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TITLE 326 AIR POLLUTION CONTROL BOARD

Proposed Rule
LSA Document #01-251

DIGEST

Amends 326 IAC 8-1-2 to provide compliance methods applicable to dip or flow operations at miscellaneous metal coating operations regulated at 326 IAC 8-2-9. Effective 30 days after filing with the secretary of state.

HISTORY

First Notice of Comment Period: August 1, 2001, Indiana Register (24 IR 3826).
Second Notice of Comment Period and Notice of First Hearing: November 1, 2001, Indiana Register (25 IR 556).
Date of First Hearing: February 6, 2002.

PUBLIC COMMENTS UNDER IC 13-14-9-4.5

IC 13-14-9-4.5 states that a board may not adopt a rule under IC 13-14-9 that is substantively different from the draft rule published under IC 13-14-9-4, until the board has conducted a third comment period that is at least twenty-one (21) days long.

Because this proposed rule is not substantively different from the draft rule published on November 1, 2001, at 25 IR 556, the Indiana Department of Environmental Management (IDEM) is not requesting additional comment on this proposed rule.

SUMMARY/RESPONSE TO COMMENTS FROM THE SECOND COMMENT PERIOD

The Indiana Department of Environmental Management (IDEM) requested public comment from November 1, 2001, through December 3, 2001, on IDEM's draft rule language. No comments were received during the comment period.

SUMMARY/RESPONSE TO COMMENTS RECEIVED AT THE FIRST PUBLIC HEARING

On February 6, 2002, the air pollution control board (board) conducted the first public hearing/board meeting concerning the development of amendments to compliance methods at 326 IAC 8-1-2 applicable to dip or flow operations at miscellaneous metal coating operations regulated at 326 IAC 8-2-9. Comments were made by the following parties:

Monaco Coach (MC)

Following is a summary of the comments received and IDEM's responses thereto:

Comment: With the way the rule is currently drafted a source wishing to use a dip tank would have to find a coating that is significantly below the limitations that EPA and IDEM's rules specify for metal coatings, which is 3.5 pounds of VOC per gallon of material. For example, a source would have to use a coating that is 3 to 2.8 pounds of VOC per gallon of coating. The technology does not support finding a lower VOC containing coating easily or cheaply. (MC)

Response: The requirement to use a coating containing less than the allowable VOC content only applies if a source adds thinner to the tank. Averaging always requires that the use of solvents or coatings that would result in a violation be offset by coatings that are better than compliant. The extent that a coating must exceed the limit is case specific and depends on a number of factors. IDEM is considering two alternative averaging methods that would allow sources to more readily confirm compliance using averaging. These two options are 30-day rolling average and determination of the tank VOC content each time solvent is added.

IDEM disagrees that the technology does not exist to support finding a lower VOC containing coating easily or cheaply. In a Connecticut case study, cited at dep.state.ct.us/west/p2/p2casest/okay.html. OKAY Industries of New Britain, Connecticut worked with a supplier to create a new water-borne formula and dip process coating line to replace high VOC containing coatings applied with a standard air powered spray gun. The new water-borne formula and dip process coating had to give consistent coverage, dry quickly with under 2.0 pounds of VOCs per gallon, meet military performance requirements and be approvable by the military. OKAY reported that the investment to change over to the new process had a payback period of approximately six (6) months. IDEM believes that similar opportunities to use lower VOC content coatings or water-borne coatings in dip operations exist in Indiana.

Comment: The baseline transfer efficiencies under 326 IAC 8-1-2(a)(9)(C) specify sixty percent (60%) transfer efficiency. The baseline transfer efficiencies should be changed to reflect a realistic value. For example, parts that would typically be coated in a dip tank and that don't easily lend themselves to spray operations may have only a fifteen percent (15%) transfer efficiency using a spray operation. We request that the baseline transfer efficiencies be fixed to reflect the reality of what the transfer efficiencies would be and in only the very best cases are those transfer efficiencies at sixty percent (60%). (MC)

Response: In the original model VOC rules, U.S. EPA used a sixty percent (60%) baseline transfer efficiency to establish

reasonably available control technology (RACT) limits. The limits in this rule are RACT limits. In 326 IAC 8-1, the baseline transfer efficiency is used only for calculating the equivalent emissions limitations specified in the rule. It cannot be changed. Additionally, modifying the baseline transfer efficiency would not help companies to achieve compliance because the rule requires compliance with the equivalent emissions limitations based on an actual measured transfer efficiency. The actual measured baseline transfer efficiency is source specific and must be determined using a method that is either specified by U.S. EPA or is submitted to and approved by U.S. EPA as a revision to the state implementation plan (SIP).

