.*

(1) Except as specified in paragraph (3), this section applies to the owner and operator of an offset lithographic printing press or a letterpress printing press, or both, if the press meets one or a combination of the following:

(i) *Add-on air pollution control device.* A single heatset web offset lithographic printing press or heatset web letterpress printing press that has potential emissions from the dryer, before consideration of add-on controls, of at least 25 tpy of VOCs from all heatset inks (including varnishes), coatings and adhesives combined.

(ii) *Letterpress printing.* One or more letterpress printing presses if the total actual VOC emissions from all inks (including varnishes), coatings and adhesives combined from all letterpress printing presses and all VOC emissions from related cleaning activities at the facility are equal to or greater than 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(iii) *Offset lithographic printing.* One or more offset lithographic printing presses if the total actual VOC emissions from all inks (including varnishes), coatings, adhesives and fountain solutions combined from all offset lithographic printing presses and all VOC emissions from related cleaning activities at the facility are equal to or greater than 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(iv) *Offset lithographic printing and letterpress printing.* One or more offset lithographic printing presses and one or more letterpress printing presses if the total actual VOC emissions from all inks (including varnishes), coatings, adhesives and fountain solutions combined and all VOC emissions from related cleaning activities at the facility are equal to or greater than 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(v) *Emissions below 450 pounds per month and 2.7 tons per 12-month rolling period.* The total actual VOC emissions from all inks (including varnishes), coatings, adhesives and fountain solutions combined from all offset lithographic printing presses, all letterpress printing presses and all VOC emissions from related cleaning activities at the facility are less than 450 pounds (204.1 kilograms) per month and 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(2) The owner or operator of an offset lithographic printing press subject to paragraph (1) may use the VOC emission retention factors and capture efficiency factors specified in subsection (l) to determine the amount of potential or actual VOC emissions that is available for capture and control from the inks (including varnishes), fountain solutions and cleaning solutions used on the offset lithographic printing press.

(3) VOCs from adhesives used at a facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to this section and may be regulated under § 129.77 or Chapter 130, Subchapter D (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).

Comparison notes: Article XXI does not appear to include language corresponding to 25 Pa. Code § 129.67b(a)(1)(v). That is not a significant difference since the code allows for the meeting of one or any combination of the conditions presented.

- Article XXI does not include language corresponding to § 129.67b(a)(2). However, the Code is a "may" statement.
- Article XXI does not include language corresponding to § 129.67b(a)(3). However, ACHD considers this to be an "informational' statement.
- No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from an offset lithographic printing and/or letterpress printing operation unless one of the following limitations is met:

1. The VOC content for heatset web offset lithographic printing contains 1.6 percent alcohol or less (by weight), on-press (as-applied) in the fountain or the following equivalents:

   A. 3.0 percent alcohol or less (by weight) on-press (as-applied) in the fountain solution provided the fountain solution is refrigerated to below 60°F (15.5°C); or
   B. 5.0 percent alcohol substitute or less (by weight) on-press (as-applied) and no alcohol in the fountain solution.

2. The VOC content for sheet-fed offset lithographic printing contains 5.0 percent alcohol or less (by weight), in the fountain or the following equivalents:

   A. 8.5 percent alcohol or less (by weight) on-press (as-applied) in the fountain solution provided the fountain solution is refrigerated to below 60°F (15.5°C); or
   B. 5.0 percent alcohol substitute or less (by weight) on-press (as-applied) and no alcohol in the fountain solution.

3. The VOC content for cold web lithographic printing contains 5.0 percent alcohol substitute or less (by weight) on-press (as-applied) and no alcohol in the fountain solution.

4. The overall weight of VOC emitted to the atmosphere is reduced through the use of a chiller condenser or an oxidizer for heatset web offset lithographic printing or heatset web letterpress printing as follows:

   A. The overall control efficiency for a chiller condenser shall be no less than 90 percent; or
   B. The overall control efficiency for an oxidizer shall be no less than 95 percent; or
   C. VOC outlet concentration is reduced to less than 20 ppmv on a dry basis.

5. Use cleaning materials with a VOC composite vapor pressure less than 10mm Hg at 68°F (20°C) or cleaning materials containing less than 70 weight percent VOC. The cleaning materials apply to blanket washing, roller washing, plate cleaners, metering roller cleaners, impression cylinder cleaners, rubber rejuvenators, and other cleaners used for cleaning a press, press parts, or to remove dried ink from the areas around a press. The cleaning materials provided do not apply to cleaners used on electric components of a press, pre-press cleaning operations, post-press operations, cleaning supplies used to clean the floor, other than dried ink, in the area around a press, or cleaning performed in parts washers or cold cleaners.

6. A combination of the methods listed in Paragraphs 1 through 5.

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§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

(b) *Existing RACT permit.* This section supersedes the requirements of a RACT permit issued to the owner or operator of a source subject to subsection (a) prior to January 1, 2015, under § § 129.91—129.95 (relating to stationary sources of NO_x and VOCs) to control, reduce or minimize VOCs from an offset lithographic printing press or a letterpress printing press, or both, except to the extent the RACT permit contains more stringent requirements.

(c) *Emission limits for cleaning solutions and fountain solutions used in or on printing presses subject to this section.*

(1) *Cleaning solutions.* Beginning January 1, 2015, a person subject to subsection (a)(1)(i), (ii), (iii) or (iv) may not cause or permit the emission into the outdoor atmosphere of VOCs from cleaning solutions used in or on an offset lithographic printing press or a letterpress printing press unless the following conditions are met:

(i) The cleaning solutions used must meet one or both of the following VOC limits:

(A) A VOC composite partial vapor pressure less than 10 millimeters of mercury at 68°F (20°C).

(B) A VOC content less than 70% by weight.

(ii) The use of one or more cleaning solutions with a higher VOC composite partial vapor pressure or higher VOC content, or both, than is listed in subparagraph (i) is limited to 110 gallons per year, combined, of all cleaning solutions that exceed the limits in subparagraph (i).

(2) *Fountain solutions.* Except as specified in paragraph (3), beginning January 1, 2015, a person subject to subsection (a)(1)(i), (iii) or (iv) may not cause or permit the emission into the outdoor atmosphere of VOCs from a fountain solution used in an offset lithographic printing press unless the fountain solution meets one or more of the following VOC limits.

(i) For each heatset web offset lithographic printing press, the press-ready (as applied) fountain solution must meet one of the following limits:

(A) A VOC content of 1.6% or less by weight.

(B) A VOC content of 3% or less by weight if the fountain solution is refrigerated below 60°F (15.5°C).

(C) A VOC content of 5% or less by weight and no alcohol in the fountain solution.

(D) Another method that achieves a level of control of VOC emissions from the press-ready (as applied) fountain solution equal to or better than the methods listed in clauses (A)—(C).

(ii) For each sheet-fed offset lithographic printing press, the press-ready (as applied) fountain solution must meet one of the following limits:

(A) A VOC content of 5% or less by weight.

(B) A VOC content of 8.5% or less by weight if the fountain solution is refrigerated below 60°F (15.5°C).

(C) A VOC content of 5% or less by weight and no alcohol in the fountain solution.

(D) Another method that achieves a level of control of VOC emissions from the press-ready (as applied) fountain solution equal to or better than the methods listed in clauses (A)—(C).

(iii) For each non-heatset web offset lithographic printing press, the press-ready (as applied) fountain solution shall contain a VOC content of 5% or less by weight and no alcohol in the fountain solution.

(3) *Fountain solution exceptions.* The control requirements under paragraph (2) for a fountain solution do not apply to the owner or operator of either of the following:

(i) A sheet-fed offset lithographic printing press with maximum sheet size 11 x 17 inches or smaller.

(ii) An offset lithographic printing press with total fountain solution reservoir of less than 1 gallon.

(d) *Emission limits for heatset web offset lithographic printing presses and heatset web letterpress printing presses.*

(1) Except as specified in paragraph (2) or (3), beginning January 1, 2015, a person subject to subsection (a)(1)(i) may not cause or permit the emission into the outdoor atmosphere of VOCs from a heatset web offset lithographic printing press or a heatset web letterpress printing press, or both, unless the overall weight of VOCs emitted to the atmosphere from the heatset dryer is reduced through the use of vapor recovery or oxidation or another method that is authorized under § 129.51(a) (relating to general). The heatset dryer pressure must be maintained lower than the press room area pressure so that air flows into the heatset dryer at all times when the press is operating.

(i) The VOC control efficiency of an add-on air pollution control device for a heatset dryer, determined in accordance with subsection (h), must meet either of the following:

(A) At least 90% for an add-on air pollution control device whose first installation date was prior to January 1, 2015.

(B) At least 95% for an add-on air pollution control device whose first installation date is on or after January 1, 2015.

(ii) The first installation date is the first date of operation for a source or a control device. This date will not change if the source or control device is moved to a new location or if the control device is later used to control a new source.

(iii) The owner or operator of the printing press may request the Department's approval for an alternative limitation if the following requirements are met:

(A) The request is submitted to the Department in writing.
(B) The request demonstrates one of the following:
(I) The inlet VOC concentration to the control device is so low that compliance with the 90% or 95% overall efficiency in subparagraph (i) is not achievable.
(II) The press is using a combination dryer and oxidizer or other control equipment configuration that does not have an inlet that meets the requirement for testing specified in subsection (h).
(C) The request demonstrates the minimum outlet VOC concentration that the unit can achieve, not to exceed 20 ppm as hexane (40 ppm as propane) on a dry basis.

(iv) The alternative limitation requested under subparagraph (iii) must be approved by the Department in a plan approval, operating permit or Title V permit.

(2) This subsection does not apply for one or a combination of the following circumstances:

(i) The press is used for book printing.
(ii) The press has a maximum web width of 22 inches or less.
(iii) The press is operated with one or a combination of the following inks, coatings or varnishes:
(A) Waterborne coatings.
(B) Ultra-violet light or electron beam radiation cured materials.
(C) Sheet-fed or non-heatset web inks.
(D) Sheet-fed or non-heatset web varnishes.

(3) This subsection does not apply to the owner or operator of the press if the Department has issued a plan approval, operating permit or Title V permit to the owner or operator prior to January 1, 2015, establishing a Federally-enforceable limitation to limit the potential emissions of VOC from the offset lithographic printing press or the letterpress printing press below 25 tpy, before consideration of add-on controls.

Comparison notes: Article XXI does not have language corresponding to § 129.67b(b) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.67b(b).

- Article XXI §2105.80.b is equivalent to 25 Pa. Code § 129.67b(c).
- Article XXI §2105.80.b.4, though not as detailed as § 129.67b(d), captures the essential requirements of § 129.67b(d).

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

Article XXI does not include language corresponding to **§ 129.67b(e)(1), (2), and (3)**

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§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

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(e) *Compliance and monitoring requirements.*

(1) *Add-on air pollution control device.* The owner or operator of a heatset web offset lithographic printing press or heatset web letterpress printing press subject to this section using an add-on air pollution control device in accordance with subsection (d) shall comply with the following requirements:

(i) The add-on air pollution control device shall be equipped with the applicable monitoring equipment and the monitoring equipment shall be installed, calibrated, operated and maintained according to manufacturer's specifications at all times the add-on air pollution control device is in use. If the add-on air pollution control device is a:

(A) Noncatalytic thermal oxidizer, the minimum combustion or operating temperature must be continuously monitored. The temperature reading shall be recorded in accordance with subsection (f)(1) at least once every 15 minutes while the noncatalytic thermal oxidizer is operating.

(B) Catalytic thermal oxidizer:

(I) The inlet gas temperature must be continuously monitored. The temperature reading shall be recorded in accordance with subsection (f)(1) at least once every 15 minutes while the thermal catalytic oxidizer is operating.

(II) A catalyst activity test shall be performed a minimum of one time per rolling 2-year period.

(C) Control device other than that specified in clause (A) or (B), parameters specific to the control device must be continuously monitored. The parameters shall be recorded in accordance with subsection (f)(1) at least once every 15 minutes while the control device is operating.

(ii) The add-on air pollution control device specified in subparagraph (i) must be operated at a 3-hour average temperature not lower than 50°F below the average temperature demonstrated during the most recent compliant source test approved by the Department.

(iii) The add-on air pollution control device specified in subparagraph (i) must be in operation at all times that the source is operating.

(iv) The negative dryer pressure shall be established during the initial test using an air flow direction indicator, such as a smoke stick or aluminum ribbons, or a differential pressure gauge. Capture efficiency testing and continuous dryer air flow monitoring are not required.

(v) The add-on air pollution control device shall be approved, in writing, by the Department in a plan approval, operating permit or Title V permit prior to use.

(2) *Fountain solution.* The owner or operator of an offset lithographic printing press subject to this section that is required to meet one of the fountain solution VOC limits of subsection (c)(2) shall demonstrate compliance by using one or more of the following methods:

(i) Analysis of a sample of the press-ready (as applied) fountain solution for VOC content using EPA Reference Method 24, *Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings*, codified in 40 CFR Part 60, Appendix A, including updates and revisions.

(ii) Maintenance onsite of MSDS, CPDS or other data provided by the manufacturer of the fountain solution that indicates the VOC content of the press-ready (as applied) fountain solution.

(iii) Calculation of the VOC content of the press-ready (as applied) fountain solution that combines the EPA Reference Method 24 analytical VOC content data for each of the concentrated components or additives used to prepare the press-ready fountain solution.

(A) The VOC content data for each of the concentrated components or additives shall be combined in the proportions in which the concentrated components or additives are mixed to make the batch of press-ready (as applied) fountain solution.

(B) The VOC content shall be calculated one time for each recipe of press-ready (as applied) fountain solution. The recipe name, VOC content for each concentrated component or additive and fountain solution mix ratio shall be recorded in a logbook.

(C) The EPA Reference Method 24 analysis of the concentrated components or additives used to prepare the press-ready (as applied) fountain solution may be performed by the supplier of the components or additives and these results provided to the owner or operator of the affected press.

(iv) Measurement of the recirculating reservoir temperature of a refrigerated press-ready (as applied) fountain solution specified in subsection (c)(2)(i)(B) or (ii)(B) with a thermometer or other temperature detection device capable of reading to 0.5°F (0.28°C) to ensure that the temperature of the refrigerated fountain solution containing alcohol is maintained below 60°F (15.5°C) at all times. The temperature on the thermometer or other temperature detection device shall be continuously monitored. The temperature reading shall be recorded at least once per operating day to verify that the refrigeration system is operating properly.

(v) Monitoring of the press-ready (as applied) fountain solution for alcohol concentration or VOC content with one or more of the following instruments:

(A) A refractometer or a hydrometer to monitor the fountain solution alcohol concentration. The instrument must:

(I) Be corrected for temperature one time per 8-hour shift.

(II) Have a visual, analog or digital readout with an accuracy of 0.5%.

(III) Be calibrated with a standard solution for the type of alcohol used in the fountain solution.

(B) A conductivity meter to determine the fountain solution VOC content. Reading for the fountain solution must be referenced to the conductivity of the incoming water.

(vi) Another method to determine compliance with the VOC content limits for fountain solutions in subsection (c)(2) if the following requirements are met:

(A) The facility owner or operator submits a request, in writing, to the appropriate regional office of the Department for approval of the alternative method.

(B) The request demonstrates that the alternative method provides results that accurately determine the fountain solution VOC content.

(C) The Department provides prior written approval of the alternative method.

(3) *Cleaning solution.* The owner or operator of an offset lithographic printing press or a letterpress printing press subject to this section shall demonstrate compliance with the VOC content limit or VOC composite partial vapor pressure limit for cleaning solutions in subsection (c)(1) by one or more of the following methods:

(i) Analysis of a sample of press-ready (as applied) cleaning solution for VOC content using EPA Reference Method 24.

(ii) Use of the equation in subsection (j) to calculate the composite partial vapor pressure of the press-ready (as applied) cleaning solution.

(iii) Use of the methods in subsection (k) to determine the VOC composite partial vapor pressure of a single concentrated component or additive used to prepare the press-ready (as applied) cleaning solution.

(iv) Maintenance onsite of MSDS, CPDS or other data provided by the manufacturer of the press-ready (as applied) cleaning solution that indicates the VOC content or the VOC composite partial vapor pressure, or both, of the press-ready (as applied) cleaning solution.

(v) Calculation of the VOC content or the VOC composite partial vapor pressure, or both, of the press-ready (as applied) cleaning solution that combines the EPA Reference Method 24 analytical VOC content data or analytical VOC composite partial vapor pressure data for each of the concentrated components or additives used to prepare the press-ready (as applied) cleaning solution.

(A) The VOC content data or VOC composite partial vapor pressure data for each of the concentrated components or additives shall be combined in the proportions in which the concentrated components or additives are mixed to make the batch of press-ready (as applied) cleaning solution.

(B) The VOC content or VOC composite partial vapor pressure shall be calculated one time for each recipe of press-ready (as applied) cleaning solution. The recipe name, VOC content or VOC composite partial vapor pressure for each concentrated component or additive and cleaning solution mix ratio shall be recorded in a log book.

(C) The EPA Reference Method 24 analysis of the concentrated components or additives used to prepare the press-ready (as applied) cleaning solution may be performed or the VOC composite partial vapor pressure data may be determined by the supplier of the components or additives and these results provided to the owner or operator of the affected press.

(vi) Another method to determine compliance with the VOC content limits for cleaning solutions in subsection (c)(1) if the following requirements are met:

(A) The facility owner or operator submits a request, in writing, to the appropriate regional office of the Department for approval of the alternative method.

(B) The request demonstrates that the alternative method provides results that accurately determine the cleaning solution VOC content or VOC composite partial vapor pressure.

(C) The Department provides prior written approval of the alternative method.

Comparison notes: Article XXI does not have language equivalent to § 129.67b(e)(1), "*Compliance and monitoring requirements – Add on air pollution control device.*" But this does may not lessen the stringency of Article XXI, it simply does not provide regulatory language covering aspects of operating an add-on air pollution control device. There is no adverse impact on stringency resulting from this difference.

Also, Article XXI does not have language equivalent in detail to § 129.67b(e)(2), "*Compliance and monitoring requirements – Fountain solution.*" However, Article XXI §2105.80.g, applies and is adequate.

Article XXI does not have language equivalent in detail to § 129.67b(e)(3), "*Compliance and monitoring requirements – Cleaning solution.*" Article XXI §2105.80.g, "Measurements," does not specifically mention taking measurements of "cleaning solutions," however, Article XXI §2105.80.a, "Applicability" is clear in stating that the section applies to cleaning activities. So, it is considered to apply to cleaning solutions.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains offset lithographic printing and/or letterpress printing operations, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each ink and other component as supplied:
   A. The name and identification number of each ink, or component;
   B. The volume used;
   C. The total volume of all the inks used in the offset lithographic printing and letterpress printing operation;
   D. The mix ratio;
   E. The density or specific gravity;
   F. If used, the temperature of the fountain solution.

   The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing

Article XXI does not include language corresponding to **§ 129.67b(g)**

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§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

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(f) *Recordkeeping requirements.* Beginning January 1, 2015, the owner or operator of a printing press subject to this section shall maintain records sufficient to demonstrate compliance with this section. Records maintained for compliance demonstrations may include purchase, use, production and other records.

(1) An owner or operator using an add-on air pollution control device shall maintain records sufficient to demonstrate compliance with subsection (e), including the following:

(i) Temperature reading of the add-on air pollution control device.

(ii) Maintenance performed on the add-on air pollution control device and monitoring equipment, including the date and type of maintenance.

(iii) Catalyst activity test performed, if applicable.

(2) An owner or operator subject to subsection (a)(1)(i), (ii), (iii) or (iv) shall maintain records of cleaning solutions and fountain solutions used at the facility, including:

(i) The following parameters for each press ready blanket, roller or other cleaning solution:

(A) The name and identification number for the blanket, roller or other cleaning solution.

(B) The VOC content (weight %) or VOC composite partial vapor pressure of each cleaning solution as applied.

(C) The volume used of each cleaning solution as applied, if the owner or operator is using cleaning solutions which exceed the limits in subsection (c)(1)(i).

(D) Records of cleaning solution monitoring as required under subsection (e)(3).

(ii) The following parameters for each press-ready (as applied) fountain solution:

(A) The VOC content (weight %).

(B) Records of fountain solution monitoring as required under subsection (e)(2).

(3) An owner or operator claiming exemption from a VOC control provision of this section based on potential or actual VOC emissions, as applicable, shall maintain records that demonstrate to the Department that the press or facility is exempt.

(4) The owner or operator may group materials into classes using the highest VOC content in any material in a class to represent that class of material.

(g) *Reporting requirements.* Beginning January 1, 2015, the owner or operator of an offset lithographic printing press or a letterpress printing press subject to this section shall meet the following reporting requirements:

(1) The records required under subsection (f) shall be maintained onsite for 2 years unless a longer period is required by a plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). The records shall be submitted to the Department in an acceptable format upon receipt of a written request.

(2) The owner or operator of an offset lithographic printing press or letterpress printing press required to demonstrate VOC control efficiency in accordance with subsection (d) shall submit reports to the Department in accordance with Chapter 139 (relating to sampling and testing).

Comparison notes: Article XXI §2105.80.c does not include much of the language equivalent to § 129.67b(f), "Recordkeeping requirements," such as when an add-on air pollution control device is involved or when cleaning solutions are involved.

- Article XXI does not address b(f)(3).
- Article XXI does not address b(f)(4).
- The reporting requirements under Article XXI §2105.80.c do not correspond exactly to § 129.67b(g), "Reporting requirements."
- The differences are judged to be not significant with respect to emission control.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No offset lithographic printing operation or letterpress printing operation which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Exempt Other.** The following shall be exempt from the limitations set by Subsection b:

1. Sheet-feed presses with sheet size of 11 inches (27.9 centimeters) by 17 inches (43.2 centimeters) or smaller, or to any sheet-feed press with total fountain solution reservoir of less than one gallon (3.8 liters).

2. Heatset presses used for book printing or heatset presses with maximum web width of 22 inches (55.9 centimeters) or less are excluded from the add-on control of either a chiller condenser or an oxidizer.

3. 110 gallons (416 liters) per year of cleaning materials, or less, which meet neither the low VOC composite vapor pressure limitation nor the lower VOC content limitation and work practices.

25 Pa Code Ch. 129
§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

There is no Code language analogous to Article XXI, §2105.80d, above.

Article XXI, §2105.80e is covered in the Code as follows:
Article XXI § 2105.80.e.1 is addressed at 25 Pa. Code § 129.67b(c)(3)(i).
Article XXI § 2105.80.e.2 is addressed at 25 Pa. Code § 129.67b(d)(2)(ii).
Article XXI § 2105.80.e.3 is addressed at 25 Pa. Code § 129.67b(b)(1)(ii).

Comparison notes: The language of Article XXI § 2105.80.d, "Exempt Solvents" does not appear in § 129.67b. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.77.d, above. It is not a significant difference with the Code.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

f. **Housekeeping.** The following work practices for cleaning materials apply to the owner or operator of an offset lithographic printing and letterpress printing operation:

1. Store all VOC-containing cleaning materials and used shop towels in closed containers.
2. Ensure that ink, fountain solution and cleaning material storage containers are kept closed at all times except when depositing or removing those materials.
3. Minimize spills of VOC-containing inks, fountain solutions and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing inks, fountain solutions and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions during cleaning of storage and conveying equipment.

25 Pa Code Ch. 129
§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

.....

(i) *Work practice requirements for cleaning activities.*

(1) Except as specified in paragraph (3), beginning January 1, 2015, the owner or operator of an offset lithographic printing press or a letterpress printing press subject to subsection (a)(1)(i), (ii), (iii) or (iv) shall comply with the following work practices for cleaning activities at the facility:

(i) Store all VOC-containing cleaning solutions, waste cleaning solutions and used shop towels in closed containers.

(ii) Ensure that mixing vessels and storage containers used for VOC-containing cleaning solutions, waste cleaning solutions and used shop towels are kept closed at all times, except when depositing or removing these solutions or shop towels.

(iii) Minimize spills of VOC-containing cleaning solutions and waste cleaning solutions and clean up spills immediately.

(iv) Convey VOC-containing cleaning solutions, waste cleaning solutions and used shop towels from one location to another in closed containers or pipes.

(2) The requirements in paragraph (1) apply to the following activities:

(i) Cleaning of a press, including blanket washing, roller washing, plate cleaners, metering roller cleaners, impression cylinder cleaners and rubber rejuvenators.

(ii) Cleaning of press parts, including press parts that have been removed from the press for cleaning.

(iii) Cleaning of ink, coating or adhesive from areas around a press.

(3) The requirements in paragraph (1) do not apply to the following activities:

(i) Cleaning electronic components of a press.

(ii) Cleaning in pre-press (for example, platemaking) operations.

(iii) Cleaning in post-press (for example, binding) operations.

(iv) Using janitorial supplies (for example, detergents or floor cleaners) for general cleaning around a press.

(v) The use of parts washers or cold cleaners at an offset lithographic printing or a letterpress printing facility. The use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations).

Comparison notes: § 129.67b(i)(2) is addressed at Article XXI §2105.80.b.5. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

g. **Measurements.** Measurements of the volatile fraction of inks and fountain solution, and of volatile organic compound emissions shall be performed according to the applicable procedures established by Part G of this Article.

25 Pa Code Ch. 129
§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

.....

(h) *Sampling and testing.*

(1) Sampling and testing shall be performed as follows:

(i) Sampling of an ink, varnish, coating, fountain solution or cleaning solution and testing for the VOC content of the ink, varnish, coating, fountain solution or cleaning solution shall be performed in accordance with the procedures and test methods specified in Chapter 139.

(ii) Sampling and testing of an add-on air pollution control device shall be performed in accordance with the procedures and test methods specified in Chapter 139 and meet one of the following:

(A) Sampling and testing shall be performed no later than 180 days after the compliance date of the press.

(B) Sampling and testing shall have been performed within 5 years prior to January 1, 2015, and previously approved by the Department.

(2) The control efficiency shall be determined using one or more of the following methods, as applicable, subject to prior written approval by the Department. The method used to measure the inlet concentration of VOC may be the same method used to determine the outlet concentration of VOC unless use of the same method is determined to be technically infeasible.

(i) EPA Reference Method 25, *Determination of Total Gaseous Nonmethane Organic Emissions as Carbon*, codified in 40 CFR Part 60, Appendix A, including updates and revisions. EPA Reference Method 25 may be used if the total gaseous nonmethane organic compound concentration is equal to or greater than 50 parts per million by volume, measured as carbon.

(ii) EPA Reference Method 25A, *Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer*, codified in 40 CFR Part 60, Appendix A, including updates and revisions. EPA Reference Method 25A may not be used if the total gaseous nonmethane organic compound concentration at the outlet of the add-on air pollution control device is equal to or greater than 50 parts per million by volume, measured as carbon.

(iii) EPA Reference Method 18, *Measurement of Gaseous Organic Compound Emissions by Gas Chromatography*, codified in 40 CFR Part 60, Appendix A, including updates and revisions. EPA Reference Method 18 may be used if the total gaseous nonmethane organic compound concentration is equal to or greater than 50 parts per million by volume, measured as carbon. EPA Reference Method 18 may be used in conjunction with EPA Reference Method 25A to subtract emissions of exempt VOCs.

(3) Other test methods demonstrated to provide results that are acceptable for purposes of determining compliance with this section may be used if prior approval is obtained in writing from the Department and the EPA.

Comparison notes: The Code has detail on sampling and testing requirements that is not explicitly stated in Article XXI §2105.80.g. However, Article XXI Part G, §2107.01 incorporates by reference Chapter 139 of the Code. Therefore, the requirements can be expected to be addressed.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

Article XXI does not include language analogous to the Code subsection § 129.67b(j), below.

25 Pa Code Ch. 129
§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

.....

(j) *Composite partial vapor pressure.* The composite partial vapor pressure of organic compounds in cleaning solutions shall be determined by one of the following procedures:

(1) Quantifying the amount of each compound in the blend using gas chromatographic analysis, using an appropriate and current ASTM test method with prior written approval by the Department.

(2) Calculating the composite partial vapor pressure using the following equation:

$$PP_c = \frac{\sum_{i=1}^{n} (W_i)(VP_i)/MW_i}{W_w/MW_w + \sum_{e=1} W_e/MW_e + \sum_{i=1}^{kn} W_i/MW_i}$$

Where:

PP_c = VOC composite partial vapor pressure at 20°C, in mm mercury

W_i = Weight of the ‘‘i’’th VOC compound, in grams

W_w = Weight of water, in grams

W_e = Weight of the ‘‘e’’th exempt compound, in grams

MW_i = Molecular weight of the ‘‘i’’th VOC compound, in grams per g-mole, as given in chemical reference literature

MW_w = Molecular weight of water, in grams per g-mole (18 grams per g-mole)

MW_e = Molecular weight of the ‘‘e’’th exempt compound, in grams per g-mole, as given in chemical reference literature

VP_i = Vapor pressure of the ‘‘i’’th VOC compound at 20°C, in mm mercury, as determined by subsection (k)

Comparison notes: Article XXI does not have language analogous to the Code subsection § 129.67b(j) relating to Composite partial vapor pressure. This is a methodology for determining composite vapor pressure, but is not a composite vapor pressure limitation. The absence of this language does not adversely impact stringency.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

Article XXI does not have language analogous to the Code subsection § 129.67b(k), below.

25 Pa Code Ch. 129

§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

.....

(k) *Determination of vapor pressure of single organic compounds in cleaning solutions.* The vapor pressure of each single component compound shall be determined from one or more of the following:

(1) An appropriate and current ASTM test method with prior written approval by the Department.

(2) The most recent edition of one or more of the following sources:

(i) *Vapour Pressures of Pure Substances*, Boublik, Elsevier Scientific Publishing Company, New York.

(ii) *Perry's Chemical Engineers' Handbook*, Green and Perry, McGraw-Hill Book Company.

(iii) *CRC Handbook of Chemistry and Physics*, CRC Press.

(iv) *Lange's Handbook of Chemistry*, McGraw-Hill Book Company.

(v) Additional sources approved by the Department.

Comparison notes: Article XXI does not have language analogous to the Code subsection § 129.67b(k) relating to Composite partial vapor pressure. . This is a methodology for determining composite vapor pressure, but is not a composite vapor pressure limitation. The absence of this language does not adversely impact stringency.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.80 Control of VOC Emissions from Offset Lithographic Printing and Letterpress Printing (continued)

Article XXI does not include language analogous to the Code subsection § 129.67b(l), below.

25 Pa Code Ch. 129
§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses (continued)

.....

(l) *VOC retention factors and capture efficiency factors.* As specified in subsection (a)(2), if:

(1) A portion of the VOCs contained in the ink or cleaning solution, or both, is retained in the printed web substrate or in the shop towels used for cleaning, the following VOC emission retention factors shall be used, as applicable:

(i) A 20% VOC emission retention factor for a petroleum ink oil-based heatset ink printed on an absorptive substrate, meaning 80% of the petroleum ink oil content is emitted as VOC during the printing process and is available for capture and control by an add-on air pollution control device. The petroleum ink oil content of a heatset ink may be determined from formulation data included on a CPDS or MSDS.

(ii) A 95% VOC emission retention factor for a petroleum ink oil-based non-heatset web or non-heatset sheet-fed ink, meaning 5% of the petroleum ink oil content is emitted as VOC during the printing process and is available for capture and control by an add-on air pollution control device. The petroleum ink oil content of a non-heatset web or non-heatset sheet-fed ink may be determined from formulation data included on a CPDS or MSDS.

