TITLE 326 AIR POLLUTION CONTROL BOARD

Proposed Rule
LSA Document #05-197

DIGEST

Amends 326 IAC 8-5-1 concerning rule applicability. Adds 326 IAC 8-5-6 concerning VOC emissions from phenolic-urethane cold-box core making processes using amine gas to catalyze the adhesive binder. Adds 326 IAC 8-5-7 concerning VOC emissions from fuel grade ethanol production operations classified as dry mills. Effective 30 days after filing with the Publisher.

HISTORY

First Notice of Comment Period: August 1, 2005, Indiana Register (28 IR 3355).
Second Notice of Comment Period and Notice of First Hearing: May 1, 2006, Indiana Register (29 IR 2674).
Date of First Hearing: August 2, 2006.

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.

REQUEST FOR PUBLIC COMMENTS

A portion of this proposed rule is substantively different from the draft rule published on May 1, 2006, at 29 IR 2674. The following provision appeared in the draft rule but was deleted from the preliminarily adopted rule: Heatset Web Offset Lithographic Printing Presses, at 326 IAC 8-5-8 in the draft rule. The Indiana Department of Environmental Management (IDEM) is requesting comment on the entire proposed (preliminarily adopted) rule, including suggestions for specific amendments. These comments and the department's responses thereto will be presented to the board for final adoption under IC 13-14-9-6. Mailed comments should be addressed to:

#05-197 8-1-6 BACT
Sean Gorman Mail Code 61-50
c/o Administrative Assistant
Rule Development Section
Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, Indiana 46204.

Hand delivered comments will be accepted by the receptionist on duty at the Office of Air Quality, Tenth Floor East, 100 North Senate Avenue, Indianapolis, Indiana. Comments may also be submitted by facsimile to (317) 233-2342, Monday through Friday, between 8:15 a.m. and 4:45 p.m. Please confirm the timely receipt of faxed comments by calling the Rule Development Section at (317) 233-0426.

COMMENT PERIOD DEADLINE

Comments must be postmarked, faxed, or hand delivered by October 25, 2006.

SUMMARY/RESPONSE TO COMMENTS FROM THE SECOND COMMENT PERIOD

IDEM requested public comment from May 1, 2006, through May 31, 2006, on IDEM's draft rule language. IDEM received comments from the following parties:

Printing Industry of Illinois/Indiana Association (PII)

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

Comment: Please revise the definition of "heatset" in the draft rule language at 326 IAC 8-5-8(b)(1) by deleting "and solvents". The only solvents in heatset inks are oils. (PII)

Comment: Please revise the definition of "lithographic printing" in the draft rule language at 326 IAC 8-5-8(b)(2) by replacing it with the following: (2) lithographic printing is a planographic printing process where the image and nonimage areas are chemically differentiated; the image area is oil receptive and the nonimage area is water receptive. This method differs from other printing methods where the image is typically printed from a raised or recessed surface. (PII)

Comment: Please revise the definition of "offset" in the draft rule language at 326 IAC 8-5-8(b)(3) by replacing it with the following: (3) "offset" describes a lithographic printing process that transfers the ink film from the lithographic plate to an intermediary surface (blanket), which, in turn, transfers the ink film to the substrate. (PII)

Comment: Please delete the definition of "permanent total enclosure" at IAC 8-5-8(b)(4) and the condition at IAC 8-5-8(d)(3) because U.S. EPA has determined that total enclosures are not necessary for heatset web offset lithographic presses. In its January 2005 Technical Support Document for Title V Permitting of Printing Facilities, the U.S. EPA has stated that "as long as the dryer is operated at negative pressure, the capture efficiency for VOC from the heatset lithographic inks and varnishes (coatings) formulated with low volatility ink oils can be assumed to be 100 percent of the VOC (ink oils) volatilized in the dryer." Other input materials such as alcohol substitutes in fountain solutions and low vapor pressure automatic blanket wash solvents are captured at assumed rates of 70 percent and 40 percent, respectively. The small benefit associated with the use of total enclosure does not outweigh the costs associated with operating a heatset web offset press in a total enclosure. (PII)

Comment: Please revise the BACT condition at IAC 8-5-8(c) by deleting the term "overall" and replacing "ninety eight percent (98%)" with the following conditions:

a. If the press will be controlled by an existing control system at the facility, the control system shall achieve a destruction/removal efficiency of (1) at least 90% or the currently required destruction/removal efficiency, whichever is more stringent, or (2) a total outlet concentration of 20 ppmv or less as hexane (C_6H_{14}), whichever is less stringent.

