

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

SUBPART C. PROTECTION OF NATURAL RESOURCES

ARTICLE III. AIR RESOURCES

CHAPTER 121. GENERAL PROVISIONS

§ 121.1. Definitions.

The definitions in section 3 of the act (35 P. S. § 4003) apply to this article. In addition, the following words and terms, when used in this article, have the following meanings, unless the context clearly indicates otherwise:

\* \* \* \* \*

*Coating*—

(i) For purposes of wood furniture manufacturing operations under § § 129.101—129.107, a protective, decorative or functional material applied in a thin layer to a surface.

~~[(i)]~~ (A) The term includes paints, topcoats, clear coats, varnishes, sealers, stains, washcoats, basecoats, inks and temporary protective coatings.

~~[(ii)]~~ (B) The term does not include adhesives.

(ii) FOR PURPOSES OF PAPER, FILM AND FOIL SURFACE COATING UNDER § 129.52b (RELATING TO CONTROL OF VOC EMISSIONS FROM PAPER, FILM AND FOIL SURFACE COATING PROCESSES), A MATERIAL APPLIED ONTO OR IMPREGNATED INTO A SUBSTRATE FOR DECORATIVE, PROTECTIVE OR FUNCTIONAL PURPOSES.

(A) THE TERM INCLUDES SOLVENT-BORNE COATINGS, WATERBORNE COATINGS, ADHESIVES, WAX COATINGS, WAX LAMINATIONS, EXTRUSION COATINGS, EXTRUSION LAMINATIONS, 100% SOLID ADHESIVES, UV-CURED COATINGS, ELECTRON BEAM-CURED COATINGS, HOT MELT COATINGS AND COLD SEAL COATINGS.

(B) THE TERM DOES NOT INCLUDE MATERIALS USED TO FORM UNSUPPORTED SUBSTRATES, SUCH AS CALENDARING OF VINYL, BLOWN FILM, CAST FILM, EXTRUDED FILM AND CO-EXTRUDED FILM.

**Coating line—The equipment and activities of the manufacturing process used to apply coatings onto or into a substrate.**

\* \* \* \* \*

*Paper, film or foil coating* **or paper, film or foil surface coating**—Coatings applied in a **CONTINUOUS**, uniform layer to paper, **FILM OR FOIL SURFACES**, and pressure-sensitive tapes, regardless of substrate. **THE COATINGS ARE APPLIED TO PROVIDE A COVERING, FINISH OR FUNCTIONAL OR PROTECTIVE LAYER TO THE SUBSTRATE, SATURATE A SUBSTRATE FOR LAMINATION OR PROVIDE ADHESION BETWEEN TWO SUBSTRATES FOR LAMINATION.**

**(i) The term includes [related] COATINGS USED IN web coating processes on [plastic] THE FOLLOWING:**

**(A) PRESSURE SENSITIVE TAPES AND LABELS, INCLUDING FABRIC COATED FOR USE IN PRESSURE SENSITIVE TAPES AND LABELS.**

**(B) PLASTIC AND PHOTOGRAPHIC** films [~~and~~].

**(C) INDUSTRIAL AND** decorative [~~coatings on metal foil~~] **LAMINATES.**

**(D) ABRASIVE PRODUCTS, INCLUDING FABRIC COATED FOR USE IN ABRASIVE PRODUCTS.**

**(E) FLEXIBLE PACKAGING, INCLUDING COATING OF NON-WOVEN POLYMER SUBSTRATES FOR USE IN FLEXIBLE PACKAGING.**

**(F) MISCELLANEOUS COATING OPERATIONS, INCLUDING THE FOLLOWING:**

**(I) CORRUGATED AND SOLID FIBER BOXES.**

**(II) DIE-CUT PAPER, PAPERBOARD AND CARDBOARD.**

**(III) CONVERTED PAPER AND PAPERBOARD NOT ELSEWHERE CLASSIFIED.**

**(IV) FOLDING PAPERBOARD BOXES, INCLUDING SANITARY BOXES.**

**(V) MANIFOLD BUSINESS FORMS AND RELATED PRODUCTS.**

**(VI) PLASTIC ASEPTIC PACKAGING.**

**(VII) CARBON PAPER AND INKED RIBBONS.**

(ii) The term does not include [~~coatings~~] **THE FOLLOWING:**

**(A) COATINGS** applied in whole or in part as nonuniform layers, such as patterns, designs or print,

**(B) INKS AND OTHER COATINGS USED AT PRINTING OPERATIONS THAT ARE APPLIED ON OR IN-LINE WITH AN OFFSET LITHOGRAPHIC, SCREEN, LETTERPRESS, FLEXOGRAPHIC, ROTOGRAVURE OR DIGITAL PRINTING PRESS.**

**(C) SIZING, STARCH OR WATER-BASED CLAYS THAT ARE APPLIED WITH SIZE PRESSES AND ON-MACHINE COATERS THAT ARE PART OF AN IN-LINE PAPERMAKING SYSTEM.**

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## CHAPTER 129. STANDARDS FOR SOURCES

### SOURCES OF VOCs

#### § 129.51. General.

(a) *Equivalency.* Compliance with §§ 129.52, **129.52a** [~~(Editor's Note: The Department will propose to add § 129.52a at a later date.)~~], **129.52b** [~~129.52c~~ (Editor's Note: The Department proposed to add § 129.52c at 39 Pa.B. 6061, 6067 (October 17, 2009).)] and 129.54—129.73 may be achieved by alternative methods if the following exist:

\* \* \* \* \*

(3) Compliance by a method other than the use of a low VOC coating or ink which meets the applicable emission limitation in §§ 129.52, **129.52a, 129.52b, [129.52c]**, 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.