(iii) A 100% VOC emission retention factor for vegetable ink oil-based heatset and non-heatset inks.

(iv) A 50% VOC emission retention factor for low VOC composite vapor pressure cleaning solutions in shop towels if both of the following conditions are met:

(A) The VOC composite vapor pressure of the cleaning solution is less than 10mm Hg at 20°C (68°F).

(B) The cleaning solutions and used shop towels are kept in closed containers.

(2) A portion of the VOCs contained in one or more of the ink, fountain solution or automatic blanket wash materials is captured in the press dryer for control by the add-on air pollution control device, the following capture efficiency factors shall be used, as applicable:

(i) A 100% VOC emission capture efficiency for volatilized ink oils for oil-based heatset paste inks and varnishes as specified in paragraph (1) if both of the following conditions are met:

(A) The press dryer is operating at negative pressure relative to the surrounding pressroom.

(B) The air flow is into the press dryer.

(ii) A 70% VOC emission capture efficiency for a fountain solution that contains an alcohol substitute.

(iii) A 40% VOC emission capture efficiency for an automatic blanket wash if the VOC composite vapor pressure of the cleaning solution is less than 10mm Hg at 20°C (68°F).

Comparison notes: Article XXI does not include language corresponding to § 129.67b(l), just as mentioned above, and it does not include language corresponding to § 129.67b(a)(2). The absence of this language does not adversely impact stringency because the language corresponding to § 129.67b(a)(2) involves a "may" statement.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.81 Control of VOC Emissions from Flexible Package Printing

{Added May 29, 2013, effective June 8, 2013. Subsection f amended October 26, 2022, effective November 5, 2022.

a. **Applicability.** Beginning January 1, 2012, this section applies to the owner or operator of a flexible packaging printing press, including rotogravure printing and flexographic printing, where the total actual VOC emissions from all flexible package printing press operations, including related cleaning activities, at the facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period.

1. The limits from §2105.11 Graphic Arts System no longer apply to flexible package printing presses, as of January 1, 2012.

25 Pa Code Ch. 129
§ 129.67a. Control of VOC emissions from flexible packaging printing presses.

The provisions of this § 129.67a adopted June 27, 2014, effective June 28, 2014, 44 Pa.B. 3929.

(a) *Applicability.*

(1) Except as specified in paragraph (3) or (4), this section applies to the owner and operator of a flexible packaging printing press if one or more of the following apply:

(i) *Potential VOC emissions.* An individual flexible packaging printing press has potential emissions from the dryer, before consideration of add-on controls, of at least 25 tpy of VOCs from inks, coatings and adhesives combined. This section supersedes § 129.67 (relating to graphic arts systems).

(ii) *Actual VOC emissions at or above threshold.* The total actual VOC emissions from all inks, coatings and adhesives combined from all flexible packaging printing presses and all VOC emissions from related cleaning activities at the facility are equal to or greater than 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(iii) *Actual VOC emissions below threshold.* The total actual VOC emissions from all inks, coatings and adhesives combined from all flexible packaging printing presses and all VOC emissions from related cleaning activities at the facility are less than 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(2) The owner or operator of a flexographic or rotogravure printing press subject to paragraph (1)(ii) and § 129.67, who was required to install a control device under § 129.67 prior to June 28, 2014, shall continue the operation of that control device and also meet the requirements of this section.

(3) VOCs from adhesives used at a facility that are not used or applied on or with a flexible packaging printing press are not subject to this section and may be regulated under § 129.52b, § 129.77 or Chapter 130, Subchapter D (relating to control of VOC emissions from paper, film and foil surface coating processes; control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).

(4) Surface coating of flexible packaging substrates that is not done with a flexible packaging printing press is regulated under § 129.52b.

(b) *Existing RACT permit.* This section supersedes the requirements of a RACT permit issued to the owner or operator of a source subject to this section prior to January 1, 2015, under § § 129.91—129.95 (relating to stationary sources of NO_x and VOCs) to control, reduce or minimize VOCs from a flexible packaging printing press, except to the extent the RACT permit contains more stringent requirements.

Comparison notes: Article XXI does not appear to include language corresponding to 25 Pa. Code § 129.67a(a)(1)(iii). That is not a significant difference since the code allows for the meeting of one or more of the conditions presented.

- Article XXI does not appear to include language corresponding to § 129.67a(a)(3). However, the Code is a "may" statement. No adverse impact on stringency.

- Article XXI does not appear to include language corresponding to § 129.67a(a)(4). However, ACHD considers this to be an "informational' statement.
- Article XXI does not have language corresponding to § 129.67a(b) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.67a(b).

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.81 Control of VOC Emissions from Flexible Package Printing (Continued)

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a flexible package printing press unless one of the following limitations is met:

1. The overall control efficiency shall be no less than 80 percent.

2. The VOC content of materials (inks, coatings and adhesives) used on a single press shall not be greater than 0.8 lb VOC per lb solids applied.

3. The VOC content of materials (inks, coatings and adhesives) used on a single press shall not be greater than 0.16 lb VOC per lb materials applied.

25 Pa Code Ch. 129
§ 129.67a. Control of VOC emissions from flexible packaging printing presses (continued).

(c) *Emission limits.* Beginning January 1, 2015, a person subject to subsection (a)(1)(i) may not cause or permit the emission into the outdoor atmosphere of VOCs from a flexible packaging printing press unless one or more of the following limitations is met:

(1) *Individual ink, coating or adhesive.* The VOC content of each as applied ink, coating or adhesive used on a single flexible packaging printing press meets the following requirements:

(i) The VOC content is equal to or less than one or both of the following limits:

(A) 0.16 lb VOC per lb material as applied.

(B) 0.8 lb VOC per lb material solids as applied.

(ii) The VOC content is calculated as follows for VOC content expressed in units of weight of VOC per weight of material solids:

$$VOC_B = (W_o)/(W_n)$$

Where:

VOC_B = VOC content in lb VOC/lb of solids as applied or kg VOC/kg of solids as applied

W_o = Weight percent of VOC (W_v-W_w-W_{ex})

W_v = Weight percent of total volatiles (100%-weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvents

W_n = Weight percent of solids of the as applied ink, coating or adhesive

(iii) Sampling of the ink, coating or adhesive and testing for the VOC content of the ink, coating or adhesive is performed in accordance with subsection (f).

(2) *Weighted average.* The daily weighted-average VOC content of all inks, coatings and adhesives combined used on a single flexible packaging printing press meets one or both of the VOC content limits in paragraph (1)(i). The use of averaging to meet the VOC content limits may not be used across multiple printing presses. Averaging is available on a single flexible packaging printing press if the following requirements are met:

(i) The daily weighted average is calculated using the following equation:

$$VOC_w = \frac{\sum_{i=1}^{n} C_i V_i}{V_t}$$

Where:

VOC_w=The daily weighted average VOC content, as applied, of all inks, coatings and adhesives combined used on a single flexible packaging printing press, in lb VOC/gal of coating solids

n=The number of different inks, coatings and adhesives used each day on the single flexible packaging printing press

V_i=The volume of solids for each ink, coating and adhesive, as applied, used each day on the single flexible packaging printing press, in gallons

C_i=The VOC content of each ink, coating and adhesive, as applied, used each day on the single flexible packaging printing press, in lb VOC/gal coating solids

V_t=The total volume of solids for all inks, coatings and adhesives combined, as applied, used each day on the single flexible packaging printing press, in gallons

(ii) Sampling of the inks, coatings and adhesives and testing for the VOC content of the inks, coatings and adhesives is performed in accordance with subsection (f).

(3) *Add-on air pollution control device.* The overall weight of VOCs emitted to the atmosphere from all inks, coatings and adhesives combined used on a single flexible packaging printing press is reduced through the use of vapor recovery or oxidation or another method that is acceptable under § 129.51(a) (relating to general). The overall control efficiency of a control system, as determined by the test methods and procedures specified in subsection (f), may not be less than that listed in Table 1.

Table 1
Overall Control Efficiency Requirement of a Control System on a Single Flexible Packaging Printing Press with Potential Emissions ›= 25 tpy of VOC Before Control

Control System Overall Control Efficiency	*Printing Press*		*Air Pollution Control Device*	
First Installation Date[1]				
First Installation Date[1]				
Requirement	*Prior to*	*On or after*	*Prior to*	*On or after*
	March 14, 1995*	March 14, 1995*	January 1, 2015**	January 1, 2015**
›= 65%	X		X	
›= 70%	X			X
›= 75%		X	X	
›= 80%		X		X

[1] First installation date is the first date of operation for a source or a control device. This date does not change if the source or control device is moved to a new location or if the control device is later used to control a new source.

* March 14, 1995, is the date of the proposed 1996 NESHAP for the printing and publishing industry.

** January 1, 2015, is the compliance date of the flexible packaging printing press regulation.

(4) *Restriction on potential VOC emissions.* The Department has issued a plan approval, operating permit or Title V permit to the owner or operator prior to January 1, 2015, establishing a Federally-enforceable limitation to limit the potential emissions of VOC from the flexible packaging printing press below 25 tpy before consideration of add-on controls.

Comparison notes: .The language of Article XXI §2105.81.b.1, "The overall control efficiency shall be no less than 80 percent," is captured by the table at Code at § 129.67a(c)(3) .

- Article XXI does not have the equation of 25 Pa. Code § 129.67a(c)(1)(ii) relating to VOC content. Article XXI addresses this at §2105.81.f, "Measurements," by citing to Part G of Article XXI. The absence of this language does not adversely impact stringency, because, while the calculation may not be explicitly stated, the VOC content limits are stated.
- Article XXI does not have the statement equivalent to 25 Pa. Code § 129.67a(c)(1)(iii), "Sampling of the ink, coating or adhesive and testing for the VOC content of the ink, coating or adhesive is performed in accordance with subsection (f)." Article XXI addresses this at §2105.81.f, "Measurements," by citing to Part G of Article XXI. Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent.
- Article XXI does not have the equation of 25 Pa. Code § 129.67a(c)(2) relating to "Weighted average" or the language corresponding to 25 Pa. Code § 129.67a(c)(4) relating to "Restriction on potential VOC emissions." However, the Code states that there is a choice among "one or more of the following limitations is met," and Article XXI covers the first limitation.

Equivalency: There is equivalency because there is no impact on stringency.

Article XXI
§2105.81 Control of VOC Emissions from Flexible Package Printing (Continued)

Article XXI does not include language that is comparable to § 129.67a(d), "Compliance and monitoring requirements for add-on air pollution control device," shown below.

25 Pa Code Ch. 129
§ 129.67a. Control of VOC emissions from flexible packaging printing presses (continued).

(d) ***Compliance and monitoring requirements for an add-on air pollution control device***. The owner or operator of a flexible packaging printing press subject to subsection (a)(1)(i) using an add-on air pollution control device in accordance with subsection (c)(3) shall comply with the following requirements:

(1) The add-on air pollution control device shall be equipped with the applicable monitoring equipment and the monitoring equipment shall be installed, calibrated, operated and maintained according to manufacturer's specifications at all times the add-on air pollution control device is in use. If the add-on air pollution control device is a:

(i) Noncatalytic thermal oxidizer, the minimum combustion or operating temperature must be continuously monitored. The temperature reading shall be recorded in accordance with subsection (e)(1) at least once every 15 minutes while the noncatalytic thermal oxidizer is operating.

(ii) Catalytic thermal oxidizer:

(A) The inlet gas temperature must be continuously monitored. The temperature reading shall be recorded in accordance with subsection (e)(1) at least once every 15 minutes while the catalytic thermal oxidizer is operating.

(B) A catalyst activity test shall be performed a minimum of one time per rolling 2-year period.

(iii) Control device other than that specified in subparagraph (i) or (ii), parameters specific to the control device must be continuously monitored. The parameters shall be recorded in accordance with subsection (e)(1) at least once every 15 minutes while the control device is operating.

(2) The add-on air pollution control device specified in paragraph (1) shall be operated at a 3-hour average temperature not lower than 50°F below the average temperature demonstrated during the most recent compliant source test approved by the Department.

(3) The add-on air pollution control device specified in paragraph (1) shall be in operation at all times that the source is operating.

(4) The add-on air pollution control device shall be approved, in writing, by the Department in a plan approval, operating permit or Title V permit prior to use.

Comparison notes: .Article XXI does not have language corresponding to 25 Pa. Code § 129.67a(d) relating to "Compliance and monitoring requirements for an add-on air pollution control device," because Article XXI does not have language related to "add-on air pollution control devices" as described in the comments above.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.81 Control of VOC Emissions from Flexible Package Printing (Continued)

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains a flexible package printing press, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each material, ink, coating, adhesive and other component as supplied:
   - A. The name and identification number of each material, ink, coating and adhesive;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, solids, and exempt solvents;
   - F. The VOC content of the materials (inks, coatings and adhesives) used on a single press per weight of solids or materials applied.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No flexible package printing operation which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

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§ 129.67a. Control of VOC emissions from flexible packaging printing presses (continued).

(e) *Recordkeeping and reporting requirements.* Beginning January 1, 2015, the owner or operator of a flexible packaging printing press subject to this section shall maintain records sufficient to demonstrate compliance with the requirements of this section. Records maintained for compliance demonstrations may include purchase, use, production and other records.

(1) An owner or operator subject to subsection (a)(1)(i) using an add-on air pollution control device shall maintain records sufficient to demonstrate compliance with subsection (d), including records of the following information:

(i) Temperature reading of the add-on air pollution control device.

(ii) Maintenance performed on the add-on air pollution control device and monitoring equipment, including the date and type of maintenance.

(iii) Catalyst activity test performed, if applicable.

(2) An owner or operator subject to subsection (a)(1)(i) not using an add-on air pollution control device shall maintain records of the as applied VOC content of inks, coatings and adhesives sufficient to demonstrate compliance with the limitations under subsection (c)(1) or (2).

(3) An owner or operator claiming exemption from a VOC control provision of this section based on potential or actual VOC emissions, as applicable, shall maintain records that demonstrate to the Department that the press or facility is exempt.

(4) The owner or operator may group materials into classes using the highest VOC content in any material in a class to represent that class of material.

(5) The records required under paragraphs (1)—(4) shall be maintained for 2 years, unless a longer period is required by a plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). The records shall be submitted to the Department in an acceptable format upon receipt of a written request.

(6) The owner or operator of a flexible packaging printing press subject to subsection (a)(1)(i) that is required to demonstrate overall control efficiency in accordance with subsections (c)(3) and (d) shall submit reports to the Department in accordance with Chapter 139 (relating to sampling and testing).

Comparison notes: Article XXI §2105.81.c.1 is not captured explicitly in § 129.67a(e), "Recordkeeping and Reporting requirements." Stringency comparison is in favor of Article XXI in this instance.

- Article XXI §2105.81.c does not include the language equivalent to § 129.67a(e)(1), as it relates to add-on air pollution control devices. This is because Article XXI §2105.81 does not address the use of 'add-on' control devices which are one of three methods under the code. No impact on stringency.
- Article XXI does not include language explicitly similar to that of 25 Pa. Code § 129.67a(e)(3). However, the first sentence states, "regardless of the facility's annual emission rate…shall maintain records." That statement encompasses 25 Pa. Code § 129.67a(e)(3). No impact on stringency.
- Article XXI does not include a statement similar to 25 Pa. Code § 129.67a(e)(4). This is an informational requirement and does not impact stringency.
- Article XXI §2105.81.c records retention requirements do not exactly match the language of § 129.67a(e)(5) with regard to reporting requirements involving the plan approvals and operating permits, but this does not impact the emission reduction stringency comparison.
- Article XXI §2105.81.c does not have language equivalent to § 129.67a(e)(6) as it relates to § 129.67a(a)(1)(i) with regard to Potential VOC emissions. This does not adversely impact stringency since Article XXI does not utilize the "potential emission" scheme which is optional under § 129.67a(a)(1).
- The language of Article XXI § 2105.81.d, "Exempt Solvents" does not appear in § 129.67a. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.81.d, above. It may be useful for ACHD to process a change to delete this exemption language from § 2105.77.d and the nine other sections where it occurs, but it is not a significant difference with the Code.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.81 Control of VOC Emissions from Flexible Package Printing (Continued)

e. **Housekeeping.** The following work practices for cleaning materials apply to the owner or operator of a flexible printing press:

1. Store all VOC-containing cleaning materials and used shop towels in closed containers.
2. Ensure that ink, coating, adhesive and cleaning material storage containers are kept closed at all times except when depositing or removing those materials.
3. Minimize spills of VOC-containing inks, coatings, adhesives and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing inks, coatings, adhesives and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions during cleaning of storage and conveying equipment.

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§ 129.67a. Control of VOC emissions from flexible packaging printing presses (continued).

(g) *Work practice requirements for cleaning activities.*

(1) Except as specified in paragraph (3), beginning January 1, 2015, the owner or operator of a flexible packaging printing press subject to subsection (a)(1)(i), (1)(ii) or (2) shall comply with the following work practices for cleaning activities at the facility:

(i) Store all VOC-containing cleaning solutions, waste cleaning solutions and used shop towels in closed containers.

(ii) Ensure that mixing vessels and storage containers used for VOC-containing cleaning solutions, waste cleaning solutions and used shop towels are kept closed at all times, except when depositing or removing these solutions or shop towels.

(iii) Minimize spills of VOC-containing cleaning solutions and waste cleaning solutions and clean up spills immediately.

(iv) Convey VOC-containing cleaning solutions, waste cleaning solutions and used shop towels from one location to another in closed containers or pipes.

(2) The requirements in paragraph (1) apply to the following activities:

(i) Cleaning of ink, coating or adhesive from a press.

(ii) Cleaning of ink, coating or adhesive from press parts, including press parts that have been removed from the press for cleaning.

(iii) Cleaning of ink, coating or adhesive from areas around a press.

(3) The requirements in paragraph (1) do not apply to the following activities:

(i) Cleaning electronic components of a press.

(ii) Cleaning in pre-press (for example, platemaking) operations.

(iii) Cleaning in post-press (for example, binding) operations.

(iv) Using janitorial supplies (for example, detergents or floor cleaners) for general cleaning around a press.

(v) The use of parts washers or cold cleaners at a flexible packaging printing facility. The use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations).

Comparison notes: Article XXI §2105.81.e does not include language corresponding to 25 Pa. Code § 129.67a(g)(2) and (3). Relatedly, such language was in Article XXI, §2105.80.b.5. This is viewed as "informational" and not a significant difference.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI
§2105.81 Control of VOC Emissions from Flexible Package Printing (Continued)

f. **Measurements.** Measurements of the volatile fraction of inks, and of volatile organic compound emissions shall be performed according to the applicable procedures established by Part G of this Article.

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§ 129.67a. Control of VOC emissions from flexible packaging printing presses (continued).

(f) *Sampling and testing.*

(1) Sampling and testing shall be performed as follows:

(i) Sampling of an ink or coating and testing for the VOC content of the ink or coating shall be performed in accordance with the procedures and test methods specified in Chapter 139.

(ii) Sampling and testing of an add-on air pollution control device shall be performed in accordance with the procedures and test methods specified in Chapter 139 and meet one of the following:

(A) Sampling and testing shall be performed no later than 180 days after the compliance date of the press.

(B) Sampling and testing shall have been performed within 5 years prior to January 1, 2015, and previously approved by the Department. Capture efficiency retesting may be waived for capture systems that are not permanent total enclosures if the operating parameters indicate that a fundamental change has not taken place in the operation or design of the equipment, unless retesting is required under Subpart C, Article III (relating to air resources) or a plan approval, operating permit or an order issued by the Department. For purposes of this clause, fundamental changes include adding printing stations to a press, increasing or decreasing the volumetric flow rate from the dryer or changing the static duct pressure.

(2) The overall control efficiency of the add-on air pollution control device shall be determined by the following test methods and procedures subject to prior written approval by the Department.

(i) The capture efficiency shall be determined in accordance with either of the following methods:

(A) 40 CFR Part 51, Appendix M, Methods 204—204F, including updates and revisions.

(B) 40 CFR Part 63, Subpart KK, Appendix A (relating to data quality objective and lower confidence limit approaches for alternative capture efficiency protocols and test methods).

(ii) The control efficiency shall be determined using one or more of the following methods, as applicable. The method used to measure the inlet concentration of VOC may be the same method used to determine the outlet concentration of VOC unless use of the same method is determined to be technically infeasible.

(A) EPA Reference Method 25, *Determination of Total Gaseous Nonmethane Organic Emissions as Carbon*, codified in 40 CFR Part 60, Appendix A, including updates and revisions. EPA Reference Method 25 may be used if the total gaseous nonmethane organic compound concentration is equal to or greater than 50 parts per million by volume, measured as carbon.

(B) EPA Reference Method 25A, *Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer*, codified in 40 CFR Part 60, Appendix A, including updates and revisions. EPA Reference Method 25A may not be used if the total gaseous nonmethane organic compound concentration at the outlet of the add-on air pollution control device is equal to or greater than 50 parts per million by volume, measured as carbon.

(C) EPA Reference Method 18, *Measurement of Gaseous Organic Compound Emissions by Gas Chromatography*, codified in 40 CFR Part 60, Appendix A, including updates and revisions. EPA Reference Method 18 may be used if the total gaseous nonmethane organic compound concentration is equal to or greater than 50 parts

per million by volume, measured as carbon. EPA Reference Method 18 may be used in conjunction with EPA Reference Method 25A to subtract emissions of exempt VOCs.

(3) Other test methods demonstrated to provide results that are acceptable for purposes of determining compliance with this section may be used if prior approval is obtained in writing from the Department and the EPA.

Comparison notes: The Code has extensive detail on sampling and testing requirements, that does not exist in Article XXI §2105.81.f. That would appear to be a deficiency, however, Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent.

Equivalency: There is equivalency because there are no impact on stringency.

Article XXI

§2105.82 Control of VOC Emissions from Industrial Solvent Cleaning Operations

{Added May 29, 2013, effective June 8, 2013. Subsection g amended October 26, 2022, effective November 5, 2022.}

a. **Applicability.** Beginning January 1, 2012, this section applies to the owner or operator of a facility, where the total actual VOC emissions from all of the industrial solvent cleaning operations at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period. This regulation applies to any facility that employs solvent materials in industrial solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas, and stores and/or disposes of these solvent materials.

The provisions of this rule shall not apply to cleaning operations in the following source categories listed for regulation under Section 183(e) of the Clean Air Act:

1. Aerospace coatings;
2. Wood furniture coatings;
3. Shipbuilding and repair coatings;
4. Flexible package printing materials;
5. Lithographic printing materials;
6. Letterpress printing materials;
7. Flat wood paneling coatings;
8. Large appliance coatings;
9. Metal furniture coatings;
10. Paper, film, and foil coatings;
11. Plastic parts coatings;
12. Miscellaneous metal parts coatings;
13. Fiberglass boat manufacturing materials;
14. Miscellaneous industrial adhesives; or
15. Auto and light-duty truck assembly coatings.

25 Pa Code Ch. 129 § 129.63a. Control of VOC emissions from industrial cleaning solvents.

The provisions of this § 129.63a adopted August 10, 2018, effective August 11, 2018, 48 Pa.B. 4814.

(a) *Applicability.* This section applies to the owner and the operator of a facility at which an industrial cleaning solvent is used or applied in a cleaning activity at a cleaning unit operation, a work production-related work area or a part, product, tool, machinery, equipment, vessel, floor or wall.

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(c) *Exceptions and exemptions.*

(1) This section does not apply to all of the following:

(i) An owner or operator of a cleaning unit operation subject to § 129.63 (relating to degreasing operations) or 40 CFR Part 63, Subpart T (relating to National emission standards for halogenated solvent cleaning).

(ii) An owner or operator of a cleaning unit operation associated with a following category:

(A) Aerospace manufacturing and rework operations.

(B) Architectural coatings.

(C) Automobile and light-duty truck assembly coatings.

(D) Fabric coating.

(E) Fiberglass boat manufacturing materials.

(F) Flat wood paneling coatings.

(G) Flexible packaging printing materials.

(H) Graphic arts printing and coating operations.

(I) Large appliance coatings.

(J) Letterpress printing materials.

(K) Lithographic printing materials.

(L) Magnet wire coating operations.

(M) Marine vessel coating.
(N) Metal container, closure and coil coating.
(O) Metal furniture coatings.
(P) Miscellaneous metal parts coatings.
(Q) Miscellaneous industrial adhesives.
(R) Motor vehicle and mobile equipment coating operations.
(S) Paper, film and foil coating.
(T) Plastic parts coatings.
(U) Polyester resin operations.
(V) Semiconductor wafer fabrication operations.
(W) Shipbuilding and repair coatings.
(X) Wood furniture coatings.
(Y) Wood products coating.
(Z) Electrical and electronic components.
(AA) Precision optics.
(BB) Numismatic dies.
(CC) Stripping of cured inks, coatings and adhesives.
(DD) Cleaning of resin, coating, ink or adhesive mixing, molding and application equipment.
(EE) Resin, coating, ink and adhesive manufacturing.
(FF) Performance or quality assurance testing of coatings, inks or adhesives.
(GG) Flexible and rigid disc manufacturing.
(HH) Research and development laboratories.
(II) Medical device manufacturing.
(JJ) Pharmaceutical manufacturing.
(KK) Janitorial cleaning.
(LL) Digital printing.

(2) The VOC emission limitations in subsection (e) do not apply to the use or application of an industrial cleaning solvent by the owner or operator of a cleaning unit operation at a facility subject to subsection (a) under either of the following circumstances:

(i) The use or application of the industrial cleaning solvent is subject to a standard or specification required by the United States Department of Defense, Federal Aviation Administration or other Federal government entity. An owner or operator claiming this exemption shall maintain records in accordance with subsection (h)(2).

(ii) The use or application of the industrial cleaning solvent is associated with the cleaning of screen printing equipment and the industrial cleaning solvent used or applied has an as applied VOC content that does not exceed 4.2 pounds of VOC per gallon (lb VOC/gal) (500 grams of VOC per liter (g VOC/l)) of industrial cleaning solvent. An owner or operator claiming this exemption shall maintain records in accordance with subsection (h)(3).

(3) The VOC emission limitations in subsection (e) and the work practice requirements in subsection (f) do not apply to the owner or operator of a facility subject to subsection (a) if the total combined actual VOC emissions from all subject cleaning unit operations at the facility are less than 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls. An owner or operator claiming this exemption shall maintain records in accordance with subsection (h)(4).

(d) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued to the owner or operator of a cleaning unit operation subject to this section prior to August 11, 2018, under § § 129.91—129.95 (relating to stationary sources of NO_x and

VOCs) to control, reduce or minimize VOCs from cleaning unit operation cleaning activities at the facility, except to the extent the RACT permit contains more stringent requirements.

Comparison notes: Article XXI §2105.82.a has fewer exemption categories than 25 Pa. Code § 129.63a(c). Categories not highlighted above are picked up in Article XXI §2105.82.a . Categories highlighted above in grey are picked up at Article XXI §2105.82.e. Yellow highlighted categories have not been identified in Article XXI §2105.82. This would indicate that Article XXI may be more stringent since these are the categories to which the regulation does not apply.

- Article XXI does not appear to have the exemptions of 25 Pa. Code § 129.63a(c)(2). That would make Article XXI more stringent.
- Article XXI §2105.82.a, which describes "applicability" to the extent that the VOC emissions are "…equal to or greater than 15 pounds per day or 2.7 tons per twelve month rollig period," accounts for the conditions of 25 Pa. Code § 129.63a(c)(3).
- Article XXI does not have language corresponding to § 129.63a(d) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.63a(d).

Equivalency: There is equivalency because there are no impacts on stringency.

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from industrial solvent cleaning operations unless one of the following limitations is met:

1. The solvent complies with the applicable VOC Content Limitation Table 2105.82;

2. The owner or operator of a facility that is subject to this rule shall employ only the following cleaning devices and methods:

A. Wipe cleaning;

B. Closed containers or hand held spray bottles from which solvents are applied without a propellant-induced force;

C. Cleaning equipment which has a solvent container that can be and is closed during cleaning operations, except when depositing and removing objects to be cleaned, and is closed during non-operation with the exception of maintenance and repair to the cleaning equipment itself;

D. Remote reservoir cleaner, if the operator of the cleaner complies with all of the following:

i. Prevents solvent vapors from escaping from the solvent container by using such devices as a cover or a valve when the remote reservoir is not being used, cleaned or repaired.

ii. Directs solvent flow in a manner that will prevent liquid solvent from splashing outside of the remote reservoir cleaner.

iii. Does not clean porous or absorbent materials, such as cloth, leather, wood or rope.

iv. Uses only solvent containers free of all liquid leaks. Auxiliary equipment, such as pumps, pipelines or flanges, shall not have any liquid leaks, visible tears or cracks. Any liquid leak, visible tear or crack detected shall be repaired within one calendar day, or the leaking section of the remote reservoir cold cleaner shall be drained of all solvent and shut down until it is replaced or repaired.

E. Non-atomized solvent flow method where the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or

F. Solvent flushing method where the cleaning solvent is discharged into a container which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure or by pumping.

3. The owner or operator of a facility that is subject to this rule is prohibited from atomizing any solvent unless the emissions are vented to VOC emission control equipment that meet the requirements of Paragraph b.5 of this rule.

4. All VOC containing solvents used in solvent cleaning operations shall be stored in non-absorbent, non-leaking containers which shall be kept closed at all times except when filling or emptying. Cloth and paper moistened with VOC containing solvents shall be stored in closed, non-absorbent, non-leaking containers.

5. In lieu of complying with the requirements of Paragraphs b.1 and b.2 of this rule for an industrial solvent cleaning operation, the owner or operator of a facility that is subject to this rule may

comply with this rule by installing and operating VOC emission control equipment for the industrial solvent cleaning operation. The VOC emission control equipment shall comply with all of the following requirements:

A. A capture efficiency of at least 90 percent, by weight, for the VOC emissions.

B. Either a destruction/removal efficiency of at least 95 percent, by weight, for the VOC emissions, or an outlet concentration of less than 20 ppmv, on a dry basis, for the VOC emissions.

6. In lieu of complying with the requirements in Paragraph b.1 of this rule, the owner or operator of a facility may use solvents or solvent solutions for industrial cleaning operations which have a VOC composite partial vapor pressure of less than or equal to 8mm of Hg at 68°F (20°C).

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

(e) *Emissions limitations.* Beginning August 11, 2018, the owner or operator of a facility at which the total combined actual VOC emissions from all subject cleaning unit operations at the facility are equal to or greater than 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls, may not cause or permit the emission into the outdoor atmosphere of VOCs from an industrial cleaning solvent used or applied in a cleaning unit operation subject to this section at the facility, unless one of the following limitations is met:

(1) *Compliant solvents.* The industrial cleaning solvent meets one of the following VOC limits:

(i) A VOC content less than or equal to 0.42 lb VOC/gal (50 g VOC/l) as applied.

(ii) A VOC composite vapor pressure less than or equal to 8 mm mercury at 68°F (20°C) as applied.

(2) *VOC emissions capture system and add-on air pollution control device.* The weight of VOCs emitted to the atmosphere from cleaning unit operation cleaning activities is reduced through the use of vapor recovery or incineration or another method that is acceptable under § 129.51(a) (relating to general). The overall emission reduction of a control system, as determined by the test methods and procedures specified in Chapter 139 (relating to sampling and testing), may be no less than 85% or may be no less than the equivalent efficiency as calculated by the following equation, whichever is less stringent:

$O = (1–E/V) \times 100$
Where:
O = The overall required control efficiency.
E = 0.42 lb VOC/gal or 50 g VOC/l.
V = The VOC content of the industrial cleaning solvent in lb VOC/gal or g VOC/l.

