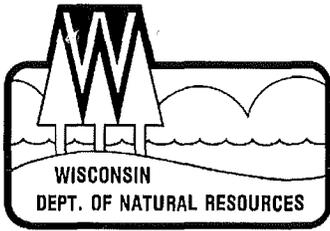


CR 94-211



George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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STATE OF WISCONSIN)
)
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TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, George E. Meyer, Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. AM-46-94 was duly approved and adopted by this Department on February 23, 1995. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 21st day of April, 1995



George E Meyer
George E. Meyer, Secretary

(SEAL)

7-1-95



NATURAL RESOURCES BOARD
RENUMBERING AND AMENDING, AMENDING AND CREATING RULES



AM-46-94

The Wisconsin Natural Resources Board adopts an order to renumber NR 439.04(5)(d)1. and 2.; to renumber and amend NR 439.04(5)(d)(intro.); to amend NR 422.04(4) and 439.04(5)(e)(intro.); and to create NR 422.02(6), (18s), (21e), (24p), (24q), (28g), (37v), (41y) and (50v), 422.142, 439.04(5)(d)2., 439.06(3)(j), 484.04(13m), (15e) and (15m) and 484.10(39m) relating to the regulation of volatile organic compound emissions from lithographic printing.

Analysis Prepared by the Department of Natural Resources

Statutory authority: ss. 144.31(1)(e) and (f), and 227.11(2)(a), Stats.

Statutes interpreted: s. 144.31(1)(f), Stats. The State Implementation Plan developed under that provision is revised.

Wisconsin's Reasonably Available Control Technology (RACT) rules for volatile organic compounds (VOCs) are intended to achieve and maintain compliance with the national ambient air quality standard for ozone. These proposed rule changes are intended to fulfill requirements under the Clean Air Act Amendments of 1990 related to RACT for VOC sources. RACT consists of equipment and/or processes that provide the lowest emission rate when considering economic and technological feasibility. The proposed rules establish RACT for offset lithographic presses located in the nine county moderate or worse ozone nonattainment area in southeastern Wisconsin.

Compliance demonstration and related recordkeeping are also clarified for flexographic and rotogravure printing operations subject to s. NR 422.14.

Approval to incorporate by reference the cited ASTM and Code of Federal Regulations test methods will be sought from the Attorney General and the Revisor of Statutes.

SECTION 1. NR 422.02(6), (18s), (21e), (24p), (24q), (28g), (37v), (41y) and (50v) are created to read:

NR 422.02(6) "Blanket or roller wash" means any cleaning solvent or solution used to remove excess inks, oils and debris from the blanket roller or inking rollers on a lithographic printing press.

(18s) "Fountain solution" means a mixture of water, volatile and nonvolatile chemicals and other additives which is applied to the image plate to maintain the hydrophilic properties of the nonimage areas of the printing plate surface.

(21e) "Heatset" means a lithographic web printing process where solvents from the printing ink are evaporated by heat from a dryer.

(24p) "Lithographic printing" means a planographic printing process where the image and nonimage areas are chemically differentiated; the image area is oil receptive and the nonimage area is typically water receptive.

(24q) "Lithographic printing press" means a printing production assembly comprised of one or more inking and fountain solution dampening systems and includes any associated cleaning solutions, ovens, dryers, flashoff areas and chillers.

(28g) "Non-heatset" means a lithographic printing process where the printing inks are set without the application of heat. Ultraviolet-cured and electron beam-cured inks are considered non-heatset.

(37v) "Restricted alcohol" means an alcohol which contains only one hydroxyl (-OH) group and less than 5 carbon atoms.

(41y) "Sheet-fed" means a lithographic printing process where individual sheets of substrate are fed to the press sequentially.

(50v) "Web" means a substrate onto which inks or coatings are applied after the substrate is unwound from a continuous roll and prior to the substrate being rewound or cut.