b. If the press will be controlled by a new control system at the facility, the control system shall achieve a destruction/removal efficiency of at least 95% or a total outlet concentration of 20 ppmv or less as hexane (C_6H_{14}), whichever is less stringent.

c. For presses utilizing combined dryers and control devices that do not have an inlet, the total outlet concentration should be 20 ppmv or less as hexane (C_6H_{14}), whichever is less stringent. (PII)

Comment: Deleting the term "overall" is necessary because its elimination will ensure that the condition only applies to the destruction/removal efficiency of the control device. (PII)

Comment: A 98% destruction efficiency is too stringent of a requirement for catalytic oxidizers. While technically feasible to achieve this level of destruction at start-up, monitoring requirements will be more expensive than a 90% or 95% destruction efficiency requirement. Catalyst activity testing will likely have to be conducted on a semi-annual basis at a cost of at least $500.00 to $1,000.00 per test. The catalyst would also have to be replaced more frequently than with a 90% or 95% destruction efficiency requirement. Depending on the type and amount of catalyst, replacement cost can range from $10,000.00 to $40,000.00 per unit, which reduces the economic advantage associated with using a catalytic oxidizer. (PII)

Comment: A 98% destruction efficiency requirement would increase the cost of using regenerative oxidizers. In order to demonstrate compliance, operators will either have to install a VOC entrapment chamber at a cost of $50,000.00 to $75,000.00, or purchase a three chambered unit, which adds about 30% to the cost of a two chamber unit. Because larger units are not much more expensive than the smallest units, the cost of control per ton for low flow scenarios will be much higher than that for higher flows. Because a regenerative oxidizer must be continuously operated to be economically feasible, only a small percentage of the printing operations in the state have the necessary equipment and workload for it to be an economically viable control option. (PII)

Comment: In order to achieve a 98% destruction efficiency with a recuperative oxidizer, it may have to be operated at temperatures exceeding 1,400°F. Temperatures this high tax both the vendors and users of equipment because specialty metals must be used in the construction of the units. (PII)

Comment: The new rule should provide the ability to demonstrate compliance by measuring and verifying an outlet concentration of 20 ppmv or less as hexane (C_6H_{14}), which is consistent with U.S. EPA's TSD for Title V Permitting of Printing Facilities. (PII)

Comment: If forced to achieve a 98% destruction efficiency, printers that add new presses to existing control devices or replace existing presses would be required to either purchase a new control device, not install the new press, or retrofit the existing control device at great expense. To ease the economic burden on existing printers in this situation, 326 IAC 8-5-8(c) should be revised to read in its entirety as:

(c) The owner or operator of a heatset web offset lithographic printing press shall install, and operate at all times the facility is operating, a regenerative thermal oxidizer, recuperative thermal oxidizer, or catalytic oxidizer control device with a control efficiency of:

i. If the press will be controlled by an existing control system at the facility, the control system shall achieve a destruction/removal efficiency of (1) at least 90% or the currently required destruction/removal efficiency, whichever is more stringent, or (2) a total outlet concentration of 20 ppmv or less as hexane (C_6H_{14}) minus methane and ethane, whichever is less stringent.

ii. If the press will be controlled by a new control system at the facility, the control system shall achieve a destruction/removal efficiency of at least 95% or a total outlet concentration of 20 ppmv or less as hexane (C_6H_{14}) minus methane and ethane, whichever is less stringent.

iii. For presses utilizing compined dryers and control devices that do not have an inlet, the total outlet concentration should be 20 ppmv or less as hexane (C_6H_{14}) minus methane and ethane as a default compound on a dry basis. (PII)

Comment: The new rule should clarify where the temperature is to be monitored for catalytic and thermal

oxidizers and should include a clarifying statement recognizing that fluctuations in oxidizer temperature can occur and that fluctuations below the set point temperature are a normal aspect of operating an oxidizer. These changes are consistent with U.S. EPA's TSD for Title V Permitting of Printing Facilities. To incorporate this change, IAC 8-5-8(d)(1) should be revised to read in its entirety as: (1) The inlet temperature of a catalytic oxidizer or operating temperature for a thermal oxidizer to ensure that the three (3) hour average temperature, as measured by a continuous temperature monitor, is greater than or equal to the minimum temperature to achieve the required destruction efficiency established during the most recent compliance demonstration. Any three-hour period when the average temperature is equal or greater than a temperature 50°F less than the average temperature demonstrated during the most recent stack test qualifies as continuous compliance. (PII)