Comparison notes: The VOC content limits of Article XXI Table 2105.82 do not appear in a corresponding table of the Code, but 25 Pa. Code § 129.63a(e) does include the 0.42 lb VOC/gal as applied which is also found in Table 2105.82 for "general" operations. In any event, Article XXI includes limits for more operations and can therefore be judged as 'more stringent.'

- The limitations of Article XXI Section 2105.82.b.2, b.3 and b.4 do not appear in 25 Pa. Code § 129.63a.
- The capture efficiencies of Article XXI Section 2105.82.b.5 appear to be more stringent than the Code's at 129.63a(e)(2).
- Article XXI does not include an equation corresponding to the efficiency equation of 129.63a(e)(2), but that does not adversely impact Article XXI stringency, since the Code allows for accepting the less stringent efficiency. Article XXI is deemed more or as stringent.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

Article XXI
§2105.82 Control of VOC Emissions from Industrial Solvent Cleaning Operations (Continued)

c. **Records.** A facility, regardless of the facility's annual emission rate, which is subject to any of the VOC content limitations specified in this rule, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each industrial solvent cleaner and other component as supplied:

   A. The name and identification number of each industrial solvent cleaning material and the associated industrial cleaning activity;
   B. The volume of each solvent used in the industrial solvent cleaning operation;
   C. The total volume of all the solvents used in the industrial solvent cleaning operation;
   D. The mix ratio;
   E. The density or specific gravity;
   F. The VOC content, based upon applicable procedures established in § 2107.04 of this Article, of each industrial solvent cleaning material, as employed or the VOC composite partial vapor pressures of the solvents or solvent solutions used in the industrial solvent cleaning operation.

2. The VOC content of each industrial solvent cleaner as supplied.
3. The VOC content of each industrial solvent cleaner as applied.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

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(h) *Recordkeeping and reporting requirements.* The owner or operator of a cleaning unit operation subject to this section shall comply with all of the following applicable recordkeeping and reporting requirements:

(1) The owner or operator of a facility at which the total combined actual VOC emissions from all subject cleaning unit operations at the facility are equal to or greater than 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls, shall maintain all of the applicable records:

(i) For an owner or operator that complies with this section by using a complying industrial cleaning solvent under subsection (e)(1), records of all of the following parameters for each cleaning unit operation industrial cleaning solvent:

(A) The name and identification number.
(B) The weight percent of total volatiles, water and exempt solvents, as supplied.
(C) The VOC content or composite vapor pressure, as supplied. The composite vapor pressure as supplied shall be determined in accordance with subsections (i) and (j).
(D) The VOC content or composite vapor pressure, as applied. The composite vapor pressure as applied shall be determined in accordance with subsections (i) and (j).
(E) The volume used or applied on a monthly basis.

(ii) For an owner or operator that complies with this section through the use of a VOC emissions capture system and an add-on air pollution control device under subsection (e)(2), records sufficient to demonstrate all of the following:

(A) Sampling and testing conducted in accordance with Chapter 139 as required under subsection (e)(2).

(B) Calibration, operation and maintenance of the monitoring equipment installed under subsection (g)(1)(ii) in accordance with manufacturer's specifications.

(2) The owner or operator of a cleaning unit operation claiming exemption under subsection (c)(2)(i) shall maintain records of all of the following information for the exempt industrial cleaning solvent:

(i) A copy of the applicable standard or specification.
(ii) The VOC content or composite vapor pressure, as applied. The composite vapor pressure as applied shall be determined in accordance with subsections (i) and (j).
(iii) The volume used or applied monthly.

(3) The owner or operator of a screen printing equipment cleaning unit operation claiming exemption under subsection (c)(2)(ii) shall maintain records of all of the following information for the screen printing equipment industrial cleaning solvent:

(i) The name and identification number.
(ii) The VOC content or composite vapor pressure, as applied. The composite vapor pressure as applied shall be determined in accordance with subsections (i) and (j).
(iii) The volume used or applied monthly.

(4) The owner or operator of a facility claiming exemption under subsection (c)(3) shall maintain monthly records of the industrial cleaning solvents used or applied at the subject cleaning unit operations sufficient to demonstrate that the total combined actual VOC emissions from all subject cleaning unit operations at the facility are less than 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls.

(5) Records shall be maintained onsite for 2 years, unless a longer period is required under Chapter 127 (relating to construction, modification, reactivation and operation of sources) or a plan approval, operating permit, consent decree or order issued by the Department.
(6) Records shall be submitted to the Department in an acceptable format upon receipt of a written request from the Department.

Comparison notes: Article XXI §2105.82.c, "Records," does not have explicit language corresponding to 25 Pa. Code § 129.63a(h)(1)(ii) relating to records and VOC emissions capture system and add-on control devices. However, the first sentence applies the records requirements to any facility which is subject to any of the VOC content limitations.

- Article XXI §2105.82.c, "Records," does not have language corresponding to 25 Pa. Code § 129.63a(h)(2) relating to the exemptions involving the Defense Department or the Federal Aviation Administration. That makes Article XXI more stringent.
- Article XXI does not have the exemptions of 25 Pa. Code § 129.63a(c)(2), and has no language corresponding to § 129.63a(h)(3), above. That would make Article XXI more stringent.
- Article XXI does not have the exemptions of 25 Pa. Code § 129.63a(c)(3), and therefore has not need for language corresponding to § 129.63a(h)(4), above. Article XXI §2105.82.a, which describes "applicability" to the extent that the VOC emissions are "…equal to or greater than 15 pounds per day or 2.7 tons per twelve month rolling period," accounts for the conditions of 25 Pa. Code § 129.63a(c)(3).

No substantive differences.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No industrial solvent cleaning operation which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Exempt Other.** The following industrial solvent cleaning operations shall be exempt from the limitations set by Subsection b:

1. The following industrial solvent cleaning operations are exempt from all the requirements of this rule:
   - A. Janitorial cleaning, including graffiti removal.
   - B. Stripping of cured coatings, cured ink, or cured adhesives.
   - C. Cleaning operations in printing pre-press or graphic arts pre-press areas, including the cleaning of film processors, color scanners, plate processors, film cleaning and plate cleaning.

2. The following industrial solvent cleaning operations are exempt from the VOC content limitations specified in Paragraph b.1 of this rule:
   - A. Cleaning of solar cells, laser hardware, scientific instruments and high precision optics.
   - B. Cleaning conducted as part of the following: performance laboratory tests on coatings, adhesives or inks; research and development programs; and laboratory tests in quality assurance laboratories.
   - C. Cleaning of paper-based gaskets and clutch assemblies where rubber is bonded to metal by means of an adhesive.
   - D. Cleaning of cotton swabs to remove cottonseed oil before cleaning of high precision optics.
   - E. Medical device and pharmaceutical facilities using up to 1.5 gallons (5.7 Liters) per day of solvents.
   - F. Cleaning of adhesive application equipment used for thin metal laminating.
   - G. Cleaning of electronic or electronic cables.
   - H. Touch-up cleaning performed on printed circuit boards where surface mounted devices have already been attached.
   - I. Cleaning of coating and adhesive application processes utilized to manufacture transdermal drug delivery product using less than three gallons per day of ethyl acetate.
   - J. Cleaning of application equipment used to apply coatings on satellites and radiation effect coatings.
   - K. Cleaning of application equipment used to apply solvent borne fluoropolymer coatings.
   - L. Cleaning of ultraviolet or electron beam adhesive application.
   - M. Cleaning of sterilization indicating ink application equipment if the facility employs less than 1.5 gallons (5.7 Liters) per day of solvents for such cleaning.
   - N. Cleaning of metering rollers, dampening rollers and printing plates.
   - O. Cleaning of polyester resin application equipment for sources subject to 40 CRF Part 63, Subpart WWWW.

3. The following industrial solvent cleaning operations are exempt from the requirements of Paragraph b.3 of this rule:
   - A. Cleaning of the nozzle tips of automated spray equipment systems, except for robotic systems.
   - B. Cleaning with spray bottles or containers described in Subparagraph b.2.B of this rule.
   - C. Printing operations where the roller shall be exempt from the requirements of Paragraphs b.1 and b.3 of this rule if the facility employs 1.25 gallons [one hundred sixty fluid ounces (4.7 Liters)] or less of the aerosol products per day.

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

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(c) *Exceptions and exemptions.*

(1) This section does not apply to all of the following:

(i) An owner or operator of a cleaning unit operation subject to § 129.63 (relating to degreasing operations) or 40 CFR Part 63, Subpart T (relating to National emission standards for halogenated solvent cleaning).

(ii) An owner or operator of a cleaning unit operation associated with a following category:

(A) Aerospace manufacturing and rework operations.
(B) Architectural coatings.
(C) Automobile and light-duty truck assembly coatings.
(D) Fabric coating.
(E) Fiberglass boat manufacturing materials.
(F) Flat wood paneling coatings.
(G) Flexible packaging printing materials.
(H) Graphic arts printing and coating operations.
(I) Large appliance coatings.
(J) Letterpress printing materials.
(K) Lithographic printing materials.
(L) Magnet wire coating operations.
(M) Marine vessel coating.
(N) Metal container, closure and coil coating.
(O) Metal furniture coatings.
(P) Miscellaneous metal parts coatings.
(Q) Miscellaneous industrial adhesives.
(R) Motor vehicle and mobile equipment coating operations.
(S) Paper, film and foil coating.
(T) Plastic parts coatings.
(U) Polyester resin operations.
(V) Semiconductor wafer fabrication operations.
(W) Shipbuilding and repair coatings.
(X) Wood furniture coatings.
(Y) Wood products coating.
(Z) Electrical and electronic components.
(AA) Precision optics.
(BB) Numismatic dies.
(CC) Stripping of cured inks, coatings and adhesives.
(DD) Cleaning of resin, coating, ink or adhesive mixing, molding and application equipment.
(EE) Resin, coating, ink and adhesive manufacturing.
(FF) Performance or quality assurance testing of coatings, inks or adhesives.
(GG) Flexible and rigid disc manufacturing.
(HH) Research and development laboratories.
(II) Medical device manufacturing.
(JJ) Pharmaceutical manufacturing.
(KK) Janitorial cleaning.
(LL) Digital printing.

Comparison notes: The language of Article XXI § 2105.82.d, "Exempt Solvents" does not appear in § 129.63a. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.77.d, above. It may be useful for ACHD to process a change to delete this exemption language from § 2105.82.d and the nine other sections where it occurs, but it is not a significant difference with the Code.

- The "Exempt Other" categories of Article XXI § 2105.82.e that are highlighted in Yellow do not appear in § 129.63a(c)(2). However, many of them do appear in CTG EPA 453/R-06-001. This difference does not adversely impact Article XXI with respect to stringency.

- The exempt categories in § 129.63a(c)(2) do not appear to have counterparts in Article XXI § 2105.82.a or e. This would make Article XXI more stringent in this instance.

Equivalency: There is equivalency because there are no impacts on stringency.

Article XXI

§2105.82 Control of VOC Emissions from Industrial Solvent Cleaning Operations (Continued)

f. **Housekeeping.** The following work practices for cleaning materials apply to the owner or operator of an industrial solvent cleaning operation:

1. Store all VOC-containing cleaning materials and used shop towels in closed containers.
2. Ensure that mixing and storage containers used for industrial solvent cleaning operations are kept closed at all times except when depositing or removing those materials.
3. Minimize spills of VOC-containing industrial solvent cleaners, and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing industrial solvent cleaners and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions during cleaning of storage and conveying equipment.

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

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(f) *Work practice requirements for industrial cleaning solvents, used shop towels and waste materials.* The owner or operator of a facility subject to subsection (e) shall comply with all of the following work practices for industrial cleaning solvents and shop towels used in the cleaning unit operation cleaning activity:

(1) Store all VOC-containing industrial cleaning solvents, used shop towels and related waste materials in closed containers.
(2) Ensure that mixing and storage containers used for VOC-containing industrial cleaning solvents and related waste materials are kept closed at all times except when depositing or removing these materials.
(3) Minimize spills of VOC-containing industrial cleaning solvents and related waste materials and clean up spills immediately.
(4) Convey VOC-containing industrial cleaning solvents and related waste materials from one location to another in closed containers or pipes.
(5) Minimize VOC emissions from cleaning of storage, mixing and conveying equipment.
(6) Minimize air circulation around cleaning unit operations.

Comparison notes: Article XXI § 2105.82.f does not have language corresponding to 25 Pa. Code § 129.63a(f)(6) regarding air circulation around cleaning unit operations. This is judged to be an insignificant difference.

Equivalency: There is equivalency because there are no impacts on stringency.

Article XXI

§2105.82 Control of VOC Emissions from Industrial Solvent Cleaning Operations (Continued)

g. **Measurements.** Measurements of the volatile fraction of industrial solvent cleaners, and of volatile organic compound emissions shall be performed according to the applicable procedures established by Part G of this Article.

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

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(i) *Composite vapor pressure.* The composite vapor pressure of organic compounds in cleaning unit operation industrial cleaning solvents shall be determined by one or more of the following procedures:

(1) Quantifying the amount of each compound in the blend using gas chromatographic analysis, using one or more of the following methods:

(i) An appropriate and current ASTM test method with prior written approval from the Department and the EPA.

(ii) Another test method demonstrated to provide results that are acceptable for purposes of determining compliance with this section if prior approval is obtained in writing from the Department and the EPA.

(2) Calculating the composite vapor pressure using the following equation:

$$Pp_c = \frac{\sum_{i=1}^{n} (W_i)\,(VP_i)/Mw_i}{W_w/Mw_w + \sum_{e=1}^{k} W_e/Mw_e + \sum_{i=1}^{n} W_i/Mw_i}$$

Where:

Pp_c = VOC composite partial pressure at 20°C, in mm mercury.

W_i = Weight of the ''i''th VOC compound, in grams, as determined by ASTM E260.

W_w = Weight of water, in grams, as determined by ASTM D3792.

W_e = Weight of the ''e''th exempt compound, in grams, as determined by ASTM E260.

Mw_i = Molecular weight of the ''i''th VOC compound, in grams per g-mole, as given in chemical reference literature.

Mw_w = Molecular weight of water, 18 grams per g-mole.

Mw_e = Molecular weight of the ''e''th exempt compound, in grams per g-mole, as given in chemical reference literature.

VP_i = Vapor pressure of the ''i''th VOC compound at 20°C, in mm mercury, as determined by subsection (j).

(3) Providing documentation from the manufacturer of the industrial cleaning solvent that indicates the composite vapor pressure. The documentation may include an MSDS, CPDS or other data certified by the manufacturer.

(j) *Vapor pressure of single component compound.* The vapor pressure of each single component compound in a cleaning unit operation industrial cleaning solvent shall be determined from one or more of the following:

(1) An appropriate and current ASTM test method with prior written approval from the Department and the EPA.

(2) The most recent edition of one or more of the following sources:

(i) *Vapour Pressures of Pure Substances*, Boublik, Elsevier Scientific Publishing Company.

(ii) *Perry's Chemical Engineers' Handbook*, Green and Perry, McGraw-Hill Book Company.

(iii) *CRC Handbook of Chemistry and Physics*, CRC Press.

(iv) *Lange's Handbook of Chemistry*, McGraw-Hill Book Company.

(3) Documentation provided by the manufacturer of the single component compound that indicates the vapor pressure of the single component compound. The documentation may include an MSDS, CPDS or other data certified by the manufacturer.

(k) *ASTM method references.* References to ASTM methods in this section pertain to test methods developed by ASTM International, 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, Pennsylvania 19428-2959, www.astm.org.

Comparison notes: Article XXI does not include requirements to measure Composite Vapor Pressure or the Vapor Pressure of Single Component Compound. This is acceptable since Article XXI §2105.80.b.6 establishes composite vapor pressure as a VOC limitation only "in lieu of complying with the solvent content limitations of Table 2105.82.

- The Code has extensive detail regarding sampling and testing requirements, that does not exist in Article XXI §2105.80.g. That would appear to be a deficiency, however, Article XXI Part G, §2107.01 incorporates by reference Chapter 139 of the Code. Therefore, the requirements can be expected to be addressed.

Equivalency: There is equivalency because there are no impacts on stringency.

Article XXI

§2105.82 Control of VOC Emissions from Industrial Solvent Cleaning Operations (Continued)

Table 2105.82

Emission Limits of VOCs for Industrial Solvent Cleaning Operations

	Industrial Solvent Cleaning Operation	VOC Content Limitation as employed lbs VOC per gal	kg VOC per liter
1.	Product cleaning during manufacturing process or surface preparation for coating, adhesive, or ink application		
	(a) General	0.42	0.050
	(b) Electrical apparatus components and electronic components	0.83	0.099
	(c) Medical devices and pharmaceuticals	6.7	0.80
2.	Repair and maintenance cleaning		
	(a) General	0.42	0.050
	(b) Electrical apparatus components and electronic components	0.83	0.099
	(c) Medical devices and pharmaceuticals		
	(i) Tools, equipment and machinery	6.7	0.80
	(ii) General work surfaces	5.0	0.60
3.	Cleaning of coating or adhesive	0.42	0.050
4.	Cleaning of ink application equipment:		
	(a) General	0.42	0.050
	(b) Flexographic printing	0.42	0.050
	(c) Gravure printing		
	(i) Publication	0.83	0.099
	(ii) Packaging	0.42	0.050
	(d) Screen printing	4.2	0.50
	(e) Ultraviolet ink and electron beam ink application equipment, except screen printing	4.2	0.50
	(f) Specialty flexographic printing	0.83	0.099
5.	Cleaning of polyester resin application equipment not subject to 40 CRF Part 63 Subpart WWWW	0.42	0.050

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

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(e) *Emissions limitations.* Beginning August 11, 2018, the owner or operator of a facility at which the total combined actual VOC emissions from all subject cleaning unit operations at the facility are equal to or greater than 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls, may not cause or permit the emission into the outdoor atmosphere of VOCs from an industrial cleaning solvent used or applied in a cleaning unit operation subject to this section at the facility, unless one of the following limitations is met:

(1) *Compliant solvents.* The industrial cleaning solvent meets one of the following VOC limits:
(i) A VOC content less than or equal to 0.42 lb VOC/gal (50 g VOC/l) as applied.
(ii) A VOC composite vapor pressure less than or equal to 8 mm mercury at 68°F (20°C) as applied.

Comparison notes. The limits of Article XXI Table 2105.82 do not appear in a similar table in the Code.

- However, § 129.63a(e)(1)(i) has one of the Table 2105.82 limits, the one for VOC content less than or equal to 0.42 lb VOC/gal (50 g VOC/l). The composite vapor pressure limit is stated in Article XXI §2105.82.b.6 Article XXI is more stringent.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

Article XXI
§2105.82 Control of VOC Emissions from Industrial Solvent Cleaning Operations (Continued)

Article XXI does not have language comparable to 129.63a(g), below.

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§ 129.63a. Control of VOC emissions from industrial cleaning solvents (continued)

(g) *Compliance demonstration.* The owner or operator of a cleaning unit operation subject to this section shall demonstrate compliance as follows:

(1) The owner or operator of a facility at which the total combined actual VOC emissions from all subject cleaning unit operations at the facility are equal to or greater than 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of controls, shall do either of the following:

(i) Ensure that industrial cleaning solvents used or applied in the subject cleaning unit operations at the facility meet the applicable emissions limitation in subsection (e)(1) and maintain records in accordance with subsection (h)(1)(i).

(ii) Use a VOC emissions capture system and an add-on air pollution control device that meets the VOC emission reduction requirement under subsection (e)(2), equip the add-on air pollution control device with the applicable monitoring equipment and maintain records in accordance with subsection (h)(1)(ii). All of the following apply:

(A) The monitoring equipment shall be installed, calibrated, operated and maintained according to manufacturer's specifications at all times when the add-on air pollution control device is operating.

(B) The add-on air pollution control device must be operating when the cleaning activity is occurring.

(2) The owner or operator of a cleaning unit operation subject to this section claiming exemption under:

(i) Subsection (c)(2)(i) shall maintain records in accordance with subsection (h)(2).

(ii) Subsection (c)(2)(ii) shall maintain records in accordance with subsection (h)(3).

(iii) Subsection (c)(3) shall maintain records in accordance with subsection (h)(4).

(3) The owner or operator of a cleaning unit operation subject to this section shall determine the VOC content of the industrial cleaning solvent as applied by conducting sampling and testing of the industrial cleaning solvent in accordance with the procedures and test methods specified in subsections (i) and (j) and Chapter 139.

(4) The owner or operator of a cleaning unit operation subject to paragraph (3) may use other test methods or documentation to demonstrate compliance with this section if approved in advance in writing by the Department and the EPA.

Comparison notes. Article XXI does not appear to include language corresponding to that of 25 Pa. Code § 129.63a(g). However, ACHD would meet this compliance demonstration via its usual enforcement/oversight procedures. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

§2105.83 Control of VOC Emissions from Miscellaneous Metal and/or Plastic Parts Surface Coating Processes *{Added May 29, 2013, effective June 8, 2013. Subsections b & i amended October 26, 2022, effective November 5, 2022.}*

a. **Applicability.** Beginning January 1, 2014, this section applies to the owner or operator of a miscellaneous metal parts and/or plastic parts surface coating processes, where the total actual VOC emissions from all miscellaneous metal parts and/or plastic parts surface coating processes, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period, before controls.

The provisions of this rule shall not apply to the following source categories listed for regulation under Section 183(e) of the Clean Air Act:

1. Shipbuilding and repair coatings;
2. Aerospace coatings;
3. Wood furniture coatings;
4. Metal furniture coatings;
5. Large appliance coatings;
6. Auto and light-duty truck assembly coatings;
7. Flat wood paneling coatings;
8. Miscellaneous industrial adhesives;
9. Fiberglass boat manufacturing materials;
10. Paper, film, and foil coatings; or

Can coatings, coil coatings or magnet wire coatings which are not listed under Section 183(e) of the Act, but were addressed by regulation § 2105.10.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings. *The provisions of this § 129.52d adopted October 21, 2016, effective October 22, 2016, 46 Pa.B. 6758.*

(a) *Applicability.*

(1) This section applies to the owner and operator of a miscellaneous metal part surface coating process or miscellaneous plastic part surface coating process, or both, if the total actual VOC emissions from all miscellaneous metal part coating units and miscellaneous plastic part coating units, including related cleaning activities, at the facility are equal to or greater than 2.7 tons per 12-month rolling period, before consideration of controls.

(2) This section applies, as specified, to the owner and operator of a miscellaneous metal part surface coating process or miscellaneous plastic part surface coating process, or both, if the total actual VOC emissions from all miscellaneous metal part coating units and miscellaneous plastic part coating units, including related cleaning activities, at the facility are below 2.7 tons per 12-month rolling period, before consideration of controls.

(3) Compliance with the VOC emission limits and other requirements of this section assures compliance with the VOC emission limits and other requirements of § 129.52 (relating to surface coating processes) for the miscellaneous metal parts and products surface coating processes as specified in § 129.52, Table I, Category 10.

(4) If an owner or operator elects to comply with § 129.52e (relating to control of VOC emissions from automobile and light-duty truck assembly surface coating operations and heavier vehicle coating operations) under § 129.52e(a)(2) or (3), then § 129.52e instead of this section applies to the separate coating line at the facility, or to the coating of a body or body part for a new heavier vehicle at the facility, or both, for which the election is made.

(5) This section does not apply to an owner or operator in the use or application of the following:

(i) Aerosol coatings that meet the requirements of 40 CFR Part 59, Subpart E (relating to National volatile organic compound emission standards for aerosol coatings).

(ii) Aerospace coatings.

(iii) Architectural coatings.
(iv) Automobile refinishing coatings.
(v) Auto and light-duty truck assembly coatings.
(vi) Can, coil or magnet wire coatings.
(vii) Coating applied to a test panel or coupon, or both, in research and development, quality control or performance testing activities, if records are maintained as required under subsections (e) and (f).
(viii) Fiberglass boat manufacturing materials.
(ix) Flat wood paneling coatings.
(x) Large appliance coatings.
(xi) Metal furniture coatings.
(xii) Miscellaneous industrial adhesives.
(xiii) Paper, film and foil coatings.
(xiv) Shipbuilding and repair coatings.
(xv) Wood furniture coatings.

Comparison notes.. Article XXI §2105.83.a does not include language corresponding to § 129.52d(a)(2). Acceptable because the CTG does not recommend the control approaches for facilities that emit below the 2.7 tpy level.

- Article XXI §2105.83.a does not include language corresponding to § 129.52d(a)(3). Acceptable because 2105.10.a.3 already includes a corresponding statement.
- Article XXI §2105.83.a does not include language corresponding to § 129.52d(a)(4). Does not impact stringency, however.
- Article XXI §2105.83.a does not include language corresponding to § 129.52d(a)(5)(i), (iii), (iv) and (vii). However, the first three of these are addressed by §2105.83.f.1.A, B and C. The fourth is addressed by §2105.83.f.3.D.
- No substantive difference overall.

Equivalency: There is equivalency because there are no substantive differences.

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a miscellaneous metal parts and/or plastic parts surface coating processes, unless one of the following limitations is met:

1. The VOC content of each applied coating is equal to or less than the standard specified in Table 2105.83.1.

   A. The VOC content, minus exempt compounds, of the applied coating, expressed in units of weight of VOC per volume of total nonexempt material, shall be calculated as follows:

$$VOC = \frac{W_s - W_w - W_{ex}}{V_m - V_w - V_{ex}}$$

   Where:
   VOC = VOC content, minus exempt compounds, in lb (g) VOC / gal (l) of materials, minus exempt compounds
   W_s = Weight of all volatile material in pounds (g), including VOC, water, non-precursor organic compounds and dissolved vapors
   W_w = Weight of water in pounds (g)
   W_{ex} = Weight of exempt solvent(s) in pounds (g)
   V_m = Volume of total material, as applied in gallons (l)
   V_w = Volume of water in gallons (l)
   V_{ex} = Volume of exempt solvent(s) in gallons (l)

   B. The VOC content limits of subparagraph A may be met by averaging the VOC content of materials used on a single application unit for each day (i.e., daily within-application unit averaging).

   C. Sampling and testing shall be done in accordance with the procedures and test methods established by Part G (Methods).

2. The VOC content limitations based on low-VOC coatings as specified in Table 2105.83.2 of this rule, the use of add-on pollution control equipment to meet the VOC content limitations, and the use of an application method specified in Subsection e of this rule.

   A. The VOC content, minus exempt compounds, of the applied coating, expressed in units of weight of VOC per volume of total material, shall be calculated as follows:

$$VOC = \frac{W_s - W_w - W_{ex}}{V_m}$$

   Where:
   VOC = VOC content, minus exempt compounds, in lb (g) VOC / gal (l) of materials
   W_s = Weight of all volatile material in pounds (g), including VOC, water, non-precursor organic compounds and dissolved vapors
   W_w = Weight of water in pounds (g)
   W_{ex} = Weight of exempt solvent(s) in pounds (g)
   V_m = Volume of total material, as applied in gallons (l)

   B. The VOC content limits of subparagraph A may be met by averaging the VOC content of materials used on a single application unit for each day (i.e., daily within-application unit averaging).

C. Sampling and testing shall be done in accordance with the procedures and test methods established by Part G (Methods).

3. The overall weight of VOC emitted to the atmosphere is reduced through the use of an oxidizer, adsorber, absorber, concentrator, or another add-on control which is acceptable under § 2105.01 (Equivalent Compliance Techniques). The overall control system, as determined by the test methods and procedures established by Part G, shall be no less than 90%.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(c) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued under § § 129.91—129.95 (relating to stationary sources of NO_x and VOCs) to the owner or operator of a source subject to subsection (a) prior to January 1, 2017, to control, reduce or minimize VOCs from a miscellaneous metal part or miscellaneous plastic part surface coating process, except to the extent the RACT permit contains more stringent requirements.

(d) *Emission limitations.* Beginning January 1, 2017, a person subject to subsection (a)(1) may not cause or permit the emission into the outdoor atmosphere of VOCs from a miscellaneous metal part coating unit or miscellaneous plastic part coating unit, or both, unless emissions of VOCs are controlled in accordance with paragraph (1), (2) or (3).

(1) *Compliant materials option.* The VOC content of each miscellaneous metal part coating or each miscellaneous plastic part coating, as applied, excluding water and exempt compounds, is equal to or less than the VOC content limit for the applicable coating category specified in the applicable table of VOC content limits in Tables I—V.

(2) *Combination of compliant materials, VOC emissions capture system and add-on air pollution control device option.* The combination of one or more VOC-containing coatings, as applied, that meet the emission rate limits for the applicable coating category specified in the applicable table of emission rate limits in Tables VI—IX, and one or more VOC emissions capture systems and one or more add-on air pollution control devices that meet the requirements of subsection (e)(2).

(3) *VOC emissions capture system and add-on air pollution control device option.* The overall weight of VOCs emitted to the atmosphere is reduced through the use of vapor recovery, oxidation, incineration or another method that is acceptable under § 129.51(a) (relating to general) and meets the requirements of subsection (e)(2). The overall control efficiency of a control system, as determined by the test methods and procedures specified in Chapter 139 (relating to sampling and testing), may be no less than 90%.

(4) *Least restrictive VOC limit.* If more than one VOC content limit or VOC emission rate limit applies to a specific coating, then the least restrictive VOC content limit or VOC emission rate limit applies.

(5) *Coatings not listed in Table I, II, VI or VII.* For a miscellaneous metal part or miscellaneous plastic part coating that does not meet the coating categories listed in Table I, II, VI or VII, the VOC content limit or VOC emission rate limit shall be determined by classifying the coating as a general one component coating or general multicomponent coating. The corresponding general one component coating or general multicomponent coating limit applies.

(6) *Coatings not listed in Table IV or IX.* For a pleasure craft coating that does not meet the coating categories listed in Table IV or IX, the VOC content limit or VOC emission rate limit shall be determined by classifying the coating as an ‘‘all other pleasure craft surface coatings for metal or plastic.’’ The ‘‘all other pleasure craft surface coatings for metal or plastic’’ limit applies.

Comparison notes.. Article XXI does not have language corresponding to § 129.52d(c) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.52d(c).

- Article XXI §2105.83.b.1.A and b.2.A include the two equations not shown in 25 Pa. Code § 129.52d(d). No impact on stringency.
- Article XXI includes statements at §2105.83.b.1.B and b.2.B, regarding the ability to average VOC content materials. The Code does not have corresponding language. This statement is made in EPA-453/R-08-003. No impact on stringency.
- Article XXI does not include language corresponding to 25 Pa. Code § 129.52d(d)(5) and (6) relating to coatings not listed in the various tables. The Code therefore has a broader reach of coatings, however, the fact that Article XXI does not include this feature does not decrease the stringency of Article XXI.
- Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are equivalent.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

Article XXI does not include language corresponding to § 129.52d(e), below.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

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(e) *Compliance and monitoring requirements.*

(1) *All owners and operators.* Regardless of the facility's VOC emissions, the owner or operator of a miscellaneous metal part surface coating process or miscellaneous plastic part surface coating process, or both, subject to subsection (a)(1) or (2), shall comply with this section as specified throughout this section. For an owner or operator subject only to subsection (a)(2), the compliance requirements are the recordkeeping requirements in subsection (f)(2).