Comment: The technology that we're using is at 3.5 pounds of VOC per gallon of material and meets the existing rule. We certified compliance based on viscosity reading. As long as the paint viscosity does not go above the original formulated viscosity, you are in compliance. EPA has since disagreed with viscosity as a compliance method. Now in order to demonstrate compliance we must start out with something that is significantly lower than 3.5 pounds of VOC per gallon of material. This causes a couple of issues. First, acetone, which is a common non-VOC product, does not work because it evaporates too quickly and is noneffective for dip coating. Second, adding chlorinated solvents to the dip tank creates a lot of hazardous waste issues, along with higher costs. (MC)

Response: The commenter is correct that to certify compliance under the averaging method in the draft rule you have to start out with a coating that is better than compliance (lower than 3.5). However, offsetting thinner additions with lower VOC content coatings is the standard acceptable compliance option for any coating applications system, not just dip coating. IDEM understands that solvents that have lower VOC contents may cause quality control problems, hazardous waste disposal issues, evaporation problems or higher costs. However coatings and solvents may exist that do not pose these problems and the greater transfer efficiency obtained by dip or flow coating can often offset these problems. IDEM agrees that viscosity is an acceptable way to determine compliance, however, U.S. EPA has raised concerns about viscosity as a compliance option because solvent evaporation losses from the tank are not included in determining compliance.

At the first public hearing, the Air Pollution Control Board directed IDEM staff to further pursue using viscosity as an alternative compliance method. IDEM staff will work with U.S. EPA to attempt to provide sources a viscosity compliance option that is acceptable to U.S. EPA.

326 IAC 8-1-2

SECTION 1. 326 IAC 8-1-2 IS AMENDED TO READ AS FOLLOWS:

326 IAC 8-1-2 Compliance methods

Authority: IC 13-14-8
Affected: IC 13-17

Sec. 2. (a) The emission limitations specified in this article shall be achieved through one (1) or any combination of the following:

(1) Carbon adsorption.

(2) Thermal or catalytic incineration. The owner or operator of a source using a natural gas afterburner incineration method may petition the commissioner for permission to not operate the natural gas afterburner during the months of November, December, January, February, and March. The commissioner may allow such exemption if the owner or operator adequately demonstrates that the operation of the natural gas afterburner is not required for control of toxic substances or odor.

(3) Higher solids (low solvent) ~~coating~~ **coatings, including powder, ultraviolet, and electron beam coatings.**

(4) Water borne coatings.

(5) Equivalent emission limitations based on an actual measured transfer efficiency higher than the specified baseline transfer efficiency **as follows:**

(A) This subdivision is applicable only to 326 IAC 8-2-2(b)(2), automobiles and light duty truck assembly; 326 IAC 8-2-6, metal furniture coating; and 326 IAC 8-2-7, large appliance coating.

(B) For metal furniture or large appliance coating operations, this subdivision and the equivalent emission limits it contains may not be used to determine compliance unless a test method for determining actual measured transfer efficiency has been specified by U.S. EPA or submitted to U.S. EPA and approved as a SIP revision.

(C) The equivalent emission limitations in units of kilograms of volatile organic compounds (VOC) per liter solids deposited (pounds of VOC per gallon solids deposited), baseline transfer efficiencies, and baseline volume percent solids content of the coating are specified below:

Category	Equivalent Emission Limit	Baseline Transfer Efficiency	Baseline Percent Solids

Automobiles and light duty trucks assembly (topcoat)	1.83 (15.1)	30	62.0
Metal furniture	1.01 (8.4)	60	59.2
Large appliances	0.91 (7.4)	60	62.0

(D) Compliance with an equivalent emission limit shall be determined as follows:

(i) For automobile and light duty topcoating operations, ~~compliance with the equivalent emission limit shall be determined using:~~ **use** procedures found in "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations"; EPA-450/3-88-018; December 1988*. ~~or~~

~~(B) another procedure approved by the commissioner~~. **(ii)** For metal furniture or large appliance coating operations, ~~compliance with the equivalent emission limit shall be determined using the procedures approved by the commissioner. Unless the method for determining actual measured transfer efficiency has been approved or specified by the United States Environmental Protection Agency (U.S. EPA), the equivalent emission limitation shall be submitted to the U.S. EPA as a state implementation plan (SIP) revision.~~ **use the following equation:**

$$\mathbf{E = \frac{L}{[(1-(L/D)) \times (T)]}}$$

Where: E = Actual emissions in pounds of VOC per gallon of coating solids deposited.