SECTION 2. NR 422.04(4) is amended to read:

NR 422.04(4) CAPTURE SYSTEMS. The design, operation and efficiency of any capture system used in conjunction with sub. (2)(b), (c) or (d) shall be certified in writing by the owner or operator. The efficiency of the capture system is subject to approval by the department and, for sources covered under ss. NR 422.05 to 422.135 or 422.145 to 422.155, the efficiency of the capture system shall be great enough to insure that the emissions for any day from the controlled line are less than or equal to the amount determined using the following equation:

$$E = \sum_{i=1}^n (A_i B_i C_i + D_i)$$

where:

of VOCs from all lithographic printing presses at the facility greater than or equal to 755.7 kilograms (1666 pounds) in any month.

(b) To determine VOC emissions under par. (a), the VOC content of a lithographic ink shall be multiplied by 0.8 for a heatset ink, or multiplied by 0.05 for a non-heatset ink, to account for VOC retention on the substrate.

(2) EMISSION LIMITATIONS. (a) Dryer exhaust. Any person who owns or operates a heatset web lithographic printing press shall maintain the dryer pressure lower than the press room pressure at all points inside the dryer, and shall:

1. Reduce VOC emissions from the press dryer exhaust by 90% by weight of total organics, minus methane and ethane, or maintain a maximum dryer exhaust outlet concentration of 20 ppmv, as carbon.

2. If the dryer exhaust is controlled by a catalytic incinerator installed or modified before January 1, 1982, reduce VOC emissions from the press dryer exhaust by 85% by weight of total organics, minus methane and ethane.

(b) Fountain solutions. 1. 'Heatset web presses.' Any person who owns or operates a heatset web lithographic printing press shall, when printing on a substrate other than metal, metal-foil or plastic, use a fountain solution which has a VOC content as applied of no more than one of the following:

a. 1.6% by weight if the fountain solution contains any restricted alcohol and is not refrigerated to 60°F or less.

b. 3.0% by weight if the fountain solution contains any restricted alcohol and is refrigerated to 60°F or less.

c. 5.0% by weight if the fountain solution contains no restricted alcohol.

2. 'Non-heatset web presses.' Any person who owns or operates a non-heatset web lithographic printing press shall, when printing on a substrate other than metal, metal-foil or plastic, use a fountain solution which has a VOC content as applied of no more than 5.0% by weight and which contains no restricted alcohol.

E is the total allowable daily emissions of VOCs in kilograms (pounds) from all coatings or inks subject to the same numerical emission limitation and applied on the controlled line

i is the subscript denoting an individual coating or ink

n is the number of different coatings or inks applied

A_i is the allowable emission rate for the coatings or inks pursuant to ss. NR 422.05 to 422.135 and 422.145 to 422.155 in kilograms per liter (pounds per gallon) of coating or ink, excluding water, delivered to the applicator

B_i is the amount of coating material or ink in liters (gallons), delivered to the applicator during the actual production day

C_i is the volume fraction of solids in the coating or ink, delivered to the applicator during the actual production day

D_i is the theoretical volume fraction of solids in the coating or ink necessary to meet the allowable emission rate pursuant to ss. NR 422.05 to 422.15 422.135 and 422.145 to 422.155 calculated from:

$$D_i = 1 - [A_i/P_i]$$

where:

P_i is the density of the VOC used in the coating or ink delivered to the applicator during the actual production day in kilograms per liter (pounds per gallon). If the coating or ink does not contain any VOCs, or if the actual VOC density cannot be demonstrated by the owner or operator, a value of 0.88 kilograms per liter (7.36 pounds per gallon) shall be used for P.

SECTION 3. NR 422.142 is created to read:

NR 422.142 LITHOGRAPHIC PRINTING. (1) APPLICABILITY. (a) This section applies to all lithographic printing presses at any facility which is located in the county of Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha and which has maximum theoretical emissions

3. 'Sheet-fed presses.' Any person who owns or operates a sheet-fed lithographic printing press shall, when printing on a substrate other than metal, metal-foil or plastic, use a fountain solution which has a VOC content as applied of no more than one of the following:

a. 5.0% by weight.

b. 8.5% by weight if the fountain solution is refrigerated to 60°F or less.