(2) *VOC emissions capture system and add-on air pollution control device.* The owner or operator of a facility subject to subsection (a)(1) that elects to comply with the emission limitations of subsection (d) through installation of a VOC emissions capture system and add-on air pollution control device under subsection (d)(2) or (3) shall submit an application for a plan approval to the appropriate regional office. The plan approval must be approved, in writing, by the Department prior to installation and operation of the emissions capture system and add-on air pollution control device. The plan approval must include the following information:

(i) A description, including location, of each affected source or operation to be controlled with the emissions capture system and add-on air pollution control device.
(ii) A description of the proposed emissions capture system and add-on air pollution control device to be installed.
(iii) A description of the proposed compliance monitoring equipment to be installed.
(iv) A description of the parameters to be monitored to demonstrate continuing compliance.
(v) A description of the records to be kept that will document the continuing compliance.
(vi) A schedule containing proposed interim dates for completing each phase of the required work to install and test the emissions capture system and add-on air pollution control device described in subparagraph (ii) and the compliance monitoring equipment described in subparagraph (iii).
(vii) A proposed interim emission limitation that will be imposed on the affected source or operation until compliance is achieved with the applicable emission limitation.
(viii) A proposed final compliance date that is as soon as possible but not later than 1 year after the start of installation of the approved emissions capture system and add-on air pollution control device and the compliance monitoring equipment.

Comparison notes.. §2105.83 does not include the language of 25 Pa. Code § 129.52d(e). However, §2105.83.b.3 invokes §2105..01 (Equivalent Compliance Techniques) which does address these requirements.

Equivalency: There is equivalency.

Article XXI

§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains miscellaneous metal parts and/or plastic parts surface coating processes, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating and other component as supplied:
   - A. The coating, thinner or component name and identification number;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, and exempt solvents;
   - F. The volume percent of total materials, water, and exempt solvents for either Table 2105.83.1 or Table 2105.83.2 for miscellaneous metal parts and/or plastic parts surface coating processes.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(f) *Recordkeeping and reporting requirements.*

(1) The owner or operator of a miscellaneous metal part coating unit or miscellaneous plastic part coating unit, or both, subject to subsection (a)(1) shall maintain monthly records sufficient to demonstrate compliance with this section. The records must include the following information:

(i) The following parameters for each coating, thinner, component and cleaning solvent as supplied:

(A) Name and identification number of the coating, thinner, other component or cleaning solvent.

(B) Volume used.

(C) Mix ratio.

(D) Density or specific gravity.

(E) Weight percent of total volatiles, water, solids and exempt solvents.

(F) Volume percent of total volatiles, water and exempt solvents for the applicable table of limits in Tables I—V.

(G) Volume percent of solids for the applicable table of limits in Tables VI—IX.

(ii) The VOC content of each coating, thinner, other component and cleaning solvent as supplied.

(iii) The VOC content of each as applied coating or cleaning solvent.

(iv) The calculations performed for each applicable requirement under subsections (d) and (e).

(v) The information required in a plan approval issued under subsection (e)(2).

(2) An owner or operator subject to subsection (a)(2), or otherwise claiming an exemption or exception in this section, shall maintain records sufficient to verify the applicability of subsection (a)(2), the exemption or exception. Records maintained for compliance demonstrations may include purchase, use, production and other records.

(3) The records shall be maintained onsite for 2 years, unless a longer period is required by an order, plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources).

(4) The records shall be submitted to the Department in an acceptable format upon receipt of a written request from the Department.

Comparison notes.

- §2105.83.c.1.F is slightly different than § 129.52d(f)(1)(i)(F) and (G) because it does not mention Volume percent of solids.
- Article XXI does not have language corresponding to 129.52d(f)(1)(ii), (iii), (iv) or (v), and 129.52d(f)(2). No impact on emission reduction stringency requirements.

Equivalency: There is no adverse impact on stringency resulting from the recordkeeping requirements. There is equivalency.

Article XXI

§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No miscellaneous metal parts and/or plastic parts surface coating processes which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

e. **Application Techniques.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of miscellaneous metal parts and/or plastic parts surface coatings unless the coatings are applied using one or more of the following application methods:

1. Airless spraying;
2. Air-assisted airless spraying;
3. Electrostatic spraying;
4. High volume-low pressure (HVLP) spraying;
5. Dip coating, including electrodeposition;
6. Flow coating;
7. Roll coating;
8. Autophoretic coating;
9. Zinc-arc spraying;
10. Other coating application method that the person demonstrates and the Department determines achieves emission reductions equivalent to HVLP spraying.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(g) *Coating application methods.* A person subject to subsection (a)(1) may not cause or permit the emission into the outdoor atmosphere of VOCs from a miscellaneous metal part coating unit or miscellaneous plastic part coating unit, or both, unless the coatings are applied using one or more of the following coating application methods:

(1) Electrostatic coating.
(2) Flow coating.
(3) Dip coating, including electrodeposition.
(4) Roll coating.
(5) High volume-low pressure (HVLP) spray coating.
(6) Airless spray coating.
(7) Air-assisted airless spray coating.
(8) Other coating application method if approved in writing by the Department prior to use.

(i) The coating application method must be capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spray coating.

(ii) The owner or operator shall submit the request for approval to the Department in writing.

Comparison notes.

- The language of Article XXI § 2105.83.d, "Exempt Solvents" does not appear in § 129.52d. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.77.d, above. It is not a significant difference with the Code.
- The language of Article XXI § 2105.83.e.8 & 9 is not found in § 129.52d(g). That is a difference that is judged to make Article XXI more stringent.

Equivalency: There is equivalency because there are no substantive differences.

f. **Exempt Other.**

1. The following shall be exempt from this regulation:
   A. Aerosol coatings;
   B. Architectural coatings;
   C. Automobile refinish coatings;
   D. The coating of bodies and/or body parts for new heavier vehicles where the owner or operator elects to comply with the requirements of regulation §2105.84.

2. The following metal parts coatings and coating operations shall be exempt from the limitations set by Subsection b, and Subsection e, Application Techniques but shall still comply with Subsection h, Housekeeping:
   A. Stencil coatings;
   B. Safety-indicating coatings;
   C. Solid-film lubricants;
   D. Electric-insulating and thermal-conducting coatings;
   E. Magnetic data storage disk coatings;
   F. Plastic extruded onto metal parts to form a coating.

3. The following plastic parts coatings and coating operations shall be exempt from the limitations set by Subsection b, but shall still comply with Subsection e, Application Techniques and Subsection h, Housekeeping:
   A. Touch-up and repair coatings;
   B. Stencil coatings applied on clear or transparent substrates;
   C. Clear or translucent coatings;
   D. Coatings applied at a paint manufacturing facility while conducting performance tests on the coating;
   E. Any individual coating category used in volumes less than 50 gallons in any one year, if substitute compliant coatings are not available, provided that the total usage of all such coatings does not exceed 200 gallons per year, per facility;
   F. Reflective coating applied to highway cones;
   G. Mask coatings that are less than 0.5 millimeter thick (dried) and the area coated is less than 25 square inches;
   H. Electromagnetic interference/radio frequency interference (EMI/RFI) shielding coatings;
   I. Heparin-benzalkonium chloride (HBAC)-containing coatings applied to medical devices, provided that the total usage of all such coatings does not exceed 100 gallons per year, per facility.

4. The following automotive/transportation and business machine plastic part coatings and coating operations shall be exempt from the limitations set by Subsection b, but shall still comply with Subsection e, Application Techniques and Subsection h, Housekeeping:
   A. Texture coatings;
   B. Vacuum metalizing coatings;
   C. Gloss reducers;
   D. Texture topcoats;
   E. Adhesive primers;
   F. Electrostatic preparation coatings;
   G. Resist coatings;
   H. Stencil coatings.

5. The application techniques in Subsection e of this rule do not apply to the following:
   A. For metal parts coatings; touch-up coatings, repair coatings, and textured finishes.

B. For plastic parts coatings; airbrush operations using five gallons or less of coating per year.
C. For pleasure craft surface coating operations; extreme high gloss coatings.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(h) *Exempt coatings and exempt coating unit operations.*

(1) The requirements of subsections (d) and (g) do not apply to the application of the following coatings to a metal part:
(i) Stencil coating.
(ii) Safety-indicating coating.
(iii) Solid-film lubricant.
(iv) Electric-insulating and thermal-conducting coating.
(v) Magnetic data storage disk coating.
(vi) Plastic extruded onto metal parts to form a coating.
(vii) Powder coating.

(2) The requirements of subsection (d) do not apply to the application of the following coatings to a plastic part:
(i) Touch-up and repair coating.
(ii) Stencil coating applied on a clear or transparent substrate.
(iii) Clear or translucent coating.
(iv) Coating applied at a paint manufacturing facility while conducting performance tests on coating.
(v) Reflective coating applied to highway cones.
(vi) Mask coating, if the coating is less than 0.5 millimeter thick (dried) and the area coated is less than 25 square inches.
(vii) EMI/RFI shielding coating.
(viii) Heparin-benzalkonium chloride (HBAC)-containing coating applied to a medical device, provided that the total usage of HBAC-containing coatings does not exceed 100 gallons in 1 calendar year at the facility.
(ix) Powder coating.
(x) An individual coating category used in an amount less than 50 gallons in 1 calendar year provided that the total usage of all of the coatings, combined, does not exceed 200 gallons per year at the facility. This exception applies only if substitute compliant coatings are not available.

(3) The requirements of subsection (d) do not apply to the application of the following coatings to automotive-transportation and business machine parts:
(i) Texture coat.
(ii) Vacuum-metalizing coating.
(iii) Gloss reducer.
(iv) Texture topcoat.
(v) Adhesion primer.
(vi) Electrostatic prep coat.
(vii) Resist coating.
(viii) Stencil coating.
(ix) Powder coating.

(4) The requirements of subsection (g) do not apply to the following activities:
(i) Application of a touch-up coating, repair coating or textured finish to a metal Article
(ii) Application of a powder coating to the following:
(A) Plastic Article
(B) Automotive-transportation plastic Article
(C) Business machine plastic Article

(iii) Airbrush application of coating to a metal part or plastic part using no more than 5 gallons of coating per year.

(iv) Use of an add-on air pollution control device to comply with subsection (d).

(v) Application of extreme high-gloss coating in a pleasure craft surface coating operation.

Comparison notes.

- Article XXI §2105.83.f.1.D provides an exemption for the coating of bodies and/or body parts for new heavier vehicles where the owner or operator elects to comply with the requirements of regulation §2105.84, which is not in the Code. However, this is judged to not be a significant difference.
- Article XXI §2105.83.f does not have language corresponding to that in 25 Pa. Code § 129.52d(h) relating to powder coating and to the use of an add-on air pollution control device. However, since this involves exemptions, the absence of such in Article XXI tends to make Article XXI more stringent.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

g. **Emission Limitations.** For those who elect to adopt the limitation from Subparagraph b.1, if more than one emission limitation in Table 2105.83.1 for miscellaneous metal parts and/or plastic parts applies to a specific coating, the least stringent emission limitation applies. For those who elect to adopt the limitation from Subparagraph b.2, if more than one emission limitation in Table 2105.83.2 for miscellaneous metal parts and/or plastic parts applies to a specific coating, the least stringent emission limitation applies.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(d) *Emission limitations.* Beginning January 1, 2017, a person subject to subsection (a)(1) may not cause or permit the emission into the outdoor atmosphere of VOCs from a miscellaneous metal part coating unit or miscellaneous plastic part coating unit, or both, unless emissions of VOCs are controlled in accordance with paragraph (1), (2) or (3).

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(4) *Least restrictive VOC limit.* If more than one VOC content limit or VOC emission rate limit applies to a specific coating, then the least restrictive VOC content limit or VOC emission rate limit applies.

Comparison notes. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

h. **Housekeeping.** The following work practices for cleaning materials apply to the owner or operator of a miscellaneous metal parts and/or plastic parts surface coating processes:

1. Store all VOC-containing coatings, thinners, coating–related waste materials, cleaning materials and used shop towels in closed containers.

2. Ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials and cleaning materials are kept closed at all times except when depositing or removing these materials.

3. Minimize spills of VOC-containing coatings, thinners, coating–related waste materials and cleaning materials, cleaning up spills immediately.

4. Convey VOC-containing coatings, thinners, coating–related waste materials and cleaning materials from one location to another in closed containers or pipes.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(j) *Work practice requirements for cleaning materials.* The owner or operator of a miscellaneous metal part coating unit or miscellaneous plastic part coating unit subject to subsection (a)(1) shall comply with the following work practices for cleaning materials:

(1) Store all VOC-containing cleaning materials and used shop towels in closed containers.

(2) Ensure that mixing vessels and storage containers used for VOC-containing cleaning materials are kept closed at all times except when depositing or removing these materials.

(3) Minimize spills of VOC-containing cleaning materials and clean up spills immediately.

(4) Convey VOC-containing cleaning materials from one location to another in closed containers or pipes.

(5) Minimize VOC emissions from cleaning of application, storage, mixing or conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

Comparison notes. Article XXI § 2105.83.h does not have language corresponding to 25 Pa. Code § 129.52d(j)(5) regarding ensuring that equipment cleaning is performed without atomizing the cleaning solvent. However, that is judged to not be a significant difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

i. **Measurements.** Measurements of the volatile fraction of coatings, other than reactive coatings, used at facilities operating miscellaneous metal parts and/or plastic parts surface coating processes shall be performed according to the applicable procedures established by Part G of this Article.

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

(k) *Measurements and calculations.* To determine the properties of a coating or component used in a miscellaneous metal parts surface coating process or miscellaneous plastic parts surface coating process, measurements and calculations shall be performed according to one or more of the following:

(1) EPA Reference Method 24, *Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings*, found at 40 CFR Part 60, Subpart D, Appendix A, including updates and revisions.

(2) Manufacturer's formulation data.

(3) Sampling and testing done in accordance with the procedures and test methods specified in Chapter 139.

(4) Other test method demonstrated to provide results that are acceptable for purposes of determining compliance with this section if prior approval is obtained in writing from the Department.

(5) Add-on air pollution control devices shall be equipped with the applicable monitoring equipment according to manufacturers' specifications. The monitoring equipment shall be installed, calibrated, operated and maintained according to manufacturers' specifications at all times the add-on air pollution control device is in use.

(6) EPA calculations information in the following:

(i) *A Guideline for Surface Coating Calculations*, EPA-340/1-86-016, including updates and revisions.

(ii) *Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink, and Other Coatings*, EPA-450/3-84-019, including updates and revisions.

Comparison notes. Article XXI §2105.83.i does not include the level of detail found in 25 Pa. Code § 129.52d(k). Article XXI does not include any of the highlighted language. However, Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A, and 25 Pa. Code § 129.52d(k) states that "… measurements and calculations shall be performed according to one or more of the following…" including Chapter 139. Therefore, Article XXI is of adequate stringency when compared to the Code.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

Article XXI 2105.83 does not have a separate subsection corresponding to 129.52d(i), below.

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(i) *Work practice requirements for coating-related activities.* The owner or operator of a miscellaneous metal part coating unit or miscellaneous plastic part coating unit, or both, subject to subsection (a)(1) shall comply with the following work practices for coating-related activities:

(1) Store all VOC-containing coatings, thinners or coating-related waste materials in closed containers.

(2) Ensure that mixing and storage containers used for VOC-containing coatings, thinners or coating-related waste materials are kept closed at all times, except when depositing or removing these coatings, thinners or waste materials.

(3) Minimize spills of VOC-containing coatings, thinners or coating-related waste materials and clean up spills immediately.

(4) Convey VOC-containing coatings, thinners or coating-related waste materials from one location to another in closed containers or pipes.

Comparison notes. Article XXI 2105.83 does not have a separate subsection corresponding to 129.52d(i), below. However, these "Work Practice requirements are much the same as the "Housekeeping" requirements. Therefore, there is no substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Table 2105.83.1
Emission Limits of VOCs for Miscellaneous Metal and/or Plastic Surface Coatings

Limits as Applied **Mass of VOC per volume of coating (minus exempt compounds)**

Metal Parts and Products VOC Content Limits	Air Dried		Baked	
Coating Category	kg/l	lb/gal	kg/l	lb/gal
General One Component	0.34	2.8	0.28	2.3
General Multi-Component	0.34	2.8	0.28	2.3
Camouflage	0.42	3.5	0.42	3.5
Electric-Insulating Varnish	0.42	3.5	0.42	3.5
Etching Filler	0.42	3.5	0.42	3.5
Extreme High-Gloss	0.42	3.5	0.36	3.0
Extreme Performance	0.42	3.5	0.36	3.0
Heat-Resistant	0.42	3.5	0.36	3.0
High Performance Architectural	0.74	6.2	0.74	6.2
High Temperature	0.42	3.5	0.42	3.5
Metallic	0.42	3.5	0.42	3.5
Military Specification	0.34	2.8	0.28	2.3
Mold-Seal	0.42	3.5	0.42	3.5
Pan Backing	0.42	3.5	0.42	3.5
Prefabricated Architectural Multi-Component	0.42	3.5	0.28	2.3
Prefabricated Architectural One Component	0.42	3.5	0.28	2.3
Pretreatment	0.42	3.5	0.42	3.5
Repair and Touch-Up	0.42	3.5	0.36	3.0
Silicone Release	0.42	3.5	0.42	3.5
Solar-Absorbent	0.42	3.5	0.36	3.0
Vacuum-Metalizing	0.42	3.5	0.42	3.5
Drum Coating, New, Exterior	0.34	2.8	0.34	2.8
Drum Coating, New, Interior	0.42	3.5	0.42	3.5
Drum Coating, Reconditioned, Exterior	0.42	3.5	0.42	3.5
Drum Coating, Reconditioned, Interior	0.50	4.2	0.50	4.2

Plastic Parts and Products VOC Content Limits

Coating Category	kg/l	lb/gal
General One Component	0.28	2.3
General Multi-Component	0.42	3.5
Electric Dissipating and Shock-Free	0.80	6.7
Extreme Performance (2-pack coatings)	0.42	3.5
Metallic	0.42	3.5
Military Specification (1-pack coatings)	0.34	2.8
Military Specification (2-pack coatings)	0.42	3.5
Mold-Seal	0.76	6.3
Multi-colored Coatings	0.68	5.7
Optical Coatings	0.80	6.7
Vacuum-Metalizing	0.80	6.7

Automotive Transportation and Business Machine Plastic Parts VOC Content Limits

Coating Category	kg/l	lb/gal
--Automotive Transportation Coatings*--		

High Bake – Interior and Exterior Parts		
Flexible Primer	0.54	4.5
Non-Flexible Primer	0.42	3.5
Basecoat	0.52	4.3
Clearcoat	0.48	4.0
Non-Basecoat/Clearcoat	0.52	4.3
Low Bake/Air Dried – Exterior Parts		
Primer	0.58	4.8
Basecoat	0.60	5.0
Clearcoat	0.54	4.5
Non-Basecoat/Clearcoat	0.60	5.0
Low Bake/Air Dried – Interior Parts	0.60	5.0
Touch-Up and Repair	0.62	5.2
--Business Machine Coatings--		
Primers	0.35	2.9
Topcoat	0.35	2.9
Texture Coat	0.35	2.9
Fog Coat	0.26	2.2
Touch-Up and Repair	0.35	2.9

* For red, yellow, and black automotive coatings, except touch-up and repair coatings, the limit is determined by multiplying the appropriate limit in this section of the table by 1.15

Pleasure Craft Surface Coating VOC Content Limits

Coating Category	kg/l	lb/gal
Extreme High-Gloss Topcoat	0.49	4.1
High-Gloss Topcoat	0.42	3.5
Pretreatment Wash Primers	0.78	6.5
Finish Primer/Surfacer	0.42	3.5
High-Build Primer Surfacer	0.34	2.8
Aluminum Substrate Antifoulant	0.56	4.7
Other Substrate Antifoulant	0.33	2.8
All Other Pleasure Craft Surface Coatings for Metal or Plastic	0.42	3.5

Motor Vehicle Materials VOC Content Limits

Coating Category	kg/l	lb/gal
Motor Vehicle Cavity Wax	0.65	5.4
Motor Vehicle Sealer	0.65	5.4
Motor Vehicle Deadener	0.65	5.4
Motor Vehicle Gasket/Gasket Sealing Material	0.20	1.7
Motor Vehicle Underbody	0.65	5.4
Motor Vehicle Truck Interior	0.65	5.4
Motor Vehicle Bedliner	0.20	1.7
Motor Vehicle Lubricating Wax/Compound	0.70	5.8

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Table I. VOC Content Limits for Metal Parts and Products
Surface Coatings
Weight of VOC per Volume of Coating,
Less Water and Exempt Compounds, as Applied

	Air Dried		*Baked*	
Coating Category	kg VOC/			
l coating	lb VOC/			
gal coating	kg VOC/			
l coating	lb VOC/			
gal coating				
General One-component	0.34	2.8	0.28	2.3
General Multicomponent	0.34	2.8	0.28	2.3
Camouflage	0.42	3.5	0.42	3.5
Electric-insulating Varnish	0.42	3.5	0.42	3.5
Etching Filler	0.42	3.5	0.42	3.5
Extreme High-gloss	0.42	3.5	0.36	3.0
Extreme Performance	0.42	3.5	0.36	3.0
Heat-resistant	0.42	3.5	0.36	3.0
High-performance Architectural	0.74	6.2	0.74	6.2
High-temperature	0.42	3.5	0.42	3.5
Metallic	0.42	3.5	0.42	3.5
Military Specification	0.34	2.8	0.28	2.3
Mold-seal	0.42	3.5	0.42	3.5
Pan-backing	0.42	3.5	0.42	3.5
Prefabricated Architectural Multicomponent	0.42	3.5	0.28	2.3
Prefabricated Architectural One-component	0.42	3.5	0.28	2.3
Pretreatment	0.42	3.5	0.42	3.5
Touch-up and Repair	0.42	3.5	0.36	3.0
Silicone-release	0.42	3.5	0.42	3.5
Solar-absorbent	0.42	3.5	0.36	3.0
Vacuum-metalizing	0.42	3.5	0.42	3.5
Drum Coating, New, Exterior	0.34	2.8	0.34	2.8
Drum Coating, New, Interior	0.42	3.5	0.42	3.5
Drum Coating, Reconditioned, Exterior	0.42	3.5	0.42	3.5
Drum Coating, Reconditioned, Interior	0.50	4.2	0.50	4.2

Table II. VOC Content Limits for Plastic Parts and Products
Surface Coatings
Weight of VOC per Volume of Coating,
Less Water and Exempt Compounds, as Applied

Coating Category	*kg VOC/*	
l coating	*lb VOC/*	
gal coating		
General One-component	0.28	2.3
General Multicomponent	0.42	3.5
Electric Dissipating and Shock-free	0.80	6.7
Extreme Performance (2-pack coatings)	0.42	3.5
Metallic	0.42	3.5
Military Specification (1-pack)	0.34	2.8
Military Specification (2-pack)	0.42	3.5
Mold-seal	0.76	6.3

Multicolored	0.68	5.7
Optical	0.80	6.7
Vacuum-metalizing	0.80	6.7

Comparison notes. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Table III. VOC Content Limits for Automotive/Transportation and Business Machine Plastic Parts Surface Coatings

Weight of VOC per Volume of Coating, Less Water and Exempt Compounds, as Applied

Automotive/Transportation Coatings*

Coating Category	kg VOC/ l coating	lb VOC/ gal coating
I. High Bake Coatings—Interior and Exterior Parts		
Flexible Primer	0.54	4.5
Nonflexible Primer	0.42	3.5
Basecoat	0.52	4.3
Clear Coat	0.48	4.0
Non-basecoat/Clear Coat	0.52	4.3
II. Low Bake/Air Dried Coatings—Exterior Parts		
Primer	0.58	4.8
Basecoat	0.60	5.0
Clear Coat	0.54	4.5
Non-basecoat/Clear Coat	0.60	5.0
III. Low Bake/Air Dried Coatings—Interior Parts	0.60	5.0
IV. Touch-up and Repair	0.62	5.2

* For red, yellow and black automotive coatings, except touch-up and repair coatings, the limit is determined by multiplying the appropriate limit in this table by 1.15.

Business Machine Coatings

Coating Category	kg VOC/ l coating	lb VOC/ gal coating
Primer	0.35	2.9
Topcoat	0.35	2.9
Texture Coat	0.35	2.9
Fog Coat	0.26	2.2
Touch-up and Repair	0.35	2.9

Table IV. VOC Content Limits for Pleasure Craft Surface Coatings

Coating Category	**Weight of VOC per Volume of Coating, Less Water and Exempt Compounds, as Applied**	
	kg VOC/ l coating	*lb VOC/ gal coating*
Extreme High-gloss Topcoat	0.60	5.0
High Gloss Topcoat	0.42	3.5
Pretreatment Wash Primer	0.78	6.5
Finish Primer/Surfacer	0.42	3.5
High Build Primer Surfacer	0.34	2.8
Aluminum Substrate Antifoulant Coating	0.56	4.7
Antifoulant Sealer/Tiecoat	0.42	3.5
Other Substrate Antifoulant Coating	0.40	3.3
All Other Pleasure Craft Surface Coatings for Metal or Plastic	0.42	3.5

Table V. VOC Content Limits for Motor Vehicle Materials Surface Coatings

Coating Category	**Weight of VOC per Volume of Coating, Less Water and Exempt Compounds, as Applied**	
	kg VOC/ l coating	*lb VOC/ gal coating*
Motor Vehicle Cavity Wax	0.65	5.4
Motor Vehicle Sealer	0.65	5.4
Motor Vehicle Deadener	0.65	5.4
Motor Vehicle Gasket/Gasket Sealing Material	0.20	1.7
Motor Vehicle Underbody Coating	0.65	5.4
Motor Vehicle Trunk Interior Coating	0.65	5.4
Motor Vehicle Bedliner	0.20	1.7
Motor Vehicle Lubricating Wax/Compound	0.70	5.8

Comparison notes.

- The Article XXI limit for Extreme High-gloss Topcoat is lower than the Code. It is therefore more stringent.
- There is no Article XXI limit for Code line item "Antifoulant Sealer/Tiecoat." It is therefore less stringent.
- The Article XXI limit for "Other Substrate Antifoulant Coating" is lower. It is therefore more stringent.
- However, Article XXI reflects exactly Table 5 of the CTG EPA453 r-08-003, so it is satisfactory.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

Article XXI

2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (continued)

Table 2105.83.2
Emission Limits of VOCs for Miscellaneous Metal and/or Plastic Surface Coatings with Applicable Add-on Controls

Limits as Applied	Mass of VOC per volume solids			
Metal Parts and Products VOC Content Limits	Air Dried		Baked	
Coating Category	kg/l	lb/gal	kg/l	lb/gal
General One Component	0.54	4.52	0.40	3.35
General Multi-Component	0.54	4.52	0.40	3.35
Camouflage	0.80	6.67	0.80	6.67
Electric-Insulating Varnish	0.80	6.67	0.80	6.67
Etching Filler	0.80	6.67	0.80	6.67
Extreme High-Gloss	0.80	6.67	0.61	5.06
Extreme Performance	0.80	6.67	0.61	5.06
Heat-Resistant	0.80	6.67	0.61	5.06
High Performance Architectural	4.56	38.0	4.56	38.0
High Temperature	0.80	6.67	0.80	6.67
Metallic	0.80	6.67	0.80	6.67
Military Specification	0.54	4.52	0.40	3.35
Mold-Seal	0.80	6.67	0.80	6.67
Pan Backing	0.80	6.67	0.80	6.67
Prefabricated Architectural Multi-Component	0.80	6.67	0.40	3.35
Prefabricated Architectural One Component	0.80	6.67	0.40	3.35
Pretreatment	0.80	6.67	0.80	6.67
Silicone Release	0.80	6.67	0.80	6.67
Solar-Absorbent	0.80	6.67	0.61	5.06
Vacuum-Metalizing	0.80	6.67	0.80	6.67
Drum Coating, New, Exterior	0.54	4.52	0.54	4.52
Drum Coating, New, Interior	0.80	6.67	0.80	6.67
Drum Coating, Reconditioned, Exterior	0.80	6.67	0.80	6.67
Drum Coating, Reconditioned, Interior	1.17	9.78	1.17	9.78

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

Table VI. VOC Emission Rate Limits for Metal Parts and Products Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

	Air Dried		*Baked*	
Coating Category	kg VOC/			
l solids	lb VOC/			
gal solids	kg VOC/			
l solids	lb VOC/			
gal solids				
General One-component	0.54	4.52	0.40	3.35
General Multicomponent	0.54	4.52	0.40	3.35

Camouflage	0.80	6.67	0.80	6.67
Electric-insulating Varnish	0.80	6.67	0.80	6.67
Etching Filler	0.80	6.67	0.80	6.67
Extreme High-gloss	0.80	6.67	0.61	5.06
Extreme Performance	0.80	6.67	0.61	5.06
Heat-resistant	0.80	6.67	0.61	5.06
High-performance Architectural	4.56	38.0	4.56	38.0
High-temperature	0.80	6.67	0.80	6.67
Metallic	0.80	6.67	0.80	6.67
Military Specification	0.54	4.52	0.40	3.35
Mold-seal	0.80	6.67	0.80	6.67
Pan-backing	0.80	6.67	0.80	6.67
Prefabricated Architectural Multicomponent	0.80	6.67	0.40	3.35
Prefabricated Architectural One-component	0.80	6.67	0.40	3.35
Pretreatment	0.80	6.67	0.80	6.67
Silicone-release	0.80	6.67	0.80	6.67
Solar-absorbent	0.80	6.67	0.61	5.06
Vacuum-metalizing	0.80	6.67	0.80	6.67
Drum Coating, New, Exterior	0.54	4.52	0.54	4.52
Drum Coating, New, Interior	0.80	6.67	0.80	6.67
Drum Coating, Reconditioned, Exterior	0.80	6.67	0.80	6.67
Drum Coating, Reconditioned, Interior	1.17	9.78	1.17	9.78

Comparison notes. No substantive difference.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (continued)

Plastic Parts and Products VOC Content Limits

Coating Category	kg/l	lb/gal
General One Component	0.40	3.35
General Multi-Component	0.80	6.67
Electric Dissipating and Shock-Free	8.96	74.7
Extreme Performance (2-pack coatings)	0.80	6.67
Metallic	0.80	6.67
Military Specification (1-pack coatings)	0.54	4.52
Military Specification (2-pack coatings)	0.80	6.67
Mold-Seal	5.24	43.7
Multi-colored Coatings	3.04	25.3
Optical Coatings	8.96	74.7
Vacuum-Metalizing	8.96	74.7

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

Table VII. VOC Emission Rate Limits for Plastic Parts and Products Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

Coating Category	*kg VOC/ l solids*	*lb VOC/ gal solids*
General One-component	0.40	3.35
General Multicomponent	0.80	6.67
Electric Dissipating and Shock-free	8.96	74.7
Extreme Performance (2-pack coatings)	0.80	6.67
Metallic	0.80	6.67
Military Specification (1-pack)	0.54	4.52
Military Specification (2-pack)	0.80	6.67
Mold-seal	5.24	43.7
Multicolored	3.04	25.3
Optical	8.96	74.7
Vacuum-metalizing	8.96	74.7

Comparison notes. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

Automotive Transportation and Business Machine Plastic Parts VOC Content Limits

Coating Category	kg/l	lb/gal
--Automotive Transportation Coatings*--		
High Bake – Interior and Exterior Parts		
Flexible Primer	1.39	11.58
Non-Flexible Primer	0.80	6.67
Basecoat	1.24	10.34
Clearcoat	1.05	8.76
Non-Basecoat/Clearcoat	1.24	10.34
Low Bake/Air Dried – Exterior Parts		
Primer	1.66	13.80
Basecoat	1.87	15.59
Clearcoat	1.39	11.58
Non-Basecoat/Clearcoat	1.87	15.59
Low Bake/Air Dried – Interior Parts	1.87	15.59
Touch-Up and Repair	2.13	17.72
--Business Machine Coatings--		
Primers	0.57	4.80
Topcoat	0.57	4.80
Texture Coat	0.57	4.80
Fog Coat	0.38	3.14
Touch-Up and Repair	0.57	4.80

* For red, yellow, and black automotive coatings, except touch-up and repair coatings, the limit is determined by multiplying the appropriate limit in this section of the table by 1.15

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

Table VIII. VOC Emission Rate Limits for Automotive/Transportation and Business Machine Plastic Parts Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

Automotive/Transportation Coatings* Coating Category	kg VOC/ l solids	lb VOC/ gal solids
I. High Bake Coatings— Interior and Exterior Parts		
Flexible Primer	1.39	11.58
Nonflexible Primer	0.80	6.67
Basecoat	1.24	10.34
Clear Coat	1.05	8.76
Non-basecoat/Clear Coat	1.24	10.34
II. Low Bake/Air Dried Coatings—Exterior Parts		
Primer	1.66	13.80
Basecoat	1.87	15.59
Clear Coat	1.39	11.58

Non-basecoat/Clear Coat	1.87	15.59
III. Low Bake/Air Dried Coatings—Interior Parts	1.87	15.59
IV. Touch-up and Repair	2.13	17.72

* For red, yellow and black automotive coatings, except touch-up and repair coatings, the limit is determined by multiplying the appropriate limit in this table by 1.15.