L = Actual VOC content in pounds of VOC per gallon of coating, as applied, excluding water and nonphotochemically reactive hydrocarbons.

D = Actual density of VOC in coating in pounds per gallon of VOC.

T = Actual measured transfer efficiency.

(6) The use of nonphotochemically reactive hydrocarbons as defined in 326 IAC 1-2-48.

(7) A daily volume-weighted average of all coatings applied in a coating line or printing line subject to the requirements in 326 IAC 8-2 or 326 IAC 8-5-5. Records of daily usage of gallons solids coating and VOC content of each coating, ~~or~~ ink, **and** solvent shall be maintained and made available upon request. Also, records of daily emissions in pounds VOC shall be maintained and made available upon request. If daily records sufficient to determine an accurate daily weighted average are not available, each coating, ~~or~~ ink, **and** solvent shall meet the requirements of the applicable section.

(8) The use of an emission control device specifically allowed under provisions of any rule in this article to meet the emission limitations specified in the rule.

(9) Equivalent emissions limitations based on an actual measured transfer efficiency ~~higher~~ **greater** than the specified baseline transfer efficiency.

(A) This subdivision is applicable only to miscellaneous metal coating operations subject to 326 IAC 8-2-9.

(B) This subdivision and the equivalent emission limits it contains may not be used to determine compliance unless a test method for determining actual measured transfer efficiency has been specified by U.S. EPA or submitted to U.S. EPA and approved as a SIP revision.

~~(A)~~ **(C)** Equivalent emission limits in units of kilograms of VOC per liter solids deposited (pounds of VOC per gallon solids deposited), baseline transfer efficiencies, and baseline volume percent solids content of coatings are as follows:

Miscellaneous Metal Coating Category	Equivalent Emission Limit kg/l (lbs/gal) of Solids Deposited	Baseline Transfer Efficiency	Baseline Volume Percent Solids

Clear coatings	2.08 (17.3)	60	41.6
Air dried up to 90°C	1.34 (11.2)	60	52.4
Extreme performance coatings	1.34 (11.2)	60	52.4
All other coatings and coating systems	1.01 (8.4)	60	59.2

~~(B)~~ **(D)** Compliance with the equivalent emission limit shall be determined according to the following equation:

$$E = \frac{L}{[(1-(L/D)) \times (T)]}$$

Where: E = ~~Equivalent emission limit~~ **Actual emissions** in pounds of VOC per gallon of coating solids deposited.

L = Actual VOC content in pounds of VOC per gallon of coating, as applied, **excluding water and nonphotochemically reactive hydrocarbons.**

D = Actual density of **the** VOC in **the** coating in pounds per gallon of VOC.

T = Actual measured transfer efficiency.

~~Unless the method for determining actual measured transfer efficiency has been approved or specified by the U.S. EPA, the equivalent emission limitation shall be submitted to the U.S. EPA as an SIP revision.~~

(10) For dip **coating** or flow coating operations only, miscellaneous metal coating operations subject to the requirements of 326 IAC 8-2-9 ~~may determine compliance by~~ **and** using ~~one (1) of the following methods:~~

~~(A) A monthly volume-weighted average of all coatings applied in a coating tank, flow coater, or flow coating line. For each coating, thinner, or solvent, the following records shall be maintained:~~

~~(i) Monthly usage.~~

~~(ii) VOC content as supplied by the manufacturer for coatings, thinners, and solvents.~~

~~(iii) Monthly emissions in pounds of VOC.~~

~~(iv) Calculated monthly volume-weighted average VOC content of the coating as applied.~~

~~If monthly records sufficient to determine an accurate monthly weighted average are not available, then a compliance method specified in this subsection or subsection (b) must be used to confirm compliance. Records necessary for determining compliance shall be maintained at the source for a minimum of three (3) years and shall be made available upon request.~~

~~(B) Using coatings in compliance with 326 IAC 8-2-9(d), in the tank or reservoir, and maintaining a viscosity of the coatings that is no less than the viscosity of the initial coating. During the first year of operation using this compliance method the source must demonstrate, by means of viscosity readings and a minimum of two (2) U.S. EPA approved VOC content tests, performed at a minimum four (4) month interval, that the VOC content of the coating as applied does not exceed the VOC content stipulated in 326 IAC 8-2-9(d). Such testing must comply with the provisions of 326 IAC 3-2.1. After the first year of operation and providing that the VOC content tests have confirmed compliance using viscosity readings, the source may use viscosity readings to confirm compliance. Sources may monitor the viscosity of the coating with a viscosity meter or an equivalent method approved by the department. The viscosity shall be measured weekly or after each time solvent is added to the tank or reservoir, whichever is more frequent. The viscosity measurement must be corrected for the temperature of the coating in the tank or reservoir and the solvent density of the thinner. Records of viscosity and temperature, sufficient to confirm compliance, shall be maintained at the source for a minimum of three (3) years and shall be made available upon request. Equipment necessary to demonstrate compliance based on viscosity must be properly maintained and available at all reasonable times. If viscosity is not monitored, then another compliance method specified in this subsection must be used to confirm compliance. For determining compliance based on this clause, an actual test, using approved methods such as a U.S. EPA Method 24 test and sampling procedures, of the VOC content of the~~

~~coating in the tank or reservoir shall take precedence over viscosity.~~

coatings that contain less VOC than the VOC content limits in 326 IAC 8-2-9 may determine compliance as-applied based on the interval between VOC-containing solvent additions using the following equation:

$$E_{ave} = \frac{VOC_a + VOC_s}{G_a + G_s}$$

Where:

- E_{ave} = **Volume-weighted average VOC emissions from VOC-containing coatings applied by the dip tank or flow coater for a given interval.**
- VOC_a = **Total weight of VOC (in pounds) from all VOC-containing coatings added to the tank or the reservoir during the interval between VOC-containing solvent additions.**
- VOC_s = **Total weight of VOC (in pounds) contained in the VOC-containing solvent added to the tank or the reservoir that started the averaging period.**
- G_a = **Total gallons of VOC-containing coating, minus water and nonphotochemically reactive hydrocarbons added to the tank or the reservoir during the interval between VOC-containing solvent additions.**
- G_s = **Total gallons of VOC-containing solvent, minus water and nonphotochemically reactive hydrocarbons added to the tank or the reservoir that started the averaging period.**

(A) Each interval shall start the calendar day any VOC-containing solvent is added to the tank or reservoir. The last day of the interval is the calendar day preceding the next VOC-containing solvent addition, not to exceed thirty (30) days. All of the additions of VOC-containing solvents and coatings to the tank that occur during the first calendar day and the additions of VOC-containing coatings to the tank each subsequent day of the interval shall be included in calculating the volume-weighted average for the interval. A new averaging interval must begin each day that a VOC-containing solvent is added to the tank or reservoir.

(B) If the interval between VOC-containing solvent additions exceeds thirty (30) days, then the daily volume-weighted average VOC emissions (E_{ave}) shall be determined using an averaging time of thirty (30) days.

(C) For compliance with this subdivision, the following records shall be maintained for each VOC-containing coating and solvent:

(i) The calculated volume-weighted average VOC emissions (E_{ave}) for every interval.

(ii) Actual VOC content of the coatings and solvents determined by the applicable testing procedures specified in section 4 of this rule or as supplied by the manufacturer.

(iii) Records of the amounts of VOC-containing coatings and solvents added to the tank or the reservoir, including the dates of the additions.

Records, sufficient to confirm compliance, shall be maintained at the source for a minimum of three (3) years and shall be made available upon request.

(D) If records sufficient to determine an accurate volume-weighted average for each interval are not available, then another compliance method specified in this rule must be used to confirm compliance.

(b) VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in this article for any surface coating operation using the compliance methods contained in subsection (a) or section 5 of this rule.

(1) Equivalency shall be determined by the following equation:

$$E = \frac{L}{1 - \frac{L}{D}}$$

Where: **E = Equivalent emission limit in pounds of VOC per gallon of coating solids, as applied.**

L = Applicable emission limit from this article in pounds of VOC per gallon of coating.

D = **Baseline solvent** density of VOC in **the** coating ~~in~~ **and shall be equal to seven and thirty-six hundredths (7.36)** pounds **of VOC** per gallon of ~~VOC.~~ **solvent.**

~~E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.~~

~~A solvent density of seven and thirty-six hundredths (7.36) pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article. Actual solvent density shall be used to determine compliance of surface coating operations using the compliance methods contained in subsection (a) or section 5 of this rule.~~

(2) Compliance with an equivalent emission limit established in subdivision (1) shall be determined according to the following equation:

$$\mathbf{E_a = \frac{L_a}{1 - \frac{L_a}{D_a}}}$$

Where: E_a = Actual emissions in pounds of VOC per gallon of coating solids, as applied.

L_a = Actual VOC content in pounds of VOC per gallon of coating, as applied.

D_a = Actual density of the VOC in the coating, as applied, in pounds per gallon of VOC.

(c) The overall efficiency of any capture system and control device determined by the test methods and procedures specified in section 4 of this rule shall be no less than the equivalent overall efficiency, which shall be calculated by the following equation:

$$O = \frac{V - E}{V} \times 100$$

Where: V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in section 4 of this rule in units of pounds of VOC per gallon of coating solids as applied.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

O = Equivalent overall efficiency of the capture system and control device as a percentage.

(d) Any **other** equivalent method ~~which is allowed to be used to determine or achieve compliance with any provision of this article shall~~ **must** be submitted ~~to the U.S. EPA~~ **and approved** as a SIP revision **by U.S. EPA before it can be used to determine or achieve compliance with any provision of this article.**

*This document ~~has been~~ **is** incorporated by reference. ~~and is~~ **Copies are** available **for review and copying** at the Indiana Department of Environmental Management, Office of Air ~~Management.~~ **Quality, Indiana Government Center-North, 100 North Senate Avenue, Tenth Floor, Indianapolis, Indiana 46204.** *(Air Pollution Control Board; 326 IAC 8-1-2; filed Mar 10, 1988, 1:20 p.m.: 11 IR 2527; errata, 11 IR 2632; filed Sep 23, 1988, 11:59 a.m.: 12 IR 256; filed Jan 16, 1990, 4:00 p.m.: 13 IR 1016; filed Apr 18, 1990, 4:55 p.m.: 13 IR 1676; filed May 9, 1990, 5:00 p.m.: 13 IR 1845; filed May 6, 1991, 4:45 p.m.: 14 IR 1713; filed Aug 21, 1996, 2:00 p.m.: 20 IR 6)*

Notice of Public Hearing

Under IC 4-22-2-24, IC 13-14-8-6, and IC 13-14-9, notice is hereby given that on August 7, 2002 at 1:00 p.m., at the Indiana Government Center-South, 402 West Washington Street, Conference Center Room C, Indianapolis, Indiana the Air Pollution Control Board will hold a public hearing on proposed amendments to 326 IAC 8-1-2.

The purpose of this hearing is to receive comments from the public prior to final adoption of these rules by the board. All interested persons are invited and will be given reasonable opportunity to express their views concerning the proposed amendments. Oral statements will be heard, but for the accuracy of the record, all comments should be submitted in writing. Procedures to be followed at this hearing may be found in the April 1, 1996, Indiana Register, page 1710 (19 IR 1710).

Additional information regarding this action may be obtained from Pat Troth, Rule Development section, (317) 233-5681 or (800) 451-6027, press 0, and ask for 3-5681(in Indiana). If the date of this hearing is changed, it will be noticed in the Change of Notice section of the Indiana Register.

Individuals requiring reasonable accommodations for participation in this event should contact the Indiana Department of Environmental Management, Americans with Disabilities Act coordinator at:

Attn: ADA Coordinator
Indiana Department of Environmental Management
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

or call (317) 233-0855. TDD: (317) 232-6565. Speech and hearing impaired callers may also contact the agency via the Indiana Relay Service at 1-800-743-3333. Please provide a minimum of 72 hours' notification.

Copies of these rules are now on file at the Indiana Government Center-North, 100 North Senate Avenue, Tenth Floor and Legislative Services Agency, One North Capitol, Suite 325, Indianapolis, Indiana and are open for public inspection.

Janet G. McCabe

Assistant Commissioner
Office of Air Management