Comment: Due to the nature of the printing process, air flow is in continuous fluctuation and the monitoring requirement at IAC 8-5-8(d)(2) imposes additional costs at up to $5,000.00 for a monitoring system and will result in no benefit. No meaningful data would be gathered. All control devices incorporate a safety system designed to detect excessive temperatures due to high solvent levels in the dryer emissions or if the control device does not achieve the minimum operating temperature. Emissions exceeding design and permit limits cannot occur on a continuous basis and would be limited to a duration of only a few seconds for a thermal oxidizer and up to a minute for a catalytic oxidizer before the operation is automatically shut down. Finally, U.S. EPA's TSD for Title V Permitting of Printing Facilities recognizes that no monitoring of air flow is required to demonstrate compliance because of the inherent design of the press and dryer. Accordingly, IAC 8-5-8(d)(2) should be deleted. (PII)

Response: IDEM and the Printing Industry of Illinois/Indiana Association have agreed to not pursue a source specific rule in place of the 326 IAC 8-1-6 BACT requirement for heatset web offset lithographic printing press operations at this time. Those operations, where applicable, will continue to be required by 326 IAC 8-1-6 to reduce VOC emissions using BACT. IDEM will conduct further research into appropriate control standards and may propose industry specific standards for heatset web offset lithographic printing press operations in a future rulemaking.

SUMMARY/RESPONSE TO COMMENTS RECEIVED AT THE FIRST PUBLIC HEARING

On August 2, 2006, the Air Pollution Control Board (board) conducted the first public hearing/board meeting concerning the development of amendments to 326 IAC 8-5-1 and new rules 326 IAC 8-5-6 and 326 IAC 8-5-7. Comments were made by the following party:

International Truck and Engine Corporation / Indiana Castings Corporation (ITEC/ICC)

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

Comment: By specifying 100 percent capture efficiency for foundry core making operations, the proposed rule causes two regulatory compliance standards to be applied for foundries: One for the foundry maximum available control technology, and one that is above the MACT standard due to the 100 percent capture efficiency specification. Consistency with the MACT standard should be considered in this rulemaking. (ITEC/ICC)

Response: Currently, new facilities with potential emissions of 25 tons of VOC per year or greater, which are not already subject to other regulations contained in 326 IAC 8, are required by 326 IAC 8-1-6 to reduce VOC emissions using the Best Available Control Technology (BACT). 326 IAC 8-5-6 of the proposed rule specifies the level of controls as consistently established in past and current BACT determinations for foundry core making operations. The U.S. Environmental Protection Agency (EPA) requires that new rules be no less stringent than existing rules for State Implementation Plan (SIP) approval purposes. In order to remain consistent with past and current BACT determinations performed under SIP approved 326 IAC 8-1-6, the proposed rule requires a 100 percent capture efficiency. IDEM is planning further discussion with representatives of the industry to discuss the 100 percent capture efficiency requirement contained in the proposed rule.

Comment: Achieving 100 percent capture efficiency is very expensive because it involves heating lines and incurs extra maintenance costs. Evaluations conducted by MACT tech engineering and consulting for Indianapolis Castings Corporation in 2004 for existing machines indicated that the cost of control is $25,000 per ton of emissions. Based on a quick economic analysis, the cost of control per ton of VOCs for the last 5 percent is twice to triple the cost of control for the first 95 percent of capture. (ITEC/ICC)

Response: IDEM has requested documentation of the costs of complying with the level of control required in 326 IAC 8-5-6 of the proposed rule. The control standards for the proposed rule are derived from past and current BACT determinations of foundry core making operations. Establishing BACT involves a case-by-case determination and is based on the maximum reduction in emissions that is technically feasible while taking into account energy, environmental, and economic impacts. 100 percent capture efficiency has been consistently required under current and past BACT analyses for foundry core making operations, therefore it is an appropriate standard for the proposed rule. IDEM is planning further discussion with representatives of the industry to discuss the 100 percent capture efficiency requirement contained in the proposed rule.