Business Machine Coatings

Coating Category	kg VOC/l solids	lb VOC/gal solids
Primer	0.57	4.80
Topcoat	0.57	4.80
Texture Coat	0.57	4.80
Fog Coat	0.38	3.14
Touch-up and Repair	0.57	4.80

Comparison notes. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

2105.83 Control of VOC Emissions from Misc. Metal and/or Plastic Parts Surface Coating Processes (con't)

Pleasure Craft Surface Coating VOC Content Limits

Coating Category	kg/l	lb/gal
Extreme High-Gloss Topcoat	1.10	9.2
High-Gloss Topcoat	0.80	6.7
Pretreatment Wash Primers	6.67	55.6
Finish Primer/Surfacer	0.80	6.7
High-Build Primer Surfacer	0.55	4.6
Aluminum Substrate Antifoulant	1.53	12.8
Other Substrate Antifoulant	0.53	4.4
All Other Pleasure Craft Surface Coatings for Metal or Plastic	0.80	6.7

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§ 129.52d. Control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings (continued)

Table IX. VOC Emission Rate Limits for Pleasure Craft Surface Coatings

Weight of VOC per Volume of Coating Solids, as Applied

Coating Category	*kg VOC/ l solids*	*lb VOC/ gal solids*
Extreme High-gloss Topcoat	1.10	9.2
High Gloss Topcoat	0.80	6.7
Pretreatment Wash Primer	6.67	55.6
Finish Primer/Surfacer	0.80	6.7
High Build Primer Surfacer	0.55	4.6
Aluminum Substrate Antifoulant Coating	1.53	12.8
Other Substrate Antifoulant Coating	0.53	4.4
All Other Pleasure Craft Surface Coatings for Metal or Plastic	0.80	6.7

Comparison notes. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings

{Added May 29, 2013, effective June 8, 2013. Subsection b & f amended October 26, 2022, effective November 5, 2022.}

a. **Applicability.** Beginning January 1, 2014, this section applies to the owner or operator of an automobile and/or light-duty truck assembly coating operation, where the total actual VOC emissions from all automobile and/or light-duty truck assembly coating operations, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period, before controls.

25 Pa Code Ch. 129

§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations. *The provisions of this § 129.52e adopted October 21, 2016, effective October 22, 2016, 46 Pa.B. 6743.*

(a) *Applicability.*

(1) This section applies to the owner and operator of an automobile and light-duty truck assembly coating operation that applies an automobile assembly coating or a light-duty truck assembly coating, or both, to one or more of the following:

(i) A new automobile body or a new light-duty truck body.

(ii) A body part for a new automobile or for a new light-duty truck.

(iii) Another part that is coated along with the new automobile body or body part or new light-duty truck body or body Article.

(2) This section applies to the owner and operator of an automobile and light-duty truck assembly coating operation that operates a separate coating line at the facility on which a coating is applied to another part intended for use in a new automobile or new light-duty truck or an aftermarket repair or replacement part for an automobile or light-duty truck if the owner or operator elects to comply with this section instead of § 129.52d (relating to control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings). The election occurs when the owner or operator notifies the Department by submitting a written statement to the appropriate Department regional office Air Quality Program Manager that specifies the intent to comply with this section instead of § 129.52d.

(3) This section applies to the owner and operator of a facility that coats a body or body part for a new heavier vehicle if the owner or operator elects to comply with this section instead of § 129.52d. The election occurs when the owner or operator notifies the Department by submitting a written statement to the appropriate Department regional office Air Quality Program Manager that specifies the intent to comply with this section instead of § 129.52d.

(4) This section applies to the owner and operator of a facility that performs a coating operation subject to this section on a contractual basis.

(5) This section does not apply to the use or application of an automobile and light-duty truck assembly coating by an owner or operator at a plastic or composites molding facility.

Comparison notes.

- Article XXI does not include language explicitly corresponding to 25 Pa. Code § 129.52e(a)(1)(ii) and (iii). However, the language of §2105.84.a is broad enough to envelope the language of 25 Pa. Code § 129.52e(a)(1)(ii) and (iii), and there is no adverse impact on stringency.
- Article XXI does not include language corresponding to 25 Pa. Code § 129.52e(a)(2) and (3). Article XXI §2105.83 does not offer the elections of § 129.52d and this was judged to have no impact on stringency. See the discussion above for §2105.83.a, "Applicability." There is no impact on stringency here as well. The same reasoning applies for §2105.84.
- Article XXI does not include language explicitly corresponding to 25 Pa. Code § 129.52e(a)(4) and (5). The language of §2105.84 .a is broad enough to envelope the language of 25 Pa. Code § 129.52e(a)(4) and (5).

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings (continued)

There is no language in Article XXI that is analogous to that of 129.52e(b) and (c).

25 Pa Code Ch. 129
§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations (continued).

(b) *Definitions.* The following words and terms, when used in this section, have the following meanings, unless the context clearly indicates otherwise:
****

(c) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued under § § 129.91—129.95 (relating to stationary sources of NO_x and VOCs) to the owner or operator of a source subject to this section prior to January 1, 2017, except to the extent the RACT permit contains more stringent requirements.

Comparison notes.

- Article XXI does not include language that corresponds to the definitions found in 25 Pa. Code § 129.52e. When Article XXI §2105.84 was promulgated, §2101.20, "Definitions," was also updated to include any definitions necessary.

- Article XXI does not have language corresponding to § 129.52e(c) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.52e(c).

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI

§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings (continued)

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from an automobile and/or light-duty truck assembly coating operation, unless one of the following limitations is met:

1. The VOC content of each assembly coating process and applied material coating is equal to or less than the standard specified in Table 2105.84.

A. The VOC content, minus exempt compounds, of the applied coating, expressed in units of weight of VOC per volume of total nonexempt material, shall be calculated as follows:

$$VOC = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:

VOC = VOC content, minus exempt compounds, in lb (g) VOC / gal (l) of materials, minus exempt compounds

W_s = Weight of all volatile material in pounds (g), including VOC, water, non-precursor organic compounds and dissolved vapors

W_w = Weight of water in pounds (g)

W_{es} = Weight of all non-precursor compounds in pounds (g)

V_m = Volume of total material, as applied in gallons (l)

V_w = Volume of water in gallons (l)

V_{es} = Volume of all non-precursor compounds in gallons (l)

2. The overall weight of VOC emitted to the atmosphere is reduced through the use of an oxidizer, adsorber, or another add-on control which is acceptable under §2105.01 (Equivalent Compliance Techniques). The overall control system, as determined by the test methods and procedures in established by Part G, shall be no less than 85%.

25 Pa Code Ch. 129

§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations (continued).

(d) *VOC content limits.*

(1) Beginning January 1, 2017, the VOC content limits specified in Tables I and II apply to an owner and operator of a facility that has total actual VOC emissions equal to or greater than 15 pounds (6.8 kilograms) per day, before consideration of controls, from all operations at the facility that apply an assembly coating subject to this section, including related cleaning activities.

(2) Beginning January 1, 2017, the VOC content limits specified in Tables I and II do not apply to the following:

(i) An owner and operator of a facility that has total actual VOC emissions below 15 pounds (6.8 kilograms) per day, before consideration of controls, from all operations at the facility that apply an assembly coating subject to this section, including related cleaning activities.

(ii) An assembly coating supplied in a container with a net volume of 16 ounces or less or a net weight of 1 pound or less.

Comparison notes.

- The equation of Article XXI §2105.84.b.1.A does not appear in 25 Pa. Code § 129.52e. However, 25 Pa. Code § 129.52e(g) lists the measurement method documents.

- The language of Article XXI §2105.84.b.2 does not appear in 25 Pa. Code § 129.52e, which does not discuss limitation methods based on the use of an oxidizer, adsorber or another add-on control. Therefore, it does not need to include a statement similar to that made at Article XXI §2105.84.b.2. No impact on stringency.
- Article XXI does not include the language of 129.52e(d)(2)(i) addressing situations where the VOC emissions are below the applicability limits. That language seems obvious and unnecessary.
- Article XXI does not include the language of 129.52e(d)(2)(ii), but since it is an exemption, if Article XXI does not have that language then it would seem more stringent, which is acceptable.
- No substantive differences.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings (continued)

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains an automobile and/or light-duty truck assembly coating operation, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating, thinner and other component as supplied:

A. The coating, thinner or component name and identification number;
B. The volume used;
C. The mix ratio;
D. The density or specific gravity;
E. The weight percent of total volatiles, water, and exempt solvents;
F. The volume percent of total solids, water, and exempt solvents for Table 2105.84 automobile and/or light-duty truck assembly coating operation.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No automobile and/or light-duty truck assembly coating operation which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

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§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations (continued).

(f) *Compliance monitoring and recordkeeping.* An owner or operator subject to this section shall maintain records sufficient to demonstrate compliance with this section.

(1) The owner or operator shall maintain daily records of the following parameters for each coating, thinner, component or cleaning material as supplied:

(i) The name and identification number.
(ii) The volume used.
(iii) The mix ratio.
(iv) The density or specific gravity.
(v) The weight percent of total volatiles, water, solids and exempt solvents.
(vi) The volume percent of solids for each EDP coating.
(vii) The VOC content.

(2) The owner or operator shall maintain a daily record of the VOC content of each as applied coating or cleaning material.

(3) The owner or operator shall:

(i) Maintain the records onsite for 2 years, unless a longer period is required under Chapter 127 (relating to construction, modification, reactivation and operation of sources) or a plan approval, operating permit or order issued by the Department.
(ii) Submit the records to the Department in an acceptable format upon receipt of a written request from the Department.

(4) The owner or operator subject to subsection (e) shall maintain the written work practice plan specified in subsection (e)(2) onsite and make it available to the Department upon request.

Comparison notes.

- Article XXI does not explicitly mention "cleaning material" as the Code does. However, Section 2105.84.a, "Applicability," does include "related cleaning activities." No substantive differences.
- 25 Pa. Code § 129.52e(f)(1)(vi) states "the volume percent of solids for each ***EDP*** coating." Whereas Article XXI §2105.84c.1.F is more general. This makes Article XXI applicable in more instances.
- The language of Article XXI § 2105.84.d, "Exempt Solvents" does not appear in § 129.52e. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.84.d, above. It is not a significant difference with the Code.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings (continued)

e. **Housekeeping.** The following work practices for cleaning materials apply to the owner or operator of an automobile and/or light-duty truck assembly coating operation:

1. Store all VOC-containing coatings, thinners, coating-related waste materials, cleaning materials and used shop towels in closed containers.
2. Ensure that mixing and storage containers used for VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing those materials.
3. Minimize spills of VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing coatings, thinners, coating-related waste materials, and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions from cleaning of application, storage, mixing and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.
6. Develop and implement a work practice plan to minimize VOC emissions from cleaning and from purging of equipment associated with all coating operations for which emission limits are specified in this regulation. The plan shall specify practices and procedures to ensure that VOC emissions from the following operations are minimized:

   A. Vehicle body wiping;
   B. Coating line purging;
   C. Flushing of coating systems;
   D. Cleaning of spray booth grates;
   E. Cleaning of spray booth walls;
   F. Cleaning of spray booth equipment;
   G. Cleaning of external spray booth areas; and
   H. Other housekeeping measures.

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§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations (continued).

(e) *Work practice requirements.* Beginning January 1, 2017, an owner and operator subject to subsection (d)(1) shall comply with the following work practices for:

(1) Coating-related activities. An owner and operator shall:

(i) Store all VOC-containing coatings, thinners and coating-related waste materials in closed containers.

(ii) Ensure that mixing and storage containers used for VOC-containing coatings, thinners and coating-related waste materials are kept closed at all times except when depositing or removing these materials.

(iii) Minimize spills of VOC-containing coatings, thinners and coating-related waste materials and clean up spills immediately.

(iv) Convey VOC-containing coatings, thinners and coating-related waste materials from one location to another in closed containers or pipes.

(v) Minimize VOC emissions from cleaning of storage, mixing and conveying equipment.

(2) Cleaning materials. An owner and operator shall develop and implement a written work practice plan to minimize VOC emissions from cleaning and purging of equipment associated with all coating

operations for which emission limits are required. The written plan must specify practices and procedures to ensure that VOC emissions from the following operations are minimized:

(i) Vehicle body wiping.
(ii) Coating line purging.
(iii) Flushing of coating systems.
(iv) Cleaning of spray booth grates.
(v) Cleaning of spray booth walls.
(vi) Cleaning of spray booth equipment.
(vii) Cleaning external spray booth areas.
(viii) Other housekeeping measures, including:
(A) Storing all VOC-containing cleaning materials and used shop towels in closed containers.
(B) Ensuring that mixing and storage containers used for VOC-containing cleaning materials are kept closed at all times except when depositing or removing these materials.
(C) Minimizing spills of VOC-containing cleaning materials and cleaning up spills immediately.
(D) Conveying VOC-containing cleaning materials from one location to another in closed containers or pipes.
(E) Minimizing VOC emissions from cleaning of storage, mixing and conveying equipment.

Comparison notes. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings (continued)

f. **Measurements.** Measurements of the volatile fraction of coatings, other than reactive coatings, used at automobile and/or light-duty truck assembly coating facilities shall be performed according to the applicable procedures established by Part G of this Article.

25 Pa Code Ch. 129

§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations (continued).

(g) *Measurement, calculation, sampling and testing methodologies.* The following measurement, calculation, sampling and testing methodologies shall be used to determine the amount of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations, as appropriate:

(1) Measurements of the volatile fraction of coatings shall be performed according to the following, as applicable:

(i) EPA Reference Method 24.

(ii) Appendix A of 40 CFR Part 63, Subpart PPPP (relating to National emission standards for hazardous air pollutants for surface coating of plastic parts and products), regarding determination of weight volatile matter content and weight solids content of reactive adhesives.

(iii) Manufacturer's formulation data.

(2) Calculations of the VOC emissions and rates shall be performed according to the following, as applicable:

(i) Automobile Topcoat Protocol—*Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations*, EPA-453/R-08-002, including updates and revisions. This protocol applies to the owner and operator of a facility that coats a body or body part for a new heavier vehicle that elects under subsection (a)(3) to comply with this section instead of § 129.52d.

(ii) *A Guideline for Surface Coating Calculations*, EPA-340/1-86-016, including updates and revisions.

(iii) *Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink, and Other Coatings*, EPA-450/3-84-019, including updates and revisions.

(3) Sampling and testing shall be performed according to the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

(4) Another method or procedure that has been approved in writing by the Department and the EPA.

Comparison notes. Article XXI §2105.84.f does not include the level of detail found in 25 Pa. Code § 129.52e(g). Article XXI does not include any of the highlighted language. However, Article XXI Part G incorporates the testing methods of 25Pa. Code Chapter 139, Subchapter A. Therefore, the testing methods are expected to be equivalent.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI

§2105.84 Control of VOC Emissions from Automobile and Light-Duty Truck Assembly Coatings (continued)

Table 2105.84
VOC Emission Limits for Automobile and/or Light-duty Truck Assembly Coatings
(pounds VOC per gallon or grams VOC per liter coating solids applied)

Assembly Coating Process	VOC Emission Limit	
	lb/gal	g/l
Electodeposition primer operation when solids turnover ratio (R_T) ≥ 0.16 (including application area, spray/rinse stations, and curing oven)	0.7	84
Electodeposition primer operation when 0.040 ≤ (R_T) < 0.16 (including application area, spray/rinse stations, and curing oven)	$0.7*350^{0.160-R_T}$	$84*350^{0.160-R_T}$
Electodeposition primer operation when (R_T) < 0.040 (including application area, spray/rinse stations, and curing oven)	No VOC emission limit	
Primer-surfacer operations (including application area, flash-off area, and oven)	12.0	1,440
Topcoat operations (including application area, flash-off area, and oven)	12.0	1,440
Final repair operations	4.8	580
Combined primer-surfacer and topcoat operations	12.0	1,440

VOC Emission Limits for Miscellaneous Materials Used at Automobile and/or Light-duty Truck Assembly Coating Facilities
(pounds VOC per gallon or grams VOC per of liter coating excluding water and exempt compounds, as applied)

Material	VOC Emission Limit	
	lb/gal	g/l
Automobile and light-duty truck glass bonding primer	7.5	900
Automobile and light-duty truck adhesive	2.1	250
Automobile and light-duty truck cavity wax	5.4	650
Automobile and light-duty truck sealer	5.4	650
Automobile and light-duty truck deadener	5.4	650
Automobile and light-duty truck gasket/gasket sealing material	1.7	200
Automobile and light-duty truck underbody coating	5.4	650
Automobile and light-duty truck trunk interior coating	5.4	650
Automobile and light-duty truck bedliner	1.7	200
Automobile and light-duty truck weatherstrip adhesive	6.3	750
Automobile and light-duty truck lubricating wax/compound	5.8	700

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§ 129.52e. Control of VOC emissions from automobile and light-duty truck assembly coating operations and heavier vehicle coating operations (continued).

Table I. VOC Content Limits for Primary Assembly Coatings

Assembly Coating	VOC Emission Limit		
EDP operations (including application area, spray and rinse stations and curing oven)	When R_T[1] ‹ 0.040	When 0.040 ‹= R_T[1]‹ 0.160	When R_T[1] =› 0.160
	No VOC emission limit	0.084 x $350^{0.160-R}$T kg VOC/liter coating solids applied or 0.084 x $350^{0.160-R}$T x 8.34 lb VOC/gal coating solids applied	0.084 kg VOC/liter coating solids applied or 0.7 lb VOC/gal coating solids applied
Primer-surfacer operations (including application area, flash-off area, and oven)	1.44 kg VOC/liter of deposited solids or 12.0 lbs VOC/gal deposited solids on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol.		
Topcoat operations (including application area, flash-off area, and oven)	1.44 kg VOC/liter of deposited solids or 12.0 lbs VOC/gal deposited solids on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol.		
Final repair operations	0.58 kg VOC/liter less water and less exempt solvents or 4.8 lbs VOC/gallon of coating less water and less exempt solvents on a daily weighted average basis or as an occurrence weighted average.		
Combined primer-surfacer and topcoat operations	1.44 kg VOC/liter of deposited solids or 12.0 lbs VOC/gal deposited solids on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol.		
[1] R_T is the solids turnover ratio. ‘‘Solids turnover ratio’’ is defined in subsection (b).			

Table II. VOC Content Limits for Additional Assembly Coatings
(grams of VOC per liter of coating excluding water and exempt compounds) as Applied

Material[2]	g VOC/liter coating less water and exempt compounds	lb VOC/gal coating less water and exempt compounds
Automobile and Light-duty Truck Glass Bonding Primer	900	7.51
Automobile and Light-duty Truck Adhesive	250	2.09
Automobile and Light-duty Truck Cavity Wax	650	5.4
Automobile and Light-duty Truck Sealer	650	5.4
Automobile and Light-duty Truck Deadener	650	5.4
Automobile and Light-duty Truck Gasket/Gasket Sealing Material	200	1.7
Automobile and Light-duty Truck Underbody Coating	650	5.4
Automobile and Light-duty Truck Trunk Interior Coating	650	5.4
Automobile and Light-duty Truck Bedliner	200	1.7
Automobile and Light-duty Truck Lubricating Wax/Compound	700	5.8
Automobile and Light-duty Truck Weatherstrip Adhesive	750	6.26
[2] The owner and operator of a facility that coats a body or body part, or both, for a new heavier vehicle that elects under subsection (a)(3) to comply with this section instead of § 129.52d shall comply with these limits for equivalent coating materials.		

Comparison notes. Article XXI Table 2104.84 is very similar to 25 Pa. Code Table § 129.52e Tables I and II with the exceptions that:

1 - Code Table I makes mention of "on a daily weighted average basis as determined by following the procedures in the revised Automobile Topcoat Protocol." Article XXI Table 2104.84 conveys the same VOC emissions limits as the Code and CTG EPA-453/R-08-006 Table 5, but omits mentioning the "daily average basis." This does not adversely impact the stringency of Article XXI.

2 - Code Table II mentions considerations for "a new heavier vehicle" referenced in § 129.52e(a)(3). Both Code requirements are in place to address the situation where a source elects to follow § 129.52e instead of § 129.52d. Article XXI Table 2104.84 conveys the same VOC emissions limits as the Code and CTG EPA-453/R-08-006 Table 6, but omits mentioning the option to follow 25 Pa. Code §129.52d which is equivalent to Article XXI §2105.83 because that Article XXI section does not provide the option to follow §2105.84 This does not adversely impact the stringency of Article XXI.

Equivalency: There is equivalency because the differences do not adversely impact the relative stringencies of the regulations.

Article XXI

§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives

{Added May 29, 2013, effective June 8, 2013. Subsections b & i amended October 26, 2022, effective November 5, 2022.

a. **Applicability.** Beginning January 1, 2014, this section applies to the owner or operator of a miscellaneous industrial adhesive application process, where the total actual VOC emissions from all miscellaneous industrial adhesives, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period, before controls.

25 Pa Code Ch. 129

§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents.

The provisions of this § 129.77 adopted December 24, 2010, effective December 25, 2010, 40 Pa.B. 7340; amended June 27, 2014, effective June 28, 2014, 44 Pa.B. 3929. Immediately preceding text appears at serial pages (355201) to (355212).

(a) This section applies to the owner or operator of a facility that uses or applies one or more of the following at the facility on or after January 1, 2012:

(1) An adhesive, sealant, adhesive primer or sealant primer subject to the VOC content limits in Table V.

(2) An adhesive or sealant product applied to the listed substrate subject to the VOC content limits in Table VI.

(3) A surface preparation solvent or cleanup solvent.

Comparison notes. Article XXI §2105.85.a includes the limit on total actual VOC emissions, whereas the corresponding 25 Pa. Code § 129.77(a) does not. The Article XXI language can be found in EPA-453/R-08-005 dated September 2008. No impact on stringency.

Equivalency: There is equivalency because there is no adverse impact on the stringency of Article XXI.

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a miscellaneous industrial adhesive process, unless one of the following limitations is met:

1. The VOC content of each applied adhesive is equal to or less than the standard specified in Table 2105.85.

A. The VOC content, minus exempt compounds, of the applied adhesive, expressed in units of weight of VOC per volume of total nonexempt material, shall be calculated as follows:

$$VOC = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:
VOC = VOC content, minus exempt compounds, in lb (g) VOC / gal (l) of materials, minus exempt compounds
W_s = Weight of all volatile material in pounds (g), including VOC, water, non-precursor organic compounds and dissolved vapors
W_w = Weight of water in pounds (g)
W_{es} = Weight of all non-precursor compounds in pounds (g)
V_m = Volume of total material, as applied in gallons (l)
V_w = Volume of water in gallons (l)
V_{es} = Volume of all non-precursor compounds in gallons (l)

B. The VOC content limits of subparagraph A may be met by averaging the VOC content of materials used on a single application unit for each day (i.e., daily within-application unit averaging).

2. The overall weight of VOC emitted to the atmosphere is reduced through the use of an oxidizer, adsorber, absorber or another add-on control which is acceptable under § 2105.01 (Equivalent Compliance Techniques). The overall control system, as determined by the test methods and procedures established by Part G, shall be no less than 85%.

3. A combination of the methods listed in paragraphs 1 and 2.

25 Pa Code Ch. 129

§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

(b) On or after January 1, 2012, an owner or operator of a facility may not use or apply at the facility an adhesive, sealant, adhesive primer or sealant primer that exceeds the applicable VOC content limit in Table V or VI, except as provided elsewhere in this section.

(c) On or after January 1, 2012, an owner or operator of a facility may not use or apply at the facility a surface preparation or cleanup solvent that exceeds the applicable VOC content limit or composite partial vapor pressure requirements of this section, except as provided elsewhere in this section.

(d) The VOC content limits in Table VI for adhesives or sealants applied to particular substrates apply as follows:

(1) If an owner or operator of a facility uses or applies at the facility an adhesive or sealant subject to a specific VOC content limit in Table V, the specific limit is applicable rather than the adhesive-to-substrate limit in Table VI.

(2) If an owner or operator of a facility uses or applies at the facility an adhesive to bond dissimilar substrates together, the applicable substrate category with the highest VOC content limit is the limit for this use.

(e) An owner or operator of a facility subject to this section using or applying a surface preparation solvent or cleanup solvent at the facility may not:

(1) Except as provided in paragraph (2) for single-ply roof membrane, use materials containing VOCs for surface preparation, unless the VOC content of the surface preparation solvent is less than 70 grams per liter of material or 0.6 pound of VOC per gallon of material.

(2) Use materials containing VOCs for surface preparation or cleanup when applying single-ply roof membrane, unless the composite partial vapor pressure, excluding water and exempt compounds, of the surface preparation solvent or cleanup solvent is less than or equal to 45 mm mercury at 20° C.

(3) Except as provided in subsection (f), use cleanup solvent materials containing VOCs for the removal of adhesives, sealants, adhesive primers or sealant primers from surfaces, other than from the parts of spray application equipment, unless the composite partial vapor pressure of the solvent is less than or equal to 45 mm mercury at 20° C.

(f) Removal of an adhesive, sealant, adhesive primer or sealant primer from the parts of spray application equipment shall be performed by one or more of the following methods:

(1) Using an enclosed cleaning system, or an equivalent cleaning system as determined by the test method identified in subsection (z).

(2) Using a solvent with a VOC content less than or equal to 70 grams of VOC per liter of material or 0.6 pound of VOC per gallon of material.

(3) Soaking parts containing dried adhesive in a solvent if the composite partial vapor pressure of the solvent, excluding water and exempt compounds, is less than or equal to 9.5 mm mercury at 20° C and the parts and solvent are in a closed container that remains closed except when adding parts to or removing parts from the container.

Comparison notes.

- The equation of Article XXI §2105.85.b.1.A appears in 25 Pa. Code § 129.77(bb).
- Article XXI §2105.85.b.1.B includes statements regarding the ability to average VOC content materials. This statement is made in EPA-453/R-08-005. 25 Pa. Code § 129.77 does not have corresponding language. No impact on stringency equivalency.

- Article XXI §2105.85.b.2 has language related to the use of an oxidizer, adsorber, absorber or another add-on control, but it is not as extensive as 25 Pa. Code § 129.77(g). See discussion on next page.

- Article XXI does not include the language of 25 Pa. Code § 129.77(d)(1). The language of the Code is more explanatory than that of Article XXI and provides some of the description found in CTG EPA-453/R-08-005. However, this does not imply that Article XXI is less stringent, because the "General Adhesive Application Process" limitations which are the same as the "adhesive-to-substrate limits of Code Table VI limitations are as stringent and by calling out the entire Table, Article XXI is actually more stringent.

- Article XXI §2105.85 does not include the language of 129.77(e) addressing surface preparation solvent or cleanup solvent. Neither does CTG EPA-453/R-08-005. The origin of the Code requirements is the 2006 OTC Model Rule for Adhesives and Sealants, Section III(4)(A), (B), and (C). The CTG recommends the VOC limits in the OTC, and includes most of those limits in a table in the CTG, but not those for VOC associated with surface preparation solvent or cleanup solvent, an omission that likely resulted in ACHD

not including similar limits in Article XXI. The OTC Model Rule does include exemptions for sources that do not use a total volume of less than 55 gallons of noncomplying cleanup or surface preparation solvents. This mitigates the omission of the limit from Article XXI. ACHD asserts that, overall, this omission does not adversely impact the equivalency comparison.

- Article XXI §2105.85 does not include the language of 129.77(f)(1), (2) and (3), addressing the removal of an adhesive, sealant, adhesive primer or sealant primer from the parts of spray application equipment. Neither does CTG EPA-453/R-08-005. The origin of the Code requirement is the 2006 OTC Model Rule for Adhesives and Sealants, Section III(4)(D). The CTG recommends the VOC limits in the OTC, and includes most of those limits in a table in the CTG, but not those for VOC associated with solvents involved in the cleaning of equipment, an omission that may have resulted in ACHD not including similar limits in Article XXI. However, Article XXI, §2105.85.h.5, Housekeeping, does require the owner or operator of a Miscellaneous Industrial Adhesive application process to "minimize VOC emissions from cleaning of application, storage, mixing and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers." This is approximately equivalent to 25 Pa. Code 129.77(f)(1), which is one of three methods of equipment cleaning that are acceptable by the Code. There is therefore no adverse impact on the equivalency comparison.

Equivalency: There is equivalency because there is no adverse impact on the stringency of Article XXI.

Article XXI

§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

b. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from a miscellaneous industrial adhesive process, unless one of the following limitations is met:

****

2. The overall weight of VOC emitted to the atmosphere is reduced through the use of an oxidizer, adsorber, absorber or another add-on control which is acceptable under § 2105.01 (Equivalent Compliance Techniques). The overall control system, as determined by the test methods and procedures established by Part G, shall be no less than 85%.
3. A combination of the methods listed in paragraphs 1 and 2.

25 Pa Code Ch. 129

§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

(g) An owner or operator of a facility using or applying at the facility an adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent subject to the VOC content limits of this section may comply with the requirements of this section through the use of add-on air pollution control equipment if the following requirements are met:

(1) The VOC emissions from the use of all noncomplying as applied adhesives, sealants, adhesive primers, sealant primers, surface preparation solvents and cleanup solvents subject to this section are reduced by an overall efficiency of at least 85%, by weight.

(i) The capture efficiency of the system shall be determined in accordance with subsection (y)(1).

(ii) The control efficiency of the system shall be determined in accordance with subsection (y)(2).

(2) The combustion temperature is continuously monitored and recorded daily if a thermal incinerator is operated.