\* \* \* \* \*

(6) 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, **§ 129.52a, § 129.52b, [§ 129.52c]**, § 129.67, § 129.68(b)(2) and (c)(2) or § 129.73.

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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 [~~and paper coatings~~] IN THIS SECTION are superseded by the requirements and limits in [~~§§ 129.52a and 129.52b~~] § 129.52a (relating to control of VOC emissions from large appliance and metal furniture surface coating processes [~~;~~ and control of VOC emissions from paper, film and foil surface coating processes), respectively].

(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).

\* \* \* \* \*

[Editor's note: Section 129.52b is new and printed in regular type to enhance readability.]

**§ 129.52b. Control of VOC emissions from paper, film and foil surface coating processes.**

(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 [~~both~~] 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)(3), (4)~~ **(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, ~~2011~~ **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.

(c) *Emission limits.* Beginning January 1, ~~2011~~ **2012**, a person subject to subsection (a)(1) **OR (a)(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:

$$\text{VOC}_B = (W_o)/(W_n)$$

Where:

$\text{VOC}_B$  = 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:**

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

**WHERE:**

**VOC = VOC CONTENT IN LB VOC/GAL OF COATING SOLIDS**

**W<sub>o</sub> = WEIGHT PERCENT OF VOC (W<sub>v</sub>-W<sub>w</sub>-W<sub>ex</sub>)**

**W<sub>v</sub> = WEIGHT PERCENT OF TOTAL VOLATILES (100%-WEIGHT PERCENT SOLIDS)**

**W<sub>w</sub> = WEIGHT PERCENT OF WATER**

**W<sub>ex</sub> = WEIGHT PERCENT OF EXEMPT SOLVENT(S)**

**D<sub>c</sub> = DENSITY OF COATING, LB/GAL, AT 25°C**

**V<sub>n</sub> = 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:

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

Where:

VOC<sub>A</sub> = VOC content in lb VOC/lb of coating solids for a dip coating, calculated on a 30-day rolling average basis

W<sub>oi</sub> = 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<sub>ci</sub> = Density of each as supplied coating (i) added to the dip coating process, in pounds per gallon

Q<sub>i</sub> = Quantity of each as supplied coating (i) added to the dip coating process, in gallons

W<sub>ni</sub> = Percent solids by weight of each as supplied coating (i) added to the dip coating process, expressed as a decimal fraction

W<sub>oJ</sub> = Percent VOC by weight of each thinner (J) added to the dip coating process, expressed as a decimal fraction

D<sub>dJ</sub> = 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)]~~ (iv) Sampling and testing shall be done in accordance with the procedures and test methods specified in Chapter 139 (relating to sampling and testing).

(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:

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

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.

(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)(1)]~~ (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**

**SOLIDS FOR EACH COATING, THINNER OR COMPONENT, AS SUPPLIED.**

(3) The owner or operator of a facility subject to subsection ~~[(a)(1)]~~ (a) shall maintain daily records of the VOC content of each as applied coating or cleaning solvent.

~~[(3) The owner or operator of a facility subject to subsection (a)(2) shall maintain daily records of the following parameters for each cleaning solvent, as supplied:~~

~~—(i) Name and identification number of the cleaning solvent.~~

~~—(ii) Volume used.~~

~~—(iii) Weight percent of total volatiles, water and exempt solvents.~~

~~—(iv) VOC content.~~

~~—(4) The owner or operator of a facility subject to subsection (a)(2) shall maintain daily records of the VOC content of each as applied cleaning solvent.]~~

(e) *Recordkeeping and reporting requirements.* The records required under subsection (d) shall be **maintained** :

**(1) MAINTAINED** for 2 years ~~[and submitted]~~ , **UNLESS A LONGER PERIOD IS REQUIRED BY § 127.511(b)(2) (RELATING TO MONITORING AND RELATED RECORDKEEPING AND REPORTING REQUIREMENTS).**

**(2) SUBMITTED** to the Department ~~[on]~~ **UPON RECEIPT OF A WRITTEN** request.

(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 ~~[Table]~~ **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.

(h) *Work practice requirements for cleaning materials.* The owner or operator of a paper, film or foil surface coating process subject to subsection ~~[(a)(2)]~~ **(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.

**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**

<u>UNITS</u>	<u>RACT LIMIT</u>
	<u>PAPER COATING</u>
<u>LB VOC/GAL COATING SOLIDS</u>	<b>4.84</b>
<u>KG VOC/L COATING SOLIDS</u>	<b>0.58</b>