326 IAC 8-5-1; 326 IAC 8-5-6; 326 IAC 8-5-7

SECTION 1. 326 IAC 8-5-1 IS AMENDED TO READ AS FOLLOWS:

326 IAC 8-5-1 Applicability of rule

Authority: IC 13-14-8; IC 13-17-3
Affected: IC 13-14-8-7; IC 13-17-1; IC 13-17-3

Sec. 1. ~~326 IAC 8-5 pertaining to miscellaneous operations shall apply~~ **This rule applies** to **the following:**
(1) Facilities or sources existing as of January 1, 1980, of the types described in ~~326 IAC 8-5-2~~ **section 2 of this rule** and facilities or sources existing as of November 1, 1980, of the types described in ~~326 IAC 8-5-3~~, ~~326 IAC 8-5-4~~, and ~~326 IAC 8-5-5~~, **sections 3 through 5 of this rule** located in **the following counties:**
(A) Clark.
(B) Elkhart.
(C) Floyd.
(D) Lake.
(E) Marion.
(F) Porter. ~~and~~
(G) St. Joseph. ~~Counties; and~~
(2) Sources or facilities, construction of which commences after January 1, 1980, of the types described in ~~326 IAC 8-5-2~~ **section 2 of this rule** and sources or facilities, construction of which commences after November 1, 1980, of the types described in ~~326 IAC 8-5-3~~, ~~326 IAC 8-5-4~~, and ~~326 IAC 8-5-5~~, **sections 3 through 5 of this rule** located anywhere in the state.
(3) Any asphalt paving application made after January 1, 1980. ~~shall be regulated by this rule (326 IAC 8-5).~~
(4) Facilities or sources, construction of which commences after January 1, 2007, of the types described in sections 6 and 7 of this rule located anywhere in the state.

(Air Pollution Control Board; 326 IAC 8-5-1; filed Mar 10, 1988, 1:20 p.m.: 11 IR 2543; readopted filed Jan 10, 2001, 3:20 p.m.: 24 IR 1477)

SECTION 2. 326 IAC 8-5-6 IS ADDED TO READ AS FOLLOWS:

326 IAC 8-5-6 Phenolic-urethane cold-box core making processes

Authority: IC 13-14-8; IC 13-17-3
Affected: IC 13-14-8-7; IC 13-17-1; IC 13-17-3

Sec. 6. (a) This section applies to phenolic-urethane cold-box core making processes constructed or modified after January 1, 2007, that:
(1) use amine gas to catalyze the adhesive binder; and
(2) have potential VOC emissions of twenty-two and seven-tenths (22.7) megagrams (twenty-five (25) tons) or more per year.

(b) The following definitions apply throughout this section:
(1) "Amine gas" means a gas used to catalyze the phenolic-urethane resin binder.
(2) "Phenolic-urethane cold-box core making process" means a core production line that:
(A) includes one (1) or more core machines and the mixer; and
(B) produces cores through the binding of sand and other inorganic particles through the use of binding adhesives containing solvents.

(c) Total nonamine volatile organic compound emissions from phenolic-urethane cold-box core making processes shall not exceed five-hundredths (0.05) pound per pound of resin.

(d) The owner or operator of a phenolic-urethane cold-box core making process shall install, and operate at all times the core machine is in operation, an amine gas scrubber system that maintains a capture efficiency of one hundred percent (100%) and:
(1) maintains an amine gas destruction efficiency of ninety-nine percent (99%); or
(2) results in an outlet amine gas concentration less than one (1) part per million by volume.

(e) To ensure and verify initial and continuing compliance with the control efficiency requirement, the source shall monitor and maintain records of the following, using the test methods outlined in 40 CFR 63, Subpart EEEEE*:

(1) The flow rate of the amine gas scrubber verifying that the three (3) hour average flow rate, as measured by a continuous parameter monitoring system, does not fall below the minimum level established during the most recent compliance demonstration.

(2) The pH of the scrubber solution to ensure that the:

(A) three (3) hour average pH of the scrubber solution, as measured by a continuous parameter monitoring system, does not exceed 4.5; or

(B) pH of the scrubber solution, as measured once every eight (8) hours during process operation, does not exceed 4.5.