(3) Inlet and exhaust gas temperatures are continuously monitored and recorded daily if a catalytic incinerator is operated.

(4) Control device efficiency is monitored continuously and recorded daily if a carbon absorber or control device other than a thermal or catalytic incinerator is operated.

(5) Operation records sufficient to demonstrate compliance with the requirements of this section are maintained in accordance with subsections (o), (p) and (q).

(6) The following information is also recorded and maintained:

(i) Daily records of the volume used each day of each noncomplying as applied adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent and cleanup solvent.

(ii) Daily records of the hours of operation of the add-on air pollution control equipment.

(iii) Records of all maintenance performed on the add-on air pollution control equipment, including the date and type of maintenance.

(7) The control equipment is approved, in writing, by the Department in an operating permit.

(8) The owner or operator of a facility that intends to comply with this section using add-on air pollution control equipment may apply to the Department for an extension to the compliance date specified in subsections (a)—(c).

(i) The Department will approve the extension request if the request meets the requirements in subparagraph (ii).

(ii) The extension request must:

(A) Be received, in writing, by January 1, 2012.

(B) Include the date by which a permit application or request for plan approval will be submitted.

(C) Demonstrate to the Department's satisfaction that an extension is necessary.

(iii) An extension will be automatically revoked if the recipient fails to comply with its terms by the dates specified in it.

Comparison notes. Article XXI §2105.85.b.2 has language related to the use of an oxidizer, adsorber, absorber or another add-on control, but it does not have the detail highlighted above from 25 Pa. Code 129.77(g). Instead, it references Article XXI §2105.01, "Equivalent Compliance Techniques," which requires that the emissions be equal to or less than the applicable limits. Therefore, there is no reduction in stringency.

Equivalency: There is equivalency because the differences do not adversely impact the relative stringencies of the regulations.

Article XXI
§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

Article XXI does not have language corresponding to 25 Pa. Code § 129.77(i) or (j), below.

25 Pa Code Ch. 129
§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

(h) An owner or operator of a facility subject to this section shall store or dispose of all absorbent materials, including cloth or paper, which are moistened with adhesives, sealants, primers, surface preparation solvents or cleanup solvents subject to this section, in nonabsorbent containers at the facility that are kept closed except when placing materials in or removing materials from the container.

(i) An owner or operator of a facility subject to this section may not solicit, require or specify the use or application of an adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent if the use or application would result in a violation of this section, unless the emissions are controlled through the use of add-on air pollution control equipment as specified in subsection (g). The prohibition of this subsection applies to all written or oral contracts created on or after January 1, 2012, under which an adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent subject to this section is to be used or applied at a facility in this Commonwealth.

(j) An owner or operator of a facility subject to this section who uses or applies an adhesive, sealant, adhesive primer or sealant primer subject to this section may not add solvent to the adhesive, sealant, adhesive primer or sealant primer in an amount in excess of the manufacturer's recommendation for application, if this addition causes the adhesive, sealant, adhesive primer or sealant primer to exceed the applicable VOC content limit listed in Table V or VI, unless the emissions are controlled through the use of add-on air pollution control equipment as specified in subsection (g).

Comparison notes. Article XXI does not have the language of § 129.77(i) or (j), above. The language of Article XXI §2105.85.b is broad enough to address these two Code requirements. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

c. **Records.** A facility, regardless of the facility's annual emission rate, which contains miscellaneous industrial adhesive application processes, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each adhesive and other component as supplied:
   - A. The name and identification number of each adhesive, or component;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, and exempt solvents;
   - F. The volume percent of total materials, water, and exempt solvents for Table 2105.86 miscellaneous industrial adhesives.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

d. **Exempt Solvents.** The solvents methyl chloroform (1,1,1-trichloroethane) and methylene chloride are exempt from control under this Section. No miscellaneous industrial adhesive application process which seeks to comply with this Section through the use of an exempt solvent may be included in any alternative standard approved pursuant to this Article.

25 Pa Code Ch. 129
§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

(o) Except as provided in subsection (p), each owner or operator subject to this section shall maintain records demonstrating compliance with this section, including the following information:
(1) A list of each adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent and cleanup solvent product in use and in storage.
(2) A data sheet or material list which provides the product name, manufacturer identification and use or material application for each product included on the list required under paragraph (1).
(3) The VOC content of each product on the list required under paragraph (1), as supplied.
(4) Catalysts, reducers or other components used and the mix ratio.
(5) The VOC content or vapor pressure of each product on the list required by paragraph (1), as applied, if solvent or other VOC is added to the product before application.
(6) The volume purchased or produced of each product on the list required under paragraph (1).
(7) The monthly volume used or applied as part of a manufacturing process at the facility of each product on the list required under paragraph (1).

(p) For an adhesive, sealant, adhesive primer and sealant primer product subject to the laboratory testing exemption of subsection (k)(1), the person conducting the testing shall make and maintain records of all products used, including the following information:
(1) The product name.
(2) The product category of the material or type of application.
(3) The VOC content of the material.

(q) Records made to determine compliance with this section shall be:
(1) Maintained onsite for 5 years from the date the record is created.
(2) Made available to the Department upon receipt of a written request.

Comparison notes. There are several details which are not present in Article XXI, §2105.85.c but which are present in 25 Pa. Code § 129.77(o) and (p).

- Article XXI requires a 2 year retention period. The Code requires a 5 year retention period.

- The language of Article XXI § 2105.85.d, "Exempt Solvents" does not appear in § 129.77. This exemption originates in Article XXI § 2105.10 and the corresponding 25 Pa. Code § 129.52. It then appears in multiple Article XXI sections, but not in other sections of the Code. See discussion at § 2105.77.d, above. It may be useful for ACHD to process a change to delete this exemption language from § 2105.85.d and the nine other sections where it occurs, but it is not a significant difference with the Code.
- No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

e. **Application Techniques.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from the application of miscellaneous industrial adhesives unless the adhesives are applied using one or more of the following application methods:

1. Electrostatic spraying;
2. High volume-low pressure (HVLP) spraying;
3. Flow coating;
4. Dip coating, including electrodeposition;
5. Airless spraying;
6. Air-assisted airless spraying;
7. Roll coating or hand application, including non-spray application methods similar to hand or mechanically powered caulking gun, brush, or direct hand application;
8. Other adhesive application method that the person demonstrates and the Department determines achieves emission reductions equivalent to HVLP spraying.

25 Pa Code Ch. 129
§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

There is not a Code section analogous to Subsection 2105.85.e, above.

Comparison notes. Article XXI is more stringent.

Equivalency: There is equivalency at a minimum since Article XXI is of equal or greater stringency.

Article XXI
§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

f. **Exempt Other.** The following shall be exempt from the limitations set by Subsection b, but shall still comply with the Subsection h, Housekeeping:

1. Adhesives or adhesive primers being tested or evaluated in any research and development, quality assurance, or analytical laboratory.
2. Adhesives or adhesive primers used in the assembly, repair, or manufacture of aerospace or undersea-based weapon systems.
3. Adhesives or adhesive primers used in medical equipment manufacturing operations.
4. Cyanoacrylate adhesive application processes.
5. Aerosol adhesive and aerosol adhesive primer application processes.
6. Processes using polyester bonding putties to assemble fiberglass parts at fiberglass boat manufacturing facilities and at other reinforced plastic composite manufacturing facilities.
7. Processes using adhesives and adhesive primers that are supplied to the manufacturer in containers with a net volume of 16 ounces or less, or a net weight of one pound or less.

25 Pa Code Ch. 129
§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

(k) This section does not apply to the use or application of the following compounds or products:

(1) Adhesives, sealants, adhesive primers or sealant primers being tested or evaluated in a research and development, quality assurance or analytical laboratory, if records are maintained as required in subsections (p) and (q).

(2) Adhesives, sealants, adhesive primers or sealant primers that are subject to other sections in this chapter or Chapter 130 (relating to standards for products).

(3) Adhesives and sealants that contain less than 20 grams of VOC per liter of adhesive or sealant, less water and less exempt compounds, as applied.

(4) Cyanoacrylate adhesives.

(5) Adhesives, sealants, adhesive primers or sealant primers that are sold or supplied by the manufacturer or supplier in containers with a net volume of 16 fluid ounces or less, or a net weight of 1 pound or less, except plastic cement welding adhesives and contact adhesives.

(6) Contact adhesives that are sold or supplied by the manufacturer or supplier in containers with a net volume of 1 gallon or less.

(l) This section does not apply to the use of adhesives, sealants, adhesive primers, sealant primers, surface preparation solvents or cleanup solvents in the following operations:

(1) Tire repair operations, if the label of the adhesive states, ‘‘For tire repair only.’’

(2) The assembly, repair and manufacture of aerospace components or undersea-based weapons systems.

(3) The manufacture of medical equipment.

(4) Plaque laminating operations in which adhesives are used to bond clear, polyester acetate laminate to wood with lamination equipment installed prior to July 1, 1992. An owner or operator claiming an exemption under this paragraph shall record and maintain operational records sufficient to demonstrate compliance with this exemption, in accordance with subsections (o)—(q).

(m) This section does not apply if the total VOC emissions from all adhesives, sealants, adhesive primers and sealant primers used or applied at the facility are less than 200 pounds or an equivalent volume, per

calendar year. An owner or operator of a facility claiming exemption under this subsection shall record and maintain operational records sufficient to demonstrate compliance with this exemption, in accordance with subsections (o)—(q).

(n) This section does not apply to the use or application of a noncomplying adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent if the total volume of noncomplying adhesives, sealants, primers, surface preparation and cleanup solvents used or applied facility-wide does not exceed 55 gallons per calendar year. An owner or operator of a facility claiming exemption under this subsection shall record and maintain operational records sufficient to demonstrate compliance with this exemption, in accordance with subsections (o)—(q).

Comparison notes. Article XXI does not include language corresponding to many aspects of the 25 Pa. Code § 129.77(k), (l), (m) and (n). Since all of these paragraphs refer to exemptions, the lack of such in Article XXI imparts to it a higher degree of stringency.

Equivalency: There is equivalency at a minimum since Article XXI is of equal or greater stringency.

Article XXI

§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

g. **Emission Limitations.** If an adhesive is used to bond dissimilar substrates together, then the applicable substrate category with the least stringent emission limitation applies.

h. **Housekeeping.** The following work practices for cleaning materials apply to the owner or operator of a miscellaneous industrial adhesive application processes:

1. Store all VOC-containing adhesives, adhesive primers, process-related waste materials, cleaning materials and used shop towels in closed containers.
2. Ensure that mixing and storage containers used for VOC-containing adhesives, adhesive primers, process-related waste materials, and cleaning materials are kept closed at all times except when depositing or removing those materials.
3. Minimize spills of VOC-containing adhesives, adhesive primers, process-related waste materials, and cleaning materials, cleaning up spills immediately.
4. Convey VOC-containing adhesives, adhesive primers, process-related waste materials, and cleaning materials from one location to another in closed containers or pipes.
5. Minimize VOC emissions from cleaning of application, storage, mixing and conveying equipment by ensuring that equipment cleaning is performed without atomizing the cleaning solvent and all spent solvent is captured in closed containers.

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§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

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(d) The VOC content limits in Table VI for adhesives or sealants applied to particular substrates apply as follows:

(1) If an owner or operator of a facility uses or applies at the facility an adhesive or sealant subject to a specific VOC content limit in Table V, the specific limit is applicable rather than the adhesive-to-substrate limit in Table VI.

(2) If an owner or operator of a facility uses or applies at the facility an adhesive to bond dissimilar substrates together, the applicable substrate category with the highest VOC content limit is the limit for this use.

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(h) An owner or operator of a facility subject to this section shall store or dispose of all absorbent materials, including cloth or paper, which are moistened with adhesives, sealants, primers, surface preparation solvents or cleanup solvents subject to this section, in nonabsorbent containers at the facility that are kept closed except when placing materials in or removing materials from the container.

Comparison notes.

- With regard to bonding dissimilar substrates, Article XXI §2105.85.g calls for the "least stringent emission limitation" to apply, while 25 Pa. Code § 129.77(d)(2) calls for the "highest VOC content limit." The CTG, EPA-453/R-08-005 states that they recommend "the highest VOC emission limit apply." So, both Article XXI and the Code are in concert with the CTG.
- Most of the language of Article XXI § 2105.85.h "Housekeeping" does not appear in the Code. This imparts a higher degree of stringency to Article XXI.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

Article XXI
§2105.85 Control of VOC Emissions from Miscellaneous Industrial Adhesives (continued)

i. **Measurements.** Measurements of the volatile fraction of adhesives, other than reactive adhesives, used at facilities operating miscellaneous industrial adhesive application processes shall be performed according to the applicable procedures established by Part G of this Article.

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§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

(r) Except as otherwise provided in this section, the VOC and solids content of nonaerosol adhesives (including one-part moisture cure urethane adhesives and silicone adhesives), sealants, adhesive primers, sealant primers, surface preparation solvents and cleanup solvents shall be determined using one of the following:

(1) EPA Reference Method 24, *Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings*, found at 40 CFR 60, Subpart D, Appendix A, including updates and revisions.

(2) SCAQMD Method 304, *Determination of Volatile Organic Compounds (VOC) in Various Materials*, SCAQMD, 21865 Copley Drive, Diamond Bar, CA 91765 USA, including updates and revisions.

(s) The weight volatile matter content and weight solids content for one-part or multiple part reactive adhesives, except one-part moisture cure urethane adhesives and silicone adhesives, shall be determined using the EPA Reference Method, *Determination of Weight Volatile Matter Content and Weight Solids Content of Reactive Adhesives*, found at 40 CFR 63, Subpart PPPP, Appendix A, including updates and revisions.

(t) The identity and concentration of exempt organic compounds shall be determined using one of the following:

(1) ASTM D4457, *Standard Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph*, ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 USA including updates and revisions.

(2) SCAQMD Method 303, *Determination of Exempt Compounds*, SCAQMD, 21865 Copley Drive, Diamond Bar, CA 91765 USA, including updates and revisions.

(u) The VOC content of a plastic cement welding adhesive or primer shall be determined using SCAQMD Method 316A, *Determination of Volatile Organic Compounds (VOC) in Materials Used for Pipes and Fittings*, SCAQMD, 21865 Copley Drive, Diamond Bar, CA 91765 USA, including updates and revisions.

(v) To determine if a diluent is a reactive diluent, the percentage of the reactive organic compound that becomes an integral part of the finished material shall be determined using SCAQMD Method 316A, *Determination of Volatile Organic Compounds (VOC) in Materials Used for Pipes and Fittings*, SCAQMD, 21865 Copley Drive, Diamond Bar, CA 91765 USA, including updates and revisions.

(w) The composite partial vapor pressure of organic compounds in cleaning materials shall be determined by the following procedure:

(1) Quantifying the amount of each compound in the blend using gas chromatographic analysis, using the following methods:

(i) ASTM E260, *Standard Practice for Packed Column Gas Chromatography*, ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 USA, for organic content, including updates and revisions.

(ii) ASTM D3792, *Standard Test Method for Water Content of Coatings by Direct Injection Into a Gas Chromatograph*, ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 USA, for water content, including updates and revisions.

(2) Calculating the composite partial vapor pressure using the following equation:

$$PP_c = \frac{\sum_{i=1}^{n} (W_i)(VP_i)/MW_i}{kn}$$

$$kn = W_w/MW_w + \sum_{e=1} W_e/MW_e + \sum_{i=1} W_i/MW_i$$

Where:

PP_c = VOC composite partial vapor pressure at 20° C, in mm mercury.

W_i = Weight of the ''i''th VOC compound, in grams, as determined by ASTM E260.

W_w = Weight of water, in grams, as determined by ASTM D3792.

W_e = Weight of the ''e''th exempt compound, in grams, as determined by ASTM E260.

MW_i = Molecular weight of the ''i''th VOC compound, in grams per g-mole, as given in chemical reference literature.

MW_w = Molecular weight of water, in grams per g-mole (18 grams per g-mole).

MW_e = Molecular weight of the ''e''th exempt compound, in grams per g-mole, as given in chemical reference literature.

VP_i = Vapor pressure of the ''i''th VOC compound at 20° C, in mm mercury, as determined by subsection (x).

(x) The vapor pressure of each single component compound shall be determined from one or more of the following:

(1) ASTM D2879, *Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope*, ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 USA, including updates and revisions.

(2) The most recent edition of one or more of the following sources:

(i) *Vapour Pressures of Pure Substances*, Boublik, Elsevier Scientific Publishing Company, New York.

(ii) *Perry's Chemical Engineers' Handbook*, Green and Perry, McGraw-Hill Book Company.

(iii) *CRC Handbook of Chemistry and Physics*, CRC Press.

(iv) *Lange's Handbook of Chemistry*, McGraw-Hill Book Company.

(v) Additional sources approved by the SCAQMD or other California air districts.

(y) If air pollution control equipment is used to meet the requirements of this section, the owner or operator shall make both of the following determinations:

(1) The measurement of capture efficiency shall be conducted and reported in accordance with the EPA Technical Document ‘‘*Guidelines for Determining Capture Efficiency*,’’ issued January 9, 1995.

(2) The control efficiency shall be determined in accordance with one of the following:

(i) EPA Reference Method 25, *Determination of Total Gaseous Nonmethane Organic Emissions as Carbon*, found at 40 CFR 60, Subpart D, Appendix A, including updates and revisions.

(ii) EPA Reference Method 25A, *Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer*, found at 40 CFR 60, Subpart D, Appendix A, including updates and revisions.

(iii) EPA Reference Method 25B, *Determination of Total Gaseous Organic Concentration Using a Nondispersive Infrared Analyzer*, found at 40 CFR 60, Subpart D, Appendix A, including updates and revisions.

(iv) CARB Method 100, *Procedures for Continuous Gaseous Emission Stack Sampling*, California Air Resources Board, 1001 ‘‘I’’ Street, Post Office Box 2815, Sacramento, CA 95812 USA, including updates and revisions.

(z) The active and passive solvent losses from the use of an enclosed spray gun cleaning system or equivalent cleaning system, as listed in subsection (f)(1), shall be determined using the SCAQMD method, *General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems*, dated October 3, 1989, SCAQMD, 21865 Copley Drive, Diamond Bar, CA 91765 USA, including updates and revisions.

(1) The test solvent for this determination shall be a lacquer thinner with a minimum vapor pressure of 105 mm of mercury at 20° C.

(2) The minimum test temperature shall be 15° C.

(aa) Another test method may be used to determine the VOC or solids content of a product if the request for approval of the test method meets the following requirements:

(1) The request is submitted to the Department in writing.

(2) The request demonstrates that the test method provides results that accurately determine the concentration of VOCs in the product or its emissions.

(3) The Department approves the request in writing.

(bb) For adhesive, sealant, adhesive primer or sealant primer products that do not contain reactive diluents, grams of VOC per liter of product thinned to the manufacturer’s recommendation, less water and exempt compounds, shall be calculated according to the following equation:

Grams of VOC per liter of product, as applied = Ws - Ww - We
Vm - Vw - Ve

Where:

Ws = weight of volatile compounds, in grams.

Ww = weight of water, in grams.

We = weight of exempt compounds, in grams.

Vm = volume of material, in liters.

Vw = volume of water, in liters.

Ve = volume of exempt compounds, in liters.

(cc) For adhesive, sealant, adhesive primer or sealant primer products that contain reactive diluents, the VOC content of the product is determined after curing. The grams of VOC per liter of product thinned to

the manufacturer's recommendation, less water and exempt compounds, shall be calculated according to the following equation:

Grams of VOC per liter of product, as applied = Wrs - Wrw - Wre
Vrm - Vrw - Vre

Where:

Wrs = weight of volatile compounds not consumed during curing, in grams.

Wrw = weight of water not consumed during curing, in grams.

Wre = weight of exempt compounds not consumed during curing, in grams.

Vrm = volume of material not consumed during curing, in liters.

Vrw = volume of water not consumed during curing, in liters.

Vre = volume of exempt compounds not consumed during curing, in liters.

(dd) For low-solids adhesive, sealant, adhesive primer or sealant primer products, grams of VOC per liter of product thinned to the manufacturer's recommendation, including the volume of water and exempt compounds, shall be calculated according to the following equation:

Grams of VOC per liter of product, as applied = Ws - Ww - We
Vm

Where:

Ws = weight of volatile compounds, in grams.

Ww = weight of water, in grams.

We = weight of exempt compounds, in grams.

Vm = volume of material, in liters.

(ee) Percent VOC by weight shall be calculated according to the following equation:

% VOC by weight = [(Wv/W)] x 100

Where:

Wv = weight of VOCs, in grams.

W = weight of material, in grams.

(ff) To convert from grams per liter (g/l) to pounds per gallon (lb/gal), multiply the result (VOC content) by 8.345 x 10^{-3} (lb/gal/g/l).

Comparison notes. Article XXI §2105.85.i does not include the level of detail found in 25 Pa. Code § 129.77(r) through (ee). Instead, it references Part G of Article XXI, which in turn incorporates by reference 25 Pa. Code Chapter 139, Subpart A, and Part G also references the ACHD Source Testing Manual. These should provide adequate measurement methods.

Equivalency: There is equivalency because there is no adverse impact on the stringency of Article XXI.

Table 2105.85
Emission Limits of VOCs for Miscellaneous Industrial Adhesives

Limits as Applied	**VOC content minus exempt compounds**			
General Adhesive Application Processes		lb/gal		g/l
Reinforced Plastic Composite		1.7		200
Flexible Vinyl		2.1		250
Metal		0.3		30
Porous Material (Except Wood)		1.0		120
Rubber		2.1		250
Wood		0.3		30
Other Substrates	2.1		250	
Specialty Adhesive Application Processes				
Ceramic Tile Installation	1.1		130	
Contact Adhesive	2.1		250	
Cove Base Installation		1.3		150
Floor Covering Installation (Indoor)		1.3		150
Floor Covering Installation (Outdoor)		2.1		250
Floor Covering Installation (Perimeter Bonded Sheet Vinyl)	5.5		660	
Metal to Urethane/Rubber Molding or Casting		7.1		850
Motor Vehicle Adhesive	2.1		250	
Motor Vehicle Weather-strip Adhesive		6.3		750
Multipurpose Construction		1.7		200
Plastic Solvent Welding (ABS)		3.3		400
Plastic Solvent Welding (Except ABS)		4.2		500
Sheet Rubber Lining Installation		7.1		850
Single-Ply Roof Membrane Installation/Repair (Except EPDM)		2.1		250
Structural Glazing		0.8		100
Thin Metal Laminating		6.5		780
Tire Repair		0.8		100
Waterproof Resorcinol Glue		1.4		170
Adhesive Primer Application Processes				
Motor Vehicle Glass Bonding Primer		7.5		900
Plastic Solvent Welding Adhesive Primer	5.4		650	
Single-Ply Roof Membrane Adhesive Primer		2.1		250
Other Adhesive Primer		2.1		250

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§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents (continued).

Table VI.

VOC Content Limits for Adhesive or Sealant Products Applied to Particular Substrates, As Applied

Adhesive or Sealant Products Applied to the Listed Substrate	*VOC content limit (pounds VOC per gallon, less water and exempt compounds)**	*VOC content limit (grams VOC per liter, less water and exempt compounds)**
Fiberglass	1.7	200
Flexible vinyl	2.1	250
Metal	0.3	30
Porous material	1.0	120
Rubber	2.1	250
Other substrates	2.1	250

*The VOC content is determined as the weight of VOC per volume of product, less water and exempt compounds, as specified in subsections (bb) and (cc) or as the weight of VOC per volume of product, as specified in subsection (dd).

Table V.

VOC Content Limits for Adhesives, Sealants, Adhesive Primers and Sealant Primers, As Applied

Adhesive, sealant, adhesive primer or sealant primer category	*VOC content limit (pounds VOC per gallon, less water and exempt compounds)**	*VOC content limit (grams VOC per liter, less water and exempt compounds)**
Adhesives		
ABS welding	3.3	400
Ceramic tile installation	1.1	130
Computer diskette jacket manufacturing	7.1	850
Contact bond	2.1	250
Cove base installation	1.3	150
CPVC welding	4.1	490
Indoor floor covering installation	1.3	150
Metal to urethane/rubber molding or casting	7.1	850
Multipurpose construction	1.7	200
Nonmembrane roof installation/repair	2.5	300
Outdoor floor covering installation	2.1	250
Perimeter bonded sheet vinyl flooring installation	5.5	660
Plastic cement welding, other than ABS, CPVC or PVC welding	4.3	510
PVC welding	4.3	510
Sheet rubber installation	7.1	850
Single-ply roof membrane installation/ repair	2.1	250
Structural glazing	0.8	100
Thin metal laminating	6.5	780
Tire retread	0.8	100
Waterproof resorcinol glue	1.4	170
Sealants		
Architectural	2.1	250
Marine deck	6.3	760

Nonmembrane roof installation/repair	2.5	300
Roadway	2.1	250
Single-ply roof membrane	3.8	450
Other	3.5	420
Adhesive Primers		
Automotive glass	5.8	700
Plastic cement welding	5.4	650
Single-ply roof membrane	2.1	250
Traffic marking tape	1.3	150
Other	2.1	250
Sealant Primers		
Marine deck	6.3	760
Nonporous architectural	2.1	250
Porous architectural	6.5	775
Other	6.3	750

*The VOC content is determined as the weight of VOC per volume of product, less water and exempt compounds, as specified in subsections (bb) and (cc) or as the weight of VOC per volume of product, as specified in subsection (dd).

Comparison notes. There are several categories listed in Article XXI that are not listed in the Code, and vice versa. However, Article XXI Table2105.85 includes all of the categories found in the CTG EPA-453/R-08-005, which imparts the necessary completeness to it. The footnotes found in § 129.77 Tables V and VI are not present in Table 2105.85. These footnotes are present in the CTG. Their absence from Article XXI Table 2105.85 does not lessen the stringency of Article XXI.

Equivalency: There is equivalency because there is no adverse impact on stringency.

Article XXI

§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials *{Added May 29, 2013, effective June 8, 2013. Table 2105.86 added May 8, 2015, effective June 19, 2015. Subsection g amended October 26, 2022, effective November 5, 2022.}*

a. **Applicability.** Beginning January 1, 2014, this section applies to the owner or operator of a fiberglass boat manufacturing facility, where the total actual VOC emissions from fiberglass boat manufacturing materials, including related cleaning activities, at that facility are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons (2,455 kilograms) per twelve month rolling period, before controls. This regulation applies to facilities that manufacture hulls or decks of boats from fiberglass, or build molds to make fiberglass boat hulls or decks. This regulation does not apply to facilities that manufacture solely fiberglass parts of boats such as hatches, seats, lockers, or boat trailers.

b. **Exemptions.** This regulation does not extend to surface coatings applied to fiberglass boats, and industrial adhesives used in the assembly of fiberglass boats. Surface coating for fiberglass and metal recreational boats, also called pleasure crafts, are addressed in regulation § 2105.83 CONTROL OF VOC EMISSIONS FROM MISCELLANEOUS METAL AND/OR PLASTIC PARTS SURFACE COATING PROSSES. Industrial adhesives used in fiberglass boat assembly are addressed in regulation § 2105.85 CONTROL OF VOC EMISSIONS FROM MISCELLANEOUS INDUSTRIAL ADHESIVES.

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§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials. *The provisions of this § 129.74 adopted December 18, 2015, effective December 19, 2015, 45 Pa.B. 7127.*

(a) *Applicability.*

(1) This section applies to the owner and operator of a facility that manufactures a hull or a deck of a boat or a related part from fiberglass, builds a mold or plug to make a fiberglass boat hull or deck or related part, or makes polyester resin putties for assembling fiberglass boat parts, when the total actual VOC emissions from fiberglass boat manufacturing operations identified in Table I are equal to or greater than 15 pounds (6.8 kilograms) per day or 2.7 tons per 12-month rolling period, before consideration of controls. The total actual VOC emissions include the actual VOC emissions from the manufacture of hulls or decks from fiberglass, fiberglass boat parts (including small parts such as hatches, seats and lockers), molds or plugs for fiberglass hulls, decks or boat parts, resin and gel coat mixing operations, resin and gel coat application equipment and related cleaning activities at the facility.

(2) This section does not apply to the owner and operator of a facility that manufactures boat trailers or parts of boats, such as hatches, seats and lockers, but does not manufacture hulls or decks of boats from fiberglass or build molds to make fiberglass boat hulls or decks.

Table I: Compliant Monomer VOC Content Limit for Open Molding Resin and Gel Coat Materials

Open Molding Resin or Gel Coat Material	Application Method	Individual Monomer VOC Content or Weighted Average Monomer VOC Content (weight percent)
Production Resin	Atomized Spray	28
Production Resin	Non-atomized	35
Pigmented Gel Coat	Any Method	33
Clear Gel Coat	Any Method	48
Tooling Resin	Atomized Spray	30
Tooling Resin	Non-atomized	39
Tooling Gel Coat	Any Method	40

(b) *Definitions.* The following words and terms, when used in this section, have the following meanings, unless the context clearly indicates otherwise:

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(c) *Exceptions.* The requirements of this section do not apply to the following circumstances:
(1) A resin application process in a closed molding operation as defined in subsection (b).
(2) A surface coating applied to a fiberglass boat.
(3) A surface coating for a fiberglass and metal recreational boat.
(4) An industrial adhesive used in the assembly of a fiberglass boat. Industrial adhesives used in fiberglass boat assembly are regulated under § 129.77 or Chapter 130, Subchapter D (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).

Comparison notes.

- Article XXI, §2105.86.a describes "applicability" with regard to "emissions from…boat manufacturing materials." While 25 Pa. Code § 129.74(a) describes "applicability" with regard to "emissions from …boat manufacturing operations. However, the tables are described in reverse, i.e., Table 2105.86 is in terms of "Operations", while Table 1 is in terms of "Materials." These differences cancel out and have no impact on the comparison.
- Table 1 is not mentioned in Article XXI §2105.86.a, "Applicability." It is first mentioned in §2105.86.c, "Limitations." Not significant.
- Article XXI does not seem to have language corresponding to § 129.74(c)(1). The CTG, EPA-453/R-08-004 include language consistent with 25 Pa. Code § 129.74(c)(1) regarding an exception for resin application processes in a closed molding operation. However, since this is an exception, the lack of such exception does not make Article XXI less stringent.

Equivalency: There is equivalency because there is no adverse impact on stringency.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

There is no language in Article XXI §2105.86 that is analogous to that of §129.74(b), "Definitions."
There is no language in Article XXI §2105.86 that is analogous to that of §129.74(d), "Existing RACT Permit."
There is no language in Article XXI §2105.86 that is directly analogous to that of §129.74(e), "Compliance deadline."

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§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(b) *Definitions.* The following words and terms, when used in this section, have the following meanings, unless the context clearly indicates otherwise:

Application equipment cleaning—The process of flushing or removing resin or gel coat material, or both, from the interior or exterior of equipment that is used to apply resins or gel coats in the manufacture of fiberglass parts.

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Vinylester resin—A thermosetting plastic material containing one or more esters of acrylic or methacrylic acids and having double-bond and ester linkage sites only at the ends of the resin molecules.

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(d) *Existing RACT permit.* The requirements of this section supersede the requirements of a RACT permit issued to the owner and operator of a source subject to subsection (a) prior to December 19, 2015, under § § 129.91—129.95 (relating to stationary sources of NO_x and VOCs) to control, reduce or minimize VOCs from a fiberglass boat manufacturing process, except to the extent the RACT permit contains more stringent requirements.

(e) *Compliance deadline.* The owner and operator of a facility subject to this section shall comply with the applicable requirements beginning December 19, 2015.

Comparison notes.

- Article XXI §2105.86 does not include language that corresponds to the definitions found in 25 Pa. Code § 129.74. While this is something that could be addressed in regulation change at some point, the lack of definitions corresponding to those in 25 Pa. Code § 129.74 does not adversely impact the stringency of Article XXI.
- Article XXI does not have language corresponding to § 129.74(d) relating to "Existing RACT permit." However, Article XXI §2105.06 is equivalent to 25 Pa. Code § § 129.91—129.95 and §2105.06.a makes a similar statement to Code § 129.91.a, i.e., that the section applies to major sources of nitrogen oxides or VOCs for which no applicable emission limitations have yet been established by regulation. So, in effect, this "Existing RACT permit" language is informational and not having it in Article XXI does not lessen the stringency of Article XXI. Also, there are several statements in Article XXI indicating that in instances where a regulation more stringent than the one under consideration exists, the more stringent regulation applies – just as stated in the Code § 129.74(d).
- There is no language in Article XXI §2105.86 that is directly analogous to that of §129.74(e), "Compliance deadline," however, Article XXI, " §2105.86.a implies that compliance starts with the applicability date of the regulation, which is January 1, 2024. No difference.

Equivalency: There is equivalency because there is no adverse impact on the stringency of Article XXI.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

c. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from fiberglass boat manufacturing materials, unless one of the following limitations is met:

1. Fiberglass boat manufacturing facilities shall use resins and/or gel coats that are equal to or less than the applicable weighted average monomer VOC content limit specified in Table 2105.86 and the non-monomer VOC limit shall not exceed 5 percent, by weight, of resin and/or gel coat.

A. The weighted average monomer VOC content shall be calculated as follows:

$$\text{Weighted Average Monomer VOC Content} = \frac{\sum (M_i * VOC_i)}{\sum (M_i)}$$

Where:
M_i = Mass of open molding resin or gel coat i used in the past 12 months in an operation in pounds (kg)
VOC_i = Monomer VOC content, by weight percent, of open molding resin or gel coat i used in the past 12 months in an operation

Table 2105.86
Monomer VOC Content Limitations for Open Molding Resin and Gel Coat Operations

Material	Application Method	Weight Average Monomer VOC Content Limit (weight percent)
Production Resin	Atomized (spray)	28
Production Resin	Nonatomized	35
Pigmented Gel Coat	Any Method	33
Clear Gel Coat	Any Method	48
Tooling Resin	Atomized	30
Tooling Resin	Nonatomized	39
Tooling Gel Coat	Any Method	40

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§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(f) *Emission limits.* Except as specified in subsection (h) or (j), the owner and operator of a facility subject to this section may not cause or permit the emission into the outdoor atmosphere of monomer VOCs from an open molding resin or gel coat fiberglass boat manufacturing operation, a resin or gel coat mixing operation, or a resin or gel coat application equipment cleaning operation unless one or more of the following limitations is met:

(1) *Compliant materials option.* The individual monomer VOC content limit is achieved through the use of low-monomer VOC content open molding resin and gel coat materials by one or more of the following methods:

(i) Using only low-monomer VOC content resin and gel coat materials within a covered operation listed in Table I.

(A) The monomer VOC content of each resin or gel coat material is equal to or less than the limit specified in Table I.

(B) The monomer VOC content of each resin or gel coat material includes the amount of non-monomer VOC content that exceeds 5% by weight of the resin or gel coat material.

(ii) Averaging the monomer VOC contents for the open molding resin and gel coat materials used within a covered operation listed in Table I on a weight-adjusted basis.

(A) The combined total monomer VOC content of resin or gel coat materials of a certain type must meet the applicable monomer VOC content limit for a specific application method on a 12-month rolling weighted-average basis, calculated using the equation in clause (C).

(B) The monomer VOC content of each resin or gel coat material included in the weighted average specified in clause (A) includes the amount of non-monomer VOC content that exceeds 5% by weight of the resin or gel coat material.

(C) The weighted-average monomer VOC content on a 12-month rolling-average basis shall be calculated as follows:

$$\text{Weighted Average Monomer VOC Content} = \frac{\sum_{i=1}^{n} (M_i VOC_i)}{\sum_{i=1}^{n} (M_i)}$$

Where:

M_i = Mass of open molding resin or gel coat *i* used in the past 12 months in an operation, in megagrams.

VOC_i = Monomer VOC content, by weight percent, of open molding resin or gel coat *i* used in the past 12 months in an operation.

n = Number of different open molding resins or gel coats used in the past 12 months in an operation.

Comparison notes. The limitations are similar.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

c. **Limitations.** A person may not cause or permit the emission into the outdoor atmosphere of VOCs from fiberglass boat manufacturing materials, unless one of the following limitations is met:

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Article XXI §2105.86 does not have language corresponding to § 129.74(f)(2) and (3), below.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(f) *Emission limits.* Except as specified in subsection (h) or (j), the owner and operator of a facility subject to this section may not cause or permit the emission into the outdoor atmosphere of monomer VOCs from an open molding resin or gel coat fiberglass boat manufacturing operation, a resin or gel coat mixing operation, or a resin or gel coat application equipment cleaning operation unless one or more of the following limitations is met:

****

(2) ***Emissions averaging option***. The numerical monomer VOC emission rate limit is achieved through averaging emissions among different open molding resin and gel coat operations. The equations in subparagraphs (iii)—(v) shall be used to estimate the monomer VOC emission rates from each operation included in the emissions averaging option based on the material and application method.

(i) The monomer VOC content of each open molding resin or gel coat material included in the emissions averaging option includes the amount of non-monomer VOC content that exceeds 5% by weight of the resin or gel coat material.

(ii) The 12-month rolling emissions average shall be determined at the end of each calendar month.

(iii) The facility-specific monomer VOC mass emission limit on a 12-month rolling-average basis shall be calculated as follows:

$$\textbf{Monomer VOC Limit} = 46(M_R) + 159(M_{PG}) + 291(M_{CG}) + 54(M_{TR}) + 214(M_{TG})$$

Where:

Monomer VOC Limit = Total allowable monomer VOC that can be emitted from the open molding operations included in the emissions averaging program, in kilograms per 12-month period.

M_R = Mass of production resin used in the past 12 months, excluding exempt VOC materials, in megagrams.

M_{PG} = Mass of pigmented gel coat used in the past 12 months, excluding exempt VOC materials, in megagrams.

M_{CG} = Mass of clear gel coat used in the past 12 months, excluding exempt VOC materials, in megagrams.

M_{TR} = Mass of tooling resin used in the past 12 months, excluding exempt VOC materials, in megagrams.

M_{TG} = Mass of tooling gel coat used in the past 12 months, excluding exempt VOC materials, in megagrams.

Numerical coefficients = The allowable monomer VOC emission rate for that particular material, in units of kg/Mg of material used.

(iv) At the end of the first 12-month rolling-average emissions period and at the end of each subsequent calendar month, the owner or operator of the facility shall demonstrate that the monomer VOC emissions from the operations and materials included in the emissions averaging option do not exceed the emission limit calculated under subparagraph (iii) for the same 12-month period as follows:

$$\textbf{Monomer VOC emissions} = (PV_R)(M_R) + (PV_{PG})(M_{PG}) + (PV_{CG})(M_{CG}) + (PV_{TR})(M_{TR}) + (PV_{TG})(M_{TG})$$

Where:

Monomer VOC emissions = Monomer VOC emissions calculated using the monomer VOC emission equation for each operation included in the emissions averaging program, in kilograms.

PV_R = Weighted-average monomer VOC emission rate for production resin used in the past 12 months, in kilograms per megagram.

M_R = Mass of production resin used in the past 12 months, in megagrams.

PV_{PG} = Weighted-average monomer VOC emission rate for pigmented gel coat used in the past 12 months, in kilograms per megagram.

M_{PG} = Mass of pigmented gel coat used in the past 12 months, in megagrams.

PV_{CG} = Weighted-average monomer VOC emission rate for clear gel coat used in the past 12 months, in kilograms per megagram.

M_{CG} = Mass of clear gel coat used in the past 12 months, in megagrams.

PV_{TR} = Weighted-average monomer VOC emission rate for tooling resin used in the past 12 months, in kilograms per megagram.

M_{TR} = Mass of tooling resin used in the past 12 months, in megagrams.

PV_{TG} = Weighted-average monomer VOC emission rate for tooling gel coat used in the past 12 months, in kilograms per megagram.

M_{TG} = Mass of tooling gel coat used in the past 12 months, in megagrams.

(v) For purposes of subparagraph (iv), the owner or operator of the facility shall determine the weighted-average monomer VOC emission rate for the previous 12 months for each open molding resin and gel coat operation included in the emissions averaging option as follows:

$$PV_{OP} = \frac{\sum_{i=1}^{n} (M_i PV_i)}{\sum_{i=1}^{n} (M_i)}$$

Where:

PV_{OP} = Weighted-average monomer VOC emission rate for each open molding operation (PV_R, PV_{PG}, PV_{CG}, PV_{TR}, PV_{TG}) included in the emissions averaging program, in kilograms of monomer VOC per megagram of material applied.

M_i = Mass of resin or gel coat used within an operation in the past 12 months, in megagrams.

n = Number of different open molding resins and gel coats used within an operation within the past 12 months.

PV_i = The monomer VOC emission rate for resin or gel coat used within an operation in the past 12 months, in kilograms of monomer VOC per megagram of material applied. PV_i shall be calculated using the applicable emission rate formula specified in Table II.

Table II: Monomer VOC Emission Rate Formulas for Open Molding Resin and Gel Coat Materials

Open Molding Resin or Gel Coat Material	Application Method	Emission Rate Formula
Production Resin, Tooling Resin	Atomized	$0.014 \times (\text{Resin VOC\%})^{2.425}$
Production Resin, Tooling Resin with roll-out	Atomized, plus vacuum bagging $0.01185 \times (\text{Resin VOC\%})^{2.425}$	
Production Resin, Tooling Resin without roll-out	Atomized, plus vacuum bagging $0.00945 \times (\text{Resin VOC\%})^{2.425}$	
Production Resin, Tooling Resin	Non-atomized	$0.014 \times (\text{Resin VOC\%})^{2.275}$
Production Resin, Tooling Resin with roll-out	Non-atomized, plus vacuum bagging $0.0110 \times (\text{Resin VOC\%})^{2.275}$	
Production Resin, Tooling Resin without roll-out	Non-atomized, plus vacuum bagging $0.0076 \times (\text{Resin VOC\%})^{2.275}$	
Pigmented Gel Coat	All methods	$0.445 \times (\text{Resin VOC\%})^{1.675}$
Clear Gel Coat	All methods	$0.445 \times (\text{Resin VOC\%})^{1.675}$
Tooling Gel Coat	All methods	$0.445 \times (\text{Resin VOC\%})^{1.675}$

(3) ***VOC emissions capture system and add-on air pollution control device option***. A numerical monomer VOC emission rate, determined for a facility based on the mix of application methods and materials used at the facility, is achieved through the use of a VOC emissions capture system and add-on air pollution control device.

(i) The equation in paragraph (2)(iii) must be used to determine the emission limit to be achieved by the add-on air pollution control device, but modified as specified in this subparagraph. The mass of each open molding monomer VOC-containing material used during the control device performance test must be used in the equation in paragraph (2)(iii), instead of the mass of each material used over the past 12 months, to determine the emission limit, in kilograms of monomer VOC, that is applicable during the control device test.

(ii) The measured emissions at the outlet of the control device, in kilograms of monomer VOC, must be less than the emission limit calculated as specified in subparagraph (i).

(iii) The relevant control device and emission capture system operating parameters must be monitored and recorded during the test.

(iv) The values of the parameters recorded in subparagraph (iii) must be used to establish the operating limits for those parameters.

(v) The operating parameters must be maintained within the established operating limits.

Comparison notes. Article XXI does not include language that corresponds to § 129.74(f)(2) or (f)(3) dealing with the Emissions Averaging Option, and the VOC Emissions Capture System and Add-on Air Pollution Control Device Option. However, because 25 Pa. Code § 129.74(f) states that "**one or** more" of the limits are to be met, and the limit set in Article XXI § 2105.86.c.1 is equivalent to the limit set in § 129.74(f)(1), Article XXI is as stringent as the 25 Pa. Code.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

Article XXI §2105.86 does not have language corresponding to § 129.74(g), below.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(g) *VOC emissions capture system and add-on air pollution control device requirements.* The owner or operator of a facility subject to this section may elect to comply with the applicable emission limitations of this section through the installation of a VOC emissions capture system and add-on air pollution control device in accordance with subsection (f)(3). The owner or operator shall submit an application for a plan approval to the appropriate regional office. The application for a plan approval must be approved, in writing, by the Department prior to installation and operation of the emissions capture system and add-on air pollution control device. The application for a plan approval must include the following information:

(1) A description, including location, of each affected source or operation to be controlled with the emissions capture system and add-on air pollution control device.

(2) A description of the proposed emissions capture system and add-on air pollution control device to be installed.

(3) A description of the proposed compliance monitoring equipment to be installed.

(4) A description of the parameters to be monitored to demonstrate continuing compliance.

(5) A description of the records to be kept that will document the continuing compliance.

(6) A schedule containing proposed interim dates for completing each phase of the required work to install and test the emissions capture system and add-on air pollution control device described in paragraph (2) and the compliance monitoring equipment described in paragraph (3).

(7) A proposed interim emission limitation that will be imposed on the affected source or operation until compliance is achieved with the applicable emission limitation.

(8) A proposed final compliance date that is as soon as possible but not later than 1 year after the start of installation of the approved emissions capture system and add-on air pollution control device and the compliance monitoring equipment.

Comparison notes. There is not language in Article XXI that corresponds to § 129.74(g) dealing with VOC Emissions Capture System and Add-on Air Pollution Control Device Option. Article XXI does not include language that corresponds to § 129.74(f)(3) dealing with the VOC Emissions Capture System and Add-on Air Pollution Control Device Option. Because 25 Pa. Code § 129.74(f) states that "**one or** more" of the limits are to be met, and the limit set in Article XXI § 2105.86.c.1 is equivalent to the limit set in § 129.74(f)(1), Article XXI is as stringent as the 25 Pa. Code.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

Article XXI §2105.86 does not have language corresponding to § 129.74(h) and (i), below.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(h) *Emission limits for filled production resins and filled tooling resins.* The owner or operator may use an open molding filled production resin or filled tooling resin in each of the emission limit options specified in subsection (f).

(1) If fillers are added to the resin material, the adjusted monomer VOC emission rate of the filled material must be calculated on an as applied basis as follows:

$$PV_F = PV_U \times \frac{(100 - \%\ Filler)}{100}$$

Where:

PV_F = The as-applied monomer VOC emission rate for the filled production resin or tooling resin, in kilograms per megagram of filled material.

PV_U = The monomer VOC emission rate for the neat (unfilled) resin, before filler is added, calculated using the applicable emission rate formula in Table II.

% Filler = The weight-percent of filler in the as applied resin system.

(2) The value of PV_F of a compliant material used in subsection (f)(1), calculated as specified in paragraph (1), for a filled resin used as a:

(i) Production resin shall not exceed 46 kilograms of monomer VOC per megagram of filled resin applied.

(ii) Tooling resin shall not exceed 54 kilograms of monomer VOC per megagram of filled resin applied.

(3) The value of PV_F, calculated as specified in paragraph (1), must be used in place of the value of PV_i for a filled resin included in the emissions averaging option equation in subsection (f)(2)(v).

(4) The monomer VOC content of each as applied filled resin includes the amount of non-monomer VOC content that exceeds 5% by weight of the unfilled resin material.

(i) *Monomer VOC control requirement for an open molding resin, gel coat, filled production resin or filled tooling resin not included in an emissions averaging option.* The monomer VOC content of an open molding resin, gel coat, filled production resin or filled tooling resin material not included in an emissions averaging option in subsection (f)(2) shall meet the monomer VOC content requirements of subsection (f)(1) or the add-on air pollution control requirements of subsection (f)(3).

Comparison notes. Article XXI does not include language that corresponds to 25 Pa. Code § 129.74(h) or (i). § 129.74(h) ties back to § 129.74(f) and states that, "The owner or operator **may** use an open molding filled production resin or filled tooling resin in each of the emission limit options specified in subsection (f)." Article XXI does not have these provisions. However, § 129.74(i) states that the monomer VOC content of filled production resin or filled tooling resin material must meet the VOC content of subsection (f)(1) or the add-on air pollution control requirements of subsection (f)(3). Since Article XXI includes language that corresponds to 25 Pa. Code § 129.74(f)(1) at §2105.86.c.1, the emission limitations of 25 Pa. Code § 129.74(h) are enveloped, and there is no adverse impact on stringency equivalency.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

Article XXI §2105.86 does not have language corresponding to § 129.74(j), below.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(j) *Alternative requirements for control of monomer VOC content for certain resin and gel coat materials.* The monomer VOC content limits in Table I do not apply to a tooling or production material used for the following purposes:

(1) A production resin, including a skin coat resin, that must meet a specification for use in a military vessel or must be approved by the United States Coast Guard for use in the construction of a lifeboat, rescue boat or life-saving appliance approved under 46 CFR Chapter 1, Subchapter Q (relating to equipment, construction, and materials: specifications and approval) or the construction of a small passenger vessel regulated under 46 CFR Chapter 1, Subchapter T (relating to small passenger vessels (under 100 gross tons)). A production resin that meets one or more of these criteria shall be applied with non-atomizing resin application equipment.

(2) A production or tooling resin or a pigmented, clear or tooling gel coat used for repair and touch up of a part or a mold, if the weight used of resin and gel coat materials that meet one or more of these criteria does not exceed 1% by weight of the total resin and gel coat material used at a facility on a 12-month rolling-average basis.

(3) Pure 100% vinylester resin used for a skin coat, if the pure 100% vinylester resin used for the skin coat is applied with non-atomizing resin application equipment, and the weight used of resin materials meeting this criterion does not exceed 5% by weight of the total resin used at a facility on a 12-month rolling-average basis.

Comparison notes. Article XXI does not include language that corresponds to § 129.74(j). However, since the language in the code is providing "alternative requirements for control of VOC content…" stating that the limits in Table 1 do not apply under the three listed circumstances, this is by nature, less stringent than the limits of § 129.74(f), and by comparison, Article XXI § 2105.86.c.1. Therefore, Article XXI is more stringent.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

Article XXI

§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

d. **Records.** A facility, regardless of the facility's annual emission rate, which uses fiberglass boat manufacturing materials, shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each material either resin and/or gel as supplied:
   - A. The name and identification number of each resin and/or gel;
   - B. The volume used;
   - C. The mass of materials used;
   - D. The monomer VOC content, by weight percent, of resin or gel coat used;
   - E. The non-monomer VOC content, by weight percent, of each resin or gel coat;

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

25 Pa Code Ch. 129

§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(o) *Recordkeeping requirements.* The owner or operator of a facility subject to this section shall maintain monthly records sufficient to demonstrate compliance with this section. The records must include the following information:

(1) The name and identification number of each resin and gel coat.
(2) The total quantity of atomized molding production resin, non-atomized production resin, pigmented gel coat, clear gel coat, atomized tooling resin, non-atomized tooling resin and tooling gel coat used per month.
(3) The monomer VOC content for each resin and gel coat.
(4) The non-monomer VOC content for each resin and gel coat.
(5) The calculations performed for each applicable requirement under subsections (f), (h) and (j).
(6) The name and identification number only for each resin used in accordance with subsection (j)(1). The records specified in paragraphs (1)—(5) do not apply to resins used in accordance with subsection (j)(1).
(7) The name, identification number and VOC content or composite vapor pressure for each cleaning solvent used for routine application equipment cleaning.
(8) The information required by the plan approval issued under subsection (g), as applicable.
(9) The results of sampling and testing performed in accordance with subsection (n).

(p) *Reporting requirements.* The records shall be maintained for 2 years unless a longer period is required by an order issued by the Department or a plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). The records shall be submitted to the Department in an acceptable format upon receipt of a written request.

Comparison notes.

- Article XXI requires daily records, while the Code requires monthly records. No difference since the retention time is the same.
- Article XXI does not include the descriptive language of the types of resin or gel coat corresponding to 25 Pa. Code § 129.74(o)(2), instead it simply requires the "mass of material used." There is equivalence in essence, since the total quantity is being reported in both regulations.
- Article XXI does not explicitly name recordkeeping requirements involving calculations corresponding to § 129.74(o)(5) related to the calculations performed under 25 Pa. Code § 129.74(f), (h) and (j). However, Article XXI, § 2105.86.d.1.D does require records of the monomer VOC content, which is a calculated parameter. Article XXI may not require that the calculation be kept as record, but it does require the result to be retained.
- Article XXI does not include language corresponding to § 129.74(o)(6) related to the requirements of § 129.74(j). As described in the comments to § 129.74(j), that section presents an "alternative" that Article XXI does not address. That lack does not decrease Article XXI stringency.
- Article XXI does not include language corresponding to § 129.74(o)(7) related to the recordkeeping requirements for cleaning solvents for routine application equipment. Article XXI does not explicitly call for recordkeeping involving cleaning solvents. This omission does not reduce the stringency of Article XXI in

comparison to the PA Code with respect to potential emissions, however, because the cleaning material standards are the same (see § 2105.86.e vs. § 129.74(l)).

- Article XXI does not include language corresponding to § 129.74(o)(8) related to information required by the plan approval issued under § 129.74(g). That section presents an "alternative" that Article XXI does not address, i.e., Article XXI does not include language that corresponds to § 129.74(f)(3) dealing with the VOC Emissions Capture System and Add-on Air Pollution Control Device Option. Because 25 Pa. Code § 129.74(f) states that "**one or** more" of the limits are to be met, and the limit set in Article XXI § 2105.86.c.1 is equivalent to the limit set in § 129.74(f)(1), Article XXI is as stringent as the 25 Pa. Code even lacking the language of § 129.74(f)(3). Thus, there is no loss of stringency when Article XXI does not address requirements for installation permits (the equivalent of PA DEP "plan approvals."
- Article XXI does not include language corresponding to § 129.74(o)(9) relating to the recordkeeping requirements for results of sampling and testing performed in accordance with 25 Pa. Code § 129.74(n). This is not a matter that adversely impacts the stringency comparison – it is anticipated that a source that conducts testing will retain the records notwithstanding the lack of requirement to do so.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

e. **Cleaning Material Standards.** The VOC content of cleaning solvents employed for routine application equipment cleaning shall contain a maximum of 5 percent VOC, by weight, or have a composite partial vapor pressure of no more than 0.50 mm Hg at sixty-eight degrees Fahrenheit. Only non-VOC solvents shall be used to remove cured resin and gel coat from application equipment.

f. **Work Practice Standards.** All resin and gel coat mixing containers with a capacity equal to or greater than 208 liters (55 gallons), including those used for onsite mixing of putties and polyputties, have a cover with no visible gaps in place at all times. This work practice standard does not apply when material is being manually added to or removed from a container, or when mixing or pumping equipment is being placed in or removed from a container.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(k) *Work practices for resin and gel coat materials.* The owner or operator of a facility subject to this section shall ensure that resin and gel coat containers with a capacity equal to or greater than 55 gallons (208 liters), including those used for onsite mixing of putties and polyputties, have a cover in place at all times with no visible gaps, except when materials are being manually added or removed from a container or when mixing equipment is being placed in or removed from a container.

(l) *VOC content limits and work practices for cleaning materials.* The owner or operator of a facility subject to this section shall comply with the following VOC content limits and work practices for VOC-containing cleaning materials:

(1) Ensure that the VOC content of cleaning solvents used for routine application equipment cleaning is equal to or less than 5% by weight or has a composite vapor pressure equal to or less than 0.50 mmHg at 68°F.

(2) Use only non-VOC-containing solvent to remove cured resin or gel coat from application equipment.

Comparison notes. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

g. **Measurements.** Measurements of the volatile fraction of resin and gels, used at fiberglass boat manufacturing facilities shall be performed according to the applicable procedures established by Part G of this Article.

There is no language in Article XXI that is analogous to that of §129.74(m)(2), (3) or (4), below.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(m) *Compliance and monitoring requirements.* The owner or operator of a facility subject to this section shall:

(1) Use the test methods and procedures in subsection (n) to determine the monomer VOC content of resin and gel coat material.

(2) Demonstrate compliance of the monomer VOC content of the resin and gel coat material within 90 days of receipt of a written request from the Department in accordance with subsection (n).

(3) Equip add-on air pollution control devices with the applicable monitoring equipment. The monitoring equipment shall be installed, calibrated, operated and maintained according to manufacturer's specifications at all times that the add-on air pollution control device is in use.

(4) Conduct testing of a VOC emissions capture system and add-on air pollution control device installed in accordance with subsection (f)(3) one time every 5 years starting from completion of the initial testing specified in the plan approval application required in subsection (g).

Comparison notes.

- Article XXI §2105.86 does not address a compliance demonstration timeline analogous to Code § 129.74(m)(2). Article XXI can address this though through a written request backed by the usual enforcement authorities.
- Article XXI §2105.86 does not address Code § 129.74(m)(3) and (4) since it also does not have the provisions for add-on air pollution control devices. As already described above, Article XXI does not include language that corresponds to § 129.74(f)(3) dealing with the VOC Emissions Capture System and Add-on Air Pollution Control Device Option. However, because 25 Pa. Code § 129.74(f) states that "**one or** more" of the limits are to be met, and the limit set in Article XXI § 2105.86.c.1 is equivalent to the limit set in § 129.74(f)(1), Article XXI is as stringent as the 25 Pa. Code.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI
§2105.86 Control of VOC Emissions from Fiberglass Boat Manufacturing Materials (continued)

g. **Measurements.** Measurements of the volatile fraction of resin and gels, used at fiberglass boat manufacturing facilities shall be performed according to the applicable procedures established by Part G of this Article.

25 Pa Code Ch. 129
§ 129.74. Control of VOC emissions from fiberglass boat manufacturing materials (continued)

(n) *Sampling and testing.* The owner or operator of a facility subject to this section shall perform sampling and testing as follows:

(1) Use one or more of the following methods to determine the monomer VOC content of a resin or gel coat.

(i) SCAQMD Method 312-91, *Determination of Percent Monomer in Polyester Resins.*

(ii) Manufacturer's formulation data.

(iii) Other test methods or data demonstrated to provide results that are acceptable for purposes of determining compliance with this section if prior approval is obtained in writing from the Department and the United States Environmental Protection Agency.

(2) Use the test methods and procedures specified in Chapter 139 (relating to sampling and testing) for sampling and testing of add-on air pollution control devices.

Comparison notes.

- Article XXI §2105.86.g does not include the specific test method found in 25 Pa. Code § 129.74(n)(1)(i), however, it does make use of the manufacturer's formulation data called for in 25 Pa. Code § 129.74(n)(1)(ii), and this provides equivalency since 25 Pa. Code § 129.74(n)(1) requires only one of the methods to be used.
- Article XXI §2105.86 does not address Code § 129.74(n)(2) since it also does not have the provisions for add-on air pollution control devices. As already described above, Article XXI does not include language that corresponds to § 129.74(f)(3) dealing with the VOC Emissions Capture System and Add-on Air Pollution Control Device Option. However, because 25 Pa. Code § 129.74(f) states that "**one or** more" of the limits are to be met, and the limit set in Article XXI § 2105.86.c.1 is equivalent to the limit set in § 129.74(f)(1), Article XXI is as stringent as the 25 Pa. Code.

Equivalency: There is equivalency because Article XXI is of equal stringency.

Article XXI

§2105.87 Control of VOC Emissions from Unconventional and Conventional Oil and Natural Gas Sources

{Section added by amendment January 26, 2023, effective February 5, 2023.}

a. **Incorporation by Reference.** Except as otherwise specifically provided under this Section, this Section shall be applied consistent with the provisions of the state regulations for "Control of VOC Emissions from Unconventional Oil and Natural Gas Sources," and for "Control of VOC Emissions from Conventional Oil and Natural Gas Sources," promulgated under the Air Pollution Control Act at 25 Pa. Code §§ 129.121—129.130 and 25 Pa. Code §§ 129.131—129.140, respectively, which are hereby incorporated by reference into this Article. All terms used in 25 Pa. Code §§ 129.121—129.140 and defined in 25 Pa. Code § 121.1 are hereby incorporated by reference, except as explicitly set forth herein. Additions, revisions, or deletions to such regulation by the Commonwealth are incorporated into this Article and are effective on the date established by the state regulations, unless otherwise established by regulation under this Article.

b. For purposes of this Section:
   1. "Department" shall mean Department as defined under this Article;
   2. References in 25 Pa. Code § 129.127, § 129.130, § 129.137, and § 129.140, to the appropriate Department Regional Office" shall mean the Allegheny County Health Department;
   3. "Plan approval" shall mean Installation Permit; and
   4. References in 25 Pa. Code § 121.1, in the definition of "Responsible Official," to Chapter 127 (relating to construction, modification, reactivation and operation of sources), or Chapter 129 (relating to standards for sources), shall mean Article XXI, Parts B and C, and Article XXI, Part E, respectively.

25 Pa Code Ch. 129 CONTROL OF VOC EMISSIONS FROM UNCONVENTIONAL OIL AND NATURAL GAS SOURCES

129.121. General provisions and applicability.
129.122. Definitions, acronyms and EPA methods.
129.123. Storage vessels.
129.124. Natural gas-driven continuous bleed pneumatic controllers.
129.125. Natural gas-driven diaphragm pumps.
129.126. Compressors.
129.127. Fugitive emissions components.
129.128. Covers and closed vent systems.
129.129. Control devices.
129.130. Recordkeeping and reporting.

CONTROL OF VOC EMISSIONS FROM CONVENTIONAL OIL AND NATURAL GAS SOURCES

129.131. General provisions and applicability.
129.132. Definitions, acronyms and EPA methods.
129.133. Storage vessels.
129.134. Natural gas-driven continuous bleed pneumatic controllers.
129.135. Natural gas-driven diaphragm pumps.
129.136. Compressors.
129.137. Fugitive emissions components.
129.138. Covers and closed vent systems.
129.139. Control devices.
129.140. Recordkeeping and reporting.

Comparison notes. Since Article XXI incorporates 25 Pa. Code §§ 129.121—129.130 and 25 Pa. Code §§ 129.131—129.140 by reference, there are no differences.
Equivalency: There is equivalency because there are no differences.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.10 SURFACE COATING PROCESSES *{modified July 10, 2003. Paragraphs a.1 &2 added May 14, 2010 effective May 24, 2010. Paragraphs a.3 &4 added May 29, 2013 effective June 8, 2013. Subsection b amended October 26, 2022, effective November 5, 2022.* ***Subsections a and c, and Table 2105.10 amended mm/dd/2025, effective mm/dd/2025.}***

a. **Applicability**. This section applies **as follows** to **the owner and operator of** a**:**

1. S~~u~~rface coating process category **listed in Table 2105.10, categories 1-4, 8, and 11** , regardless of the size of the facility, which emits or has emitted VOCs into the outdoor atmosphere in quantities greater than 3 pounds (1.4 kilograms) per hour, 15 pounds (7 kilograms) per day, or 2.7 tons (2,455 kilograms) per year during any calendar year since January 1, 1987.

2. Shipbuilding or ship repair facility that has a surface coating operation that uses or applies more than 264 gallons of one or a combination of coatings listed in Table 2105.10, category 12, beginning (blank)(Editor's Note: The blank refers to the effective date of this rulemaking, when published as a final-form rulemaking.)

A. All terms defined in 25 Pa. Code § 121.1 as, "For purposes of shipbuilding and ship repair coatings under 25 Pa. Code § 129.52, Table I, Category 12," are hereby incorporated by reference, except as explicitly set forth herein. Additions, revisions, or deletions to such regulation by the Commonwealth are incorporated into this Article and are effective on the date established by the state regulations, unless otherwise established by regulation under this Article.

25 Pa Code Ch. 129

CHAPTER 129. STANDARDS FOR SOURCES OF VOCs

129.52. Surface coating processes.

(a) This section applies as follows to the owner and operator of a:

(1) Surface coating process category listed in Table I, categories 1—11, regardless of the size of the facility, which emits or has emitted VOCs into the outdoor atmosphere in quantities greater than 3 pounds (1.4 kilograms) per hour, 15 pounds (7 kilograms) per day or 2.7 tons (2,455 kilograms) per year during any calendar year since January 1, 1987.

(2) Shipbuilding or ship repair facility that has a surface coating operation that uses or applies more than 264 gallons of one or a combination of coatings listed in Table I, category 12, beginning January 21, 2023.

Comparison notes. The DEP added definitions related to Section 129.52 as described in Pennsylvania Bulletin Vol. 53, No. 3, January 21, 2023. Article XXI, §2105.10.a.2.A incorporates those definitions by reference. No substantive differences.

Equivalency: There is equivalency because there are no substantive differences.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.10 Surface Coating Processes (continued)

3~~1~~. The limits from §2105.10 and Table 2105.10, number 7 for Metal furniture coating and number 9 for Large appliance coating, no longer apply to the large appliance and metal furniture surface coating process as of January 1, 2011.

4~~2~~. The limits from §2105.10 and Table 2105.10, number 5 for Paper coating, no longer apply to the paper, film, and foil surface coating process as of January 1, 2011.

5~~3~~. The limits from §2105.10 and Table §2105.10, number 10 for Miscellaneous metal parts and products, no longer apply to miscellaneous metal and/or plastic parts surface coating processes as of January 1, 2014.

6~~4~~. The limits from §2105.10 and Table §2105.10, number 6 for Automobile and light duty truck coating, no longer apply to automobile and light-duty truck assembly coatings as of January 1, 2014.

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129.52. Surface coating processes.

(i) Beginning January 1, 2011, the requirements and limits for metal furniture coatings and large appliance coatings in this section are superseded by the requirements and limits in § 129.52a (relating to control of VOC emissions from large appliance and metal furniture surface coating processes).

(j) Beginning January 1, 2012, the requirements and limits for paper coatings in this section are superseded by the requirements and limits in § 129.52b (relating to control of VOC emissions from paper, film and foil surface coating processes).

(k) Section 129.52d(a)(5)(i) (relating to control of VOC emissions from miscellaneous metal parts surface coating processes, miscellaneous plastic parts surface coating processes and pleasure craft surface coatings) applies to surface coating processes regulated under Table I, Category 10, miscellaneous metal parts and products. Aerosol coatings must meet the requirements of 40 CFR Part 59, Subpart E (relating to National volatile organic compound emission standards for aerosol coatings).

Comparison notes. ACHD added Paragraphs 3, 4, 5 and 6 as the sections of Article XXI covering those specific source types were promulgated. Specifically:

(3) §2105.77 for large appliances and metal furniture surface coating processes;
(4) §2105.79 for paper, film, and foil surface coating processes;
(5) §2105.83 for miscellaneous metal and/or plastic parts surface coating processes; and
(6) §2105.84 for automobile and light duty truck assembly coatings.

ACHD has a specific section for automobile and light duty truck assembly coatings that the PA DEP Code does not have. This makes Article XXI more stringent.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.10 Surface Coating Processes (continued)

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c. **Records**. ~~A~~ **The owner or operator of a** facility, regardless of the facility's annual emission rate, which contains surface coating processes shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

1. The following parameters for each coating, thinner, and other component as supplied:
   - A. The coating, thinner, or component name and identification number;
   - B. The volume used;
   - C. The mix ratio;
   - D. The density or specific gravity;
   - E. The weight percent of total volatiles, water, solids, and exempt solvents; and
   - F. The volume percent of solids for Table 2105.10 surface coating process categories 1-10.
   - **G. The volume percent of solids for a Table 2105.10 surface coating process category 12 coating whose VOC content is expressed in units of weight of VOC per volume of coating solids.**
2. The VOC content of each coating, thinner, and other component as supplied.
3. The VOC content of each as applied coating.

The records shall be maintained for 2 years and shall be submitted to the Department on a schedule reasonably prescribed by the Department.

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129.52. Surface coating processes.

(c) The owner or operator of a facility, regardless of the facility's annual emission rate, which contains surface coating processes shall maintain records sufficient to demonstrate compliance with this section. At a minimum, a facility shall maintain daily records of:

(1) The following parameters for each coating, thinner and other component as supplied:
- (i) The coating, thinner or component name and identification number.
- (ii) The volume used.
- (iii) The mix ratio.
- (iv) The density or specific gravity.
- (v) The weight percent of total volatiles, water, solids and exempt solvents.
- (vi) The volume percent of solids for Table I surface coating process categories 1—10.
- **(vii) The volume percent of solids for a Table I surface coating process category 12 coating whose VOC content is expressed in units of weight of VOC per volume of coating solids.**

(2) The VOC content of each coating, thinner and other component as supplied.

(3) The VOC content of each as applied coating.

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(g) The records shall be maintained onsite for 2 years, unless a longer period is required by an order, plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). The records shall be submitted to the Department in an acceptable format on a schedule reasonably prescribed by the Department.

Comparison notes. No substantive difference.
Equivalency: There is equivalency because there are no substantive differences.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI
§2105.10 Surface Coating Processes (continued)

Table 2105.10
Emission Limits of VOCs in Surface Coatings by Process Category

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12. Shipbuilding and ship repair coatings

	Weight of VOC per Volume of Coating Less Water and Exempt Compounds [a] [b]		
		lbs VOC per gallon coating less water and exempt compounds	*grams VOC per liter coating less water and exempt compounds*
(i)	General use, including coal tar epoxy coatings	2.83	340
(ii)	Specialty coating		
	(a) Air flask	2.83	340
	(b) Antenna	4.42	530
	(c) Antifoulant	3.33	400
	(d) Heat resistant	3.50	420
	(e) High-gloss	3.50	420
	(f) High-temperature	4.17	500
	(g) Inorganic zinc high build primer	2.83	340
	(h) Military exterior	2.83	340
	(i) Mist	5.08	610
	(j) Navigational aids	4.58	550
	(k) Nonskid	2.83	340
	(l) Nuclear	3.50	420
	(m) Organic zinc	3.00	360
	(n) Pretreatment wash primer	6.50	780
	(o) Repair and maintenance of thermoplastic coating of commercial vessels	4.58	550
	(p) Rubber camouflage	2.83	340
	(q) Sealant for thermal spray aluminum	5.08	610
	(r) Special marking	4.08	490
	(s) Specialty interior	2.83	340
	(t) Tack	5.08	610
	(u) Undersea weapons systems	2.83	340
	(v) Weld-through preconstruction primer	5.42	650

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129.52. Surface coating processes (continued)

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Table I
Emission Limits of VOCs in Surface Coatings by Process Category

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12. Shipbuilding and ship repair coatings

Weight of VOC per Volume of Coating Less Water and Exempt Compounds[a] [b]

	lbs VOC per gallon coating less water and exempt compounds	grams VOC per liter coating less water and exempt compounds
(i) General use, including coal tar epoxy coatings	2.83	340
(ii) Specialty coating		
(a) Air flask	2.83	340
(b) Antenna	4.42	530
(c) Antifoulant	3.33	400
(d) Heat resistant	3.50	420
(e) High-gloss	3.50	420
(f) High-temperature	4.17	500
(g) Inorganic zinc high build primer	2.83	340
(h) Military exterior	2.83	340
(i) Mist	5.08	610
(j) Navigational aids	4.58	550
(k) Nonskid	2.83	340
(l) Nuclear	3.50	420
(m) Organic zinc	3.00	360
(n) Pretreatment wash primer	6.50	780
(o) Repair and maintenance of thermoplastic coating of commercial vessels	4.58	550
(p) Rubber camouflage	2.83	340
(q) Sealant for thermal spray aluminum	5.08	610
(r) Special marking	4.08	490
(s) Specialty interior	2.83	340
(t) Tack	5.08	610
(u) Undersea weapons systems	2.83	340
(v) Weld-through preconstruction primer	5.42	650

Comparison notes. No differences.

Equivalency: There is equivalency because there are no differences.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.10 Surface Coating Processes (continued)

	Weight of VOC per Volume of Coating Solids [c]			
	At temperature less than 4.5°C (40°F) [d]		*At temperature equal to or greater than 4.5°C (40°F)*	
	lbs VOC per gallon coating solids	*grams VOC per liter coating solids*	*lbs VOC per gallon coating solids*	*grams VOC per liter coating solids*
(i) General use, including coal tar epoxy coatings	6.07	728	4.76	571
(ii) Specialty coating				
(a) Air flask	6.07	728	4.76	571
(b) Antenna	12.01	1,439	12.01	1,439
(c) Antifoulant	8.10	971	6.38	765
(d) Heat resistant	8.92	1,069	7.02	841
(e) High-gloss	8.92	1,069	7.02	841
(f) High-temperature	13.33	1,597	10.32	1,237
(g) Inorganic zinc high build primer	6.07	728	4.76	571
(h) Military exterior	6.07	728	4.76	571
(i) Mist	18.64	2,235	18.64	2,235
(j) Navigational aids	13.33	1,597	13.33	1,597
(k) Nonskid	6.07	728	4.76	571
(l) Nuclear	8.92	1,069	7.02	841
(m) Organic zinc	6.69	802	5.26	630
(n) Pretreatment wash primer	92.58	11,095	92.58	11,095
(o) Repair and maintenance of thermoplastic coating of commercial vessels	13.33	1,597	13.32	1,597
(p) Rubber camouflage	6.07	728	4.76	571
(q) Sealant for thermal spray aluminum	18.65	2,235	18.65	2,235
(r) Special marking	9.83	1,178	9.83	1,178
(s) Specialty interior	6.07	728	4.76	571
(t) Tack	18.65	2,235	18.65	2,235
(u) Undersea weapons systems	6.07	728	4.76	571
(v) Weld-through preconstruction primer	24.07	2,885	24.07	2,885

[a] The limits are expressed in two sets of equivalent units: pounds (lbs) per gallon and grams per liter. Either set of limits may be used to demonstrate compliance.

[b] To convert from grams per liter to pounds (lbs) per gallon, multiply the limit by (3.785 liter/gallon) (1/453.6 pound/gram) or 1/120. For compliance purposes, metric units define the standards.

[c] VOC limits expressed in units of mass of VOC per volume of solids were derived from the VOC limits expressed in units of mass of VOC per volume of coating less water and exempt compounds by assuming the coating contains no water or exempt compounds and that the volumes of all components within the coating are additive.

[d] These limits apply during cold weather time periods, that is, temperatures below 4.5°C (40°F). Cold weather allowances are not given to coatings in categories that allow less than 40% solids (nonvolatiles) content by volume. These coatings are subject to the single limit regardless of weather conditions and temperatures.

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129.52. Surface coating processes (continued).

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Weight of VOC per Volume of Coating Solids[c]

	At temperature less than 4.5°C (40°F)[d]		At temperature equal to or greater than 4.5°C (40°F)	
	lbs VOC per gallon coating solids	*grams VOC per liter coating solids*	*lbs VOC per gallon coating solids*	*grams VOC per liter coating solids*
(i) General use, including coal tar epoxy coatings	6.07	728	4.76	571
(ii) Specialty coating				
(a) Air flask	6.07	728	4.76	571
(b) Antenna	12.01	1,439	12.01	1,439
(c) Antifoulant	8.10	971	6.38	765
(d) Heat resistant	8.92	1,069	7.02	841
(e) High-gloss	8.92	1,069	7.02	841
(f) High-temperature	13.33	1,597	10.32	1,237
(g) Inorganic zinc high build primer	6.07	728	4.76	571
(h) Military exterior	6.07	728	4.76	571
(i) Mist	18.64	2,235	18.64	2,235
(j) Navigational aids	13.33	1,597	13.33	1,597
(k) Nonskid	6.07	728	4.76	571
(l) Nuclear	8.92	1,069	7.02	841
(m) Organic zinc	6.69	802	5.26	630
(n) Pretreatment wash primer	92.58	11,095	92.58	11,095
(o) Repair and maintenance of thermoplastic coating of commercial vessels	13.33	1,597	13.32	1,597
(p) Rubber camouflage	6.07	728	4.76	571
(q) Sealant for thermal spray aluminum	18.65	2,235	18.65	2,235
(r) Special marking	9.83	1,178	9.83	1,178
(s) Specialty interior	6.07	728	4.76	571
(t) Tack	18.65	2,235	18.65	2,235
(u) Undersea weapons systems	6.07	728	4.76	571
(v) Weld-through preconstruction primer	24.07	2,885	24.07	2,885

[a] The limits are expressed in two sets of equivalent units: pounds (lbs) per gallon and grams per liter. Either set of limits may be used to demonstrate compliance.

[b] To convert from grams per liter to pounds (lbs) per gallon, multiply the limit by (3.785 liter/gallon) (1/453.6 pound/gram) or 1/120. For compliance purposes, metric units define the standards.

[c] VOC limits expressed in units of mass of VOC per volume of solids were derived from the VOC limits expressed in units of mass of VOC per volume of coating less water and exempt compounds by assuming the coating contains no water or exempt compounds and that the volumes of all components within the coating are additive.

[d] These limits apply during cold weather time periods, that is, temperatures below 4.5°C (40°F). Cold weather allowances are not given to coatings in categories that allow less than 40% solids (nonvolatiles) content by volume. These coatings are subject to the single limit regardless of weather conditions and temperatures.

Category 12 was adopted on January 21, 2023.

Comparison notes. No differences.

Equivalency: There is equivalency because there are no differences.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.18 Dry Cleaning Facilities

{Subsections a, b & c amended October 26, 2022, effective November 5, 2022. ***Paragraph b.10 added mm/dd/2025, effective mm/dd/2025.****}*

a. **Perchloroethylene Dry Cleaning Facilities.**

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b. **Petroleum Solvent Dry Cleaning Facilities.** This Subsection applies to all petroleum solvent dry cleaning facilities, as defined in §2101.20 of this Article, that consume 100 gallons or more of petroleum solvent on a daily basis.

1. Any person who operates, or allows to be operated, any petroleum solvent dry cleaning dryer subject to this Section shall at all times limit daily VOC emissions to the atmosphere to an average of 3.5 pounds of VOCs per 100 pounds dry weight of articles dry cleaned; or shall install, maintain, and operate a solvent recovery dryer in a manner such that the dryer remains closed and the recovery phase continues until a final recovered solvent flow rate of no more than 50 milliliters per minute is attained and maintained.

2. Any person who operates, or allows to be operated, any petroleum solvent filtration system subject to this Section shall at all times reduce the VOC content in all filtration wastes to one (1) pound or less per 100 pounds dry weight of article dry cleaned, before disposal and possible exposure to the atmosphere; or shall install, maintain, and operate a cartridge filtration system, and drain the filter cartridges in their sealed housings for eight (8) hours or more before their removal.

3. Any person who operates, or allows to be operated, any petroleum solvent dry cleaning facility subject to this Section shall repair all petroleum solvent vapor and liquid leaks within three (3) working days after identifying the sources of the leaks. If necessary repair parts are not in hand, such parts shall be ordered within three (3) working days, and repair the leaks no later than three (3) working days following the arrival of the necessary parts.

4. Any person who operates, or allows to be operated, any petroleum solvent dry cleaning facility subject to this Section shall install, maintain, and operate equipment consistent with manufacturer's specifications and recommendations in order to minimize VOC emissions. In addition, all fugitive VOC emissions from the storage, handling, and transfer of petroleum solvent and petroleum solvent containing materials shall be minimized through employment of appropriate operating practice or procedures to reduce solvent loss and evaporation to the atmosphere.

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§ 129.63b. Control of VOC emissions from large petroleum dry cleaning facilities. (ACHD has no such facilities, but there is an impact on §2105.18)

The provisions of this § 129.63b added January 20, 2023, effective January 21, 2023, 53 Pa.B. 465.

(a) *Applicability.* This section applies Statewide to the owner and operator of a petroleum solvent washer, dryer, solvent filter, settling tank, vacuum still and other containers and conveyors of petroleum solvent that are used in petroleum dry cleaning facilities that consume 123,000 liters (32,493 gallons) or more of petroleum solvent annually.

(b) *Definitions.* The following words and terms, when used in this section, have the following meanings, unless the context clearly indicates otherwise:

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(c) *Emission limitations.*

(1) The owner and operator of a petroleum dry cleaning dryer shall do one of the following:

(i) Limit VOC emissions to the atmosphere to an average of 3.5 kilograms (kg) of VOC per 100 kg dry weight of articles dry cleaned.

(ii) Install and operate a petroleum solvent recovery dryer in a manner that the dryer remains closed and the recovery phase continues until a final recovered solvent flow rate of 50 milliliters per minute is attained.

(2) The owner or operator of a petroleum solvent filtration system shall do one of the following:

(i) Reduce the VOC content in filtration wastes to 1.0 kg or less per 100 kg dry weight of articles dry cleaned, before disposal and exposure to the atmosphere.

(ii) Install and operate a cartridge filtration system and drain the filter cartridges in their sealed housings for 8 hours or more before their removal.

(3) The owner or operator of a petroleum dry cleaning dryer or petroleum solvent filtration system shall repair a petroleum solvent vapor or liquid leak within 3 working days after identifying the source of the leak.

(i) If the necessary repair part is not on hand to perform the repair, the owner or operator shall order the part within 3 working days following identification of the source of the leak.

(ii) The owner or operator shall repair the identified leak no later than 3 working days following the arrival of the necessary repair part ordered under subparagraph (i).

Comparison notes. The Code does not have a paragraph analogous to §2105.18.b.4. This makes Article XXI more stringent.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

Article XXI

§2105.18 Dry Cleaning Facilities (continued)

b. (continued)

5. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall demonstrate compliance as follows:

   A. For any dryer:
      i. Calculate, record, and report to the Department the weight of VOCs vented from the dryer emission control device calculated by using the appropriate method established by Part G of this Article;
      ii. Calculate, record, and report to the Department the dry weight of articles dry cleaned; and
      iii. Repeat Subparagraphs 5.A.i and 5.A.ii above for normal operating conditions that encompass at least 30 dryer loads, which total not less than 4,000 lbs. dry weight, and represent a normal range of variations in fabric, solvents, load weights, temperatures, flow rates, and process deviations;

   B. When a solvent recovery dryer is used, verify that the flow rate of recovered solvent from the solvent recovery dryer at the termination of the recovery phase is no greater than 50 milliliters per minute. This one-time procedure shall be conducted for a duration of no less than two weeks during which no less than 50 percent of the dryer loads shall be monitored for their final recovered solvent rate. The flow rate of recovered solvent shall be measured from the solvent-water separator unless otherwise approved in writing by the Department. Near the end of the recovery cycle, the flow of recovered solvent shall be diverted to a graduated cylinder. The cycle shall continue until the maximum flow of solvent is no more than 50 milliliters per minute. The dry weight and type of article cleaned and the total length of the cycle shall be recorded and reported to the Department; and

   C. Where employing a petroleum solvent filtration system, but not employing cartridge filters:
      i. Calculate, record, and report to the Department the weight of VOCs contained in each of at least five 3-pound samples of filtration waste material taken at intervals of at least one week by employing the appropriate method established by Part G of this Article;
      ii. Calculate, record, and report to the Department the total dry weight of articles dry cleaned during the intervals between removal of filtration waste samples, as well as the total mass of filtration waste produced in the same period; and
      iii. Calculate, record, and report to the Department the weight of VOCs contained in filtration waste material per 100 pounds dry weight of articles dry cleaned.

6. Inspection and maintenance.
   A. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall submit for approval to the Department an inspection and maintenance protocol including daily inspections of washers, dryers, solvent filters, settling tanks, vacuum stills, and all containers and conveyors of petroleum solvent to identify perceptible vapor or liquid leaks. A daily log shall be maintained to record the inspection and maintenance activities conducted under the approved protocol. The log shall be prepared and maintained in a format to be approved by the Department as part of the approved protocol.

   B. Dry cleaning system components found leaking liquid solvent shall be repaired immediately. Pipes, hoses, and fittings shall be examined for active dripping or dampness. Pumps and filters shall be closely inspected for leaks around seals and access covers. There shall be no visible signs of liquid solvent.

   C. Solvent vapor leaks shall be controlled by reducing the number of sources where solvent is exposed to the atmosphere. Under no circumstances shall there be any open containers (cans, buckets, barrels) of solvent or solvent-containing material. Equipment containing solvent (washers, dryers, extractors, and filters) shall remain closed at all times other than during maintenance or load transfer. Lint filter and button trap covers shall remain closed except when solvent-laden lint and debris are removed. Gaskets and seals should be inspected and replaced when found weak and defective. Solvent-laden clothes shall never be allowed to set exposed to the atmosphere for longer periods than are necessary for load transfers. Vents on solvent-containing waste and new solvent

storage tanks shall be constructed and maintained in a manner that minimizes solvent vapor emissions.

25 Pa. Code Ch. 129

§ 129.63b. Control of VOC emissions from large petroleum dry cleaning facilities (continued)

(d) *Compliance monitoring and testing requirements.* The owner or operator of a petroleum dry cleaning operation subject to this section shall demonstrate compliance as follows.

(1) To determine compliance with subsection (c)(1)(i), the owner or operator shall do the following:

(i) Calculate the weight of VOC vented from the dryer emission control device using EPA Reference Test Methods 1, 2 and 25A, with the following specifications:

(A) Field calibration of the flame ionization analyzer with propane standards.

(B) Laboratory determination of the ratio of the flame ionization analyzer response to a given parts per million by volume concentration of propane to the response to the same parts per million concentration of the VOC to be measured.

(C) Determination of the weight of VOC emissions vented to the atmosphere by performing the following:

(I) Multiplying the ratio determined in clause (B) by the measured concentration of VOC gas (as propane) as indicated by the flame ionization analyzer response output record.

(II) Converting the parts per million by volume value calculated in subclause (I) into a mass concentration value for the VOCs present.

(III) Multiplying the mass concentration value calculated in subclause (II) by the exhaust flow rate determined by using EPA Reference Test Methods 1 and 2.

(ii) Calculate the dry weight of articles dry cleaned.

(iii) Repeat subparagraphs (i) and (ii) for normal operating conditions that encompass at least 30 dryer loads which meet the following:

(A) Total not less than 1,800 kg dry weight.

(B) Represent a normal range of variations in fabrics, solvents, load weights, temperatures, flow rates and process deviations.

(2) To determine compliance with subsection (c)(1)(ii), the owner or operator shall verify that the flow rate of recovered solvent from the solvent recovery dryer at the termination of the recovery phase is no greater than 50 milliliters per minute by performing the following steps:

(i) Conducting a one-time procedure for a duration of no less than 2 weeks that:

(A) Monitors at least 50% of the dryer loads for their final recovered solvent flow rate.

(B) Measures the flow rate of recovered solvent from the solvent-water separator.

(I) Near the end of the recovery cycle, the flow of recovered solvent should be diverted to a graduated cylinder.

(II) Continue the cycle until the flow rate of the solvent is 50 milliliters per minute.

(ii) Recording the type of articles cleaned and the total length of the cycle measured in subparagraph (i).

(3) To determine compliance with subsection (c)(2)(i) and (ii), the owner or operator shall do the following:

(i) Calculate the weight of VOCs contained in each of five 1-kg samples of filtration waste material taken at intervals of 1 week, using ASTM Method D322-97 (Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation).

(ii) Calculate the total dry weight of articles dry cleaned during the intervals between removal of filtration waste samples, as well as the total mass of filtration waste produced in the same period.

(iii) Calculate the weight of VOCs contained in filtration waste material per 100 kg dry weight of articles dry cleaned.

(4) To determine compliance with subsection (c)(3), the owner or operator shall perform weekly inspections of washers, dryers, solvent filters, settling tanks, vacuum stills and all containers and conveyors of petroleum solvent to identify a perceptible petroleum solvent vapor or liquid leak.

Comparison notes. Language analogous to that at Article XXI §2105.18.b.6.B and C is not present in the Code. Article XXI is therefore slightly more stringent.

Equivalency: There is equivalency because Article XXI is of equal or greater stringency.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.18 Dry Cleaning Facilities (continued)

7. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall install, operate, and maintain equipment consistent with manufacturer's specifications and recommendations.

8. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall maintain copies of all manufacturer's specifications and recommendations for dry cleaning equipment operated at the facility and records of operations, inspections, and maintenance such that the Department can determine compliance. These records shall be retained at the facility for a period of at least two (2) years, shall be made available to the Department for inspection and copying upon request, and shall, at a minimum, include:
   A. Information on purchases, inventory, and daily consumption of petroleum solvents;
   B. Operational information on washers, dryers, and solvent filtration systems, including daily hours of operation, cycle times, and dry weight of articles cleaned; and
   C. Information on leak inspections and repairs for all equipment and components handling petroleum solvents.

9. Any person who operates, or allows to be operated, any affected petroleum solvent dry cleaning facility shall submit reports to the Department summarizing information on daily operations, inspections, and maintenance activities, and such other information as is required by the Department to determine compliance, on a schedule and in a form and manner as is prescribed by the Department.

10. Exemption. The owner or operator of a petroleum solvent dry cleaning facility subject to Subsection b claiming exemption from the requirements of Paragraphs b.1 to b.9 shall maintain records of annual solvent consumption onsite for five (5) years to demonstrate that the applicability threshold of Subsection b has not been exceeded.

25 Pa. Code Ch. 129

§ 129.63b. Control of VOC emissions from large petroleum dry cleaning facilities (continued)

(e) *Recordkeeping and reporting requirements.* The owner or operator of a petroleum dry cleaning facility subject to this section shall maintain records sufficient to demonstrate compliance with this section, including:

(1) Records of the weight of VOC emissions vented from the dryer emission control device, calculated according to subsection (d)(1).

(2) Records of the dry weight of articles dry cleaned for use in the calculations in subsection (d)(1)—(3).

(3) Records of the weight of VOCs contained in the filtration waste samples required in subsection (d)(1)(i).

(4) Records of the weight of VOCs contained in the filtration waste material for each 220 lb (100 kg) dry weight of articles dry cleaned.

(f) *Exemption.* The owner or operator of a petroleum dry cleaning facility subject to subsection (a) claiming exemption from the requirements of subsections (c)—(e) shall maintain records of annual solvent consumption onsite for 5 years to demonstrate that the applicability threshold of subsection (a) has not been exceeded.

Comparison notes. No substantive differences.
Equivalency: There is equivalency because there are no substantive differences.

The 3 CTGs in Approval Process. (BOH approved March 19, 2025)

Article XXI

§2105.19A Synthetic Organic Chemical Manufacturing Industry – Air Oxidation, Distillation and Reactor Processes ***{Section 2105.19A added mm/dd/2025, effective mm/dd/2025.}***

a. Incorporation by Reference. Except as otherwise specifically provided under this Section, this Section shall be applied consistent with the provisions of the state regulation for *Control of VOC Emissions from the Synthetic Organic Chemical Manufacturing Industry – Air Oxidation, Distillation and Reactor Processes* promulgated under the Air Pollution Control Act at 25 Pa. Code § 129.71a and the related definitions at 25 Pa. Code § 121.1 which are hereby incorporated by reference into this Article. Additions, revisions, or deletions to such regulation by the Commonwealth are incorporated into this Article and are effective on the date established by the state regulations, unless otherwise established by regulation under this Article.

b. For the purposes of this subsection, references in 25 Pa. Code § 129.71a to:

E. "Department" shall mean Department as defined under this Article;

F. "Facility located in this Commonwealth, shall mean "facility located in Allegheny County;" and

G. "Plan approval" shall mean Installation Permit.

25 Pa Code Ch. 129

§ 129.71a. Control of VOC emissions from the synthetic organic chemical manufacturing industry—air oxidation, distillation and reactor processes.

129.71a. 25 Pa. Code § 129.71a. Control of VOC emissions from the synthetic organic chemical manufacturing industry—air oxidation, distillation and reactor processes.

https://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/025/chapter129/s129.71a.html&d=reduce

Comparison notes. As part of SIP Revision 103, ACHD is incorporating by reference 25 Pa. Code § 129.71a. Therefore, equivalency exists.

Equivalency: There is equivalency because Article XXI §2105.19A incorporates by reference 25 Pa. Code § 129.71a.

Additional related/referenced regulations

Article XXI

§ 2105.01 Equivalent Compliance Techniques

Compliance with the requirements of this Part relating to sources of volatile organic compounds may be achieved by alternative methods provided:

a. The alternative method is approved by the Department in an applicable installation permit or operating permit;

b. The resulting emissions are equal to or less than the emissions that would have been discharged by complying with the applicable emission limitation;

c. Compliance by a method other than the use of a coating or ink which complies with the requirements for Surface Coating Processes, Graphic Arts Systems, and Aerospace Manufacturing and Rework under Sections 2105.10, 2105.11, and 2105.74, respectively, of this Article shall be determined on the basis of equal volumes of solids;

d. Adequate records are maintained to ensure enforceability;

e. The alternative compliance method is incorporated into an installation permit or operating permit, reviewed by the EPA; and

f. The test methods and procedures used to monitor compliance with the requirements of this Section are either those specified in Part G of this Article or approved by the EPA.

25 Pa Code Ch. 129

§129.51 General

(a) *Equivalency.* Compliance with § § 129.52 and 129.54—129.73 may be achieved by alternative methods if the following exist:

(2) The alternative method is approved by the Department in an applicable plan approval or operating permit, or both.
(3) The resulting emissions are equal to or less than the emissions that would have been discharged by complying with the applicable emission limitation.
(4) Compliance by a method other than the use of a low VOC coating or ink which meets the applicable emission limitation in § § 129.52, 129.67 and 129.73 (relating to surface coating processes; graphic arts systems; and aerospace manufacturing and rework) shall be determined on the basis of equal volumes of solids.
(5) Capture efficiency testing and emissions testing are conducted in accordance with methods approved by the EPA.
(6) Adequate records are maintained to ensure enforceability.
(7) The alternative compliance method is incorporated into a plan approval or operating permit, or both, reviewed by the EPA, including the use of an air cleaning device to comply with § 129.52, § 129.67, § 129.68(b)(2) and (c)(2) or § 129.73.

Comments Most of the methods in part G are EPA approved. However, there may be some, for example malodor, that have no federal counterpart and therefore are not EPA approved.

Additional related/referenced regulations

Article XXI

§2105.03 OPERATION AND MAINTENANCE

All air pollution control equipment required by this Article or any permit or order under this Article, and all equivalent compliance techniques which have been approved by the Department pursuant to this Article, shall be properly installed, maintained, and operated consistent with good air pollution control practice.

25 Pa Code Ch. 129

§ 127.444. Compliance requirements.

A person may not cause or permit the operation of a source subject to this article unless the source and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the application and conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

Comments No substantive differences