4. 'Metal, metal-foil or plastic substrates.' Any person who owns or operates any lithographic printing press shall, when printing on a metal, metal-foil or plastic substrate, use a fountain solution which has a VOC content as applied of no more than one of the following:

a. 13.5% by weight if the fountain solution contains any restricted alcohol and is refrigerated to 60°F or less.

b. Not more than that allowed under subd. 1. a. or c., 2. or 3. a., as appropriate for the type of press operated.

(c) Blanket or roller wash. 1. Except as provided in subd. 2., any person who owns or operates any lithographic press shall use blanket or roller wash which, as applied, has one of the following:

a. A VOC content of no greater than 30% by weight.

b. A vapor pressure for each VOC component of less than or equal to 10 mm of Hg at 20°C (68°F).

2. The owner or operator of a facility may use blanket or roller wash which does not meet the emission limitations of subd. 1., provided the amount used at the facility under this subdivision over any 12 consecutive months does not exceed one of the following:

a. If the facility does not print on a plastic substrate, 55 gallons.

b. If the facility does print on a plastic substrate, 165 gallons.

(3) TEMPERATURE MONITORING. The owner or operator of any lithographic printing press shall monitor at least once each 8-hour shift the temperature of each fountain solution reservoir for any fountain solution subject to sub. (2)(b)1. b., 3. b., or 4. a.

(4) RECORDKEEPING REQUIREMENTS. In addition to the applicable recordkeeping requirements in s. NR 439.04, the owner or operator of any lithographic printing press shall collect and record the applicable information specified in this subsection. The information shall be maintained at the facility for a minimum of 5 years and shall be made available to an authorized department representative at any time during normal working hours. The information required is:

(a) For a heatset web lithographic printing press using a control device, for each day of operation:

1. Control device monitoring data.
2. A log of operating time for the control device, monitoring equipment and the associated printing line or operation.
3. A maintenance log for the control device and monitoring equipment detailing all routine and non-routine maintenance performed and including dates and duration of any outages.

(b) For fountain solutions monitored under sub. (3), the fountain solution reservoir temperature for each 8-hour shift of operation.

(c) For each fountain solution used, the percent by weight VOC content as applied, and the chemical name of each restricted alcohol.

(d) For each blanket or roller wash, the percent by weight VOC content as applied and the vapor pressure of each VOC component.

(e) For each month of operation, the volume of all blanket or roller wash used which does not meet the emission limitations of sub. (2)(c)1., as allowed under sub. (2)(c)2.

(5) COMPLIANCE TESTING. (a) The owner or operator of a heatset web lithographic printing press shall demonstrate compliance with the appropriate destruction efficiency or emission rate in sub. (2)(a) by performing compliance emission tests on each control device. The initial emission tests shall be performed by the compliance deadline in sub. (6)(a). Each emission test shall follow the methods and procedures listed in s. NR 439.07. Method 18, 25 or 25A in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, shall be used to determine the VOC concentration at the sampling

points. Method 25A may not be used if the outlet VOC concentration is greater than 100 ppmv, as carbon. When determining the VOC concentration, the probe must be heated during testing to at least the exhaust gas stream temperature.

(b) The owner or operator of a heatset web lithographic printing press shall perform the compliance emission tests required under par. (a) according to one of the following test schedules:

1. Any facility with allowable VOC emissions from lithographic printing presses of 100 tons or more per year shall perform an emission test which demonstrates compliance with sub. (2)(a) every 24 months. Each biennial test shall be performed within 90 days of the anniversary date of the initial emission test.

2. Any facility with allowable VOC emissions from lithographic printing presses of less than 100 tons per year shall perform an emission test which demonstrates compliance with sub. (2)(a) every 48 months. Each test shall be performed within 90 days of the anniversary date of the initial emission test.

(c) The VOC content of lithographic inks, fountain solutions and blanket or roller wash shall be determined in accordance with s. NR 439.06(3)(j).

(d) The vapor pressure of each VOC in blanket or roller wash shall be determined by ASTM D2879-92, incorporated by reference in s. NR 484.10.

(6) COMPLIANCE SCHEDULE AND CERTIFICATION REQUIREMENTS. (a) Compliance schedule. The owner or operator of a lithographic printing press installed on or before July 1, 1996 shall achieve compliance with the applicable emission limitations of sub. (2) by July 1, 1996. Any person who installs a lithographic printing press after July 1, 1996 shall comply with the applicable emission limitations upon startup of the press.

(b) Certification. 1. The owner or operator of a lithographic printing press which is installed on or before July 1, 1996 shall submit to the department no later than September 1, 1996 written certification that the press is in compliance with the applicable requirements of subs. (2) and (3) and shall provide a demonstration of compliance in accordance with subs. (4) and (5). A compliance emission test performed in accordance with s. NR 439.07 no more than 2 years prior to the compliance deadline, which demonstrates

compliance with sub. (2)(a), is acceptable as a demonstration of compliance in accordance with sub. (5).

2. The owner or operator of a heatset web lithographic printing press which is installed after July 1, 1996 shall perform a compliance emission test within 180 days after installation and shall submit to the department no later than 60 days after the test written certification that the press is in compliance with the applicable requirements of subs. (2) and (3) and a demonstration of compliance in accordance with subs. (4) and (5).

3. The owner or operator of any lithographic printing press, other than a heatset web press, which is installed after July 1, 1996 shall submit to the department no later than 180 days after installation written certification that the press is in compliance with the applicable requirements of subs. (2) and (3) and a demonstration of compliance in accordance with subs. (4) and (5).

SECTION 4. NR 439.04(5)(d)(intro.) is renumbered 439.04(5)(d)1.(intro.) and amended to read:

NR 439.04(5)(d)1.(intro.). Any owner or operator of a printing line or operation subject to the emission limitations of s. NR 422.14(2)(a) or (b) shall collect and record the following information:

SECTION 5. NR 439.04(5)(d)1. and 2. are renumbered 439.04(5)(d)1. a. and b.

SECTION 6. NR 439.04(5)(d)2. is created to read:

NR 439.04(5)(d)2. Any owner or operator of a printing line or operation subject to the emission limitation in s. NR 422.14(2)(c) shall collect and record the following information for each day of operation:

- a. Monitoring data for the control device.
- b. A log of operating time for the capture system, control device, monitoring equipment and the associated coating or printing line or operation.

c. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed and including dates and duration of any outages.

SECTION 7. NR 439.04(5)(e)(intro.) is amended to read:

NR 439.04(5)(e)(intro.) Any owner or operator of a coating or printing line or operation that is subject to an emission limitation in ss. NR 422.05 to 422.135 or 422.145 to 422.155, and that is achieving compliance with the applicable emission limitation by a method allowed under s. NR 422.04(2)(b), (c) or (d) shall, in addition to the applicable information required under pars. (a) to (d), collect and record the following information for each day of operation:

SECTION 8. NR 439.06(3)(j) is created to read:

NR 439.06(3)(j) Notwithstanding par. (b), Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04, shall be used to determine the VOC content of lithographic inks, fountain solutions and blanket or roller wash in complying with s. NR 422.142.

SECTION 9. NR 484.04(13m), (15e) and (15m) are created to read:

CFR Appendix Referenced	Title	Incorporated by Reference For
NR 484.04(13m) 40 CFR part 60 Appendix A, Method 18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography	NR 422.142(5)(a)
(15e) 40 CFR part 60 Appendix A, Method 25	Determination of Total Gaseous Nonmethane Organic Emissions as