***This document is incorporated by reference. Copies may be obtained from the Government Printing Office, 732 North Capitol Street NW, Washington, D.C. 20401 or are available for review and copying at the Indiana Department of Environmental Management, Office of Air Quality, Indiana Government Center-North, Tenth Floor, 100 North Senate Avenue, Indianapolis, Indiana 46204.**

(Air Pollution Control Board; 326 IAC 8-5-6)

SECTION 3. 326 IAC 8-5-7 IS ADDED TO READ AS FOLLOWS:

326 IAC 8-5-7 Fuel grade ethanol production at dry mills

Authority: IC 13-14-8; IC 13-17-3
Affected: IC 13-14-8-7; IC 13-17-1; IC 13-17-3

Sec. 7. (a) As follows, this section applies to fuel grade ethanol production plants constructed or modified after January 1, 2007, that:

(1) Are dry mills and have no wet milling operations.

(2) Use fermentation, distillation, and dehydration to produce ethanol and dried distillers grain and solubles (DDGS).

(3) Have combined potential VOC emissions of twenty-two and seven-tenths (22.7) megagrams (twenty-five (25) tons) or more per year from the following processes:

(A) Fermentation, distillation, and dehydration.

(B) DDGS dryer or dryers.

(C) Ethanol load-out operations.

(b) The following definitions apply throughout this section:

(1) "Dry mill" means an ethanol production operation that uses the whole corn kernel to produce a meal that is then used to produce alcohol. The byproduct of a dry mill is the DDGS.

(2) "Fuel grade ethanol production plant" means an operation that produces ethanol that is then denatured with a denaturant to make it unfit for human consumption.

(3) "Wet milling" means a process by which corn is soaked or steeped to soften the corn kernel so that it can be separated into its various components, such as the following:

(A) Gluten.

(B) Germ.

(C) Protein.

(D) Fiber.

(E) Starch.

(c) The owner or operator of a fuel grade ethanol production plant that is a dry mill shall install and operate at least one (1) of the following control devices for VOC emissions from the plant:

(1) A thermal oxidizer with a capture efficiency of one hundred percent (100%) and an overall control efficiency of not less than ninety-eight percent (98%) or resulting in a volatile organic compound concentration of not more than ten (10) parts per million (ppm).

(2) A wet scrubber with a capture efficiency of one hundred percent (100%) and an overall control efficiency of not less than ninety-eight percent (98%) or resulting in a volatile organic compound concentration of not more than twenty (20) parts per million (ppm).

(3) An enclosed flare with a capture efficiency of one hundred percent (100%) and an overall control efficiency of not less than ninety-eight percent (98%).

(d) The owner or operator of a fuel grade ethanol production plant that is a dry mill shall ensure and verify initial and continuing compliance with the control efficiency requirement by doing the following:

(1) If using a thermal oxidizer, the owner or operator shall do the following:

(A) Continuously monitor the operating temperature of the oxidizer to ensure that the three (3) hour average temperature, as measured by a continuous temperature monitor, is greater than or equal to the minimum temperature established during the most recent compliance demonstration.

(B) Maintain continuous temperature records for the thermal oxidizer and the three (3) hour average temperature used to demonstrate compliance during the most recent compliant stack test.

(C) Monitor the duct pressure or fan amperage once per day to ensure that the three (3) hour average duct pressure or fan amperage, as measured by a continuous parameter monitoring system, is within the normal range established during the most recent compliance demonstration.

(D) Maintain daily records of the duct pressure or fan amperage for the thermal oxidizer.

(2) If using a wet scrubber, the owner or operator shall do the following:

(A) Monitor the pressure drop of the scrubber at least once per day when the associated emission unit is in operation to ensure that the pressure drop across the scrubber is within the normal range established during the latest stack test.

(B) Monitor the scrubber flow rate at least once per day when the associated emission unit is in operation to ensure that the flow rate of the scrubber is greater than the minimum flow rate established during the latest stack test.

(C) Maintain daily records of pressure drop and flow rate for the scrubber during normal operation.

(3) If using an enclosed flare, the owner or operator shall do the following:

(A) Continuously monitor the presence of a flare pilot flame using a thermocouple or any other equivalent device to detect the presence of a flame when the associated emission unit is in operation.

(B) Maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when the loading rack is in operation.

(Air Pollution Control Board; 326 IAC 8-5-7)

Notice of Public Hearing

Posted: 10/04/2006 by Legislative Services Agency
An html version of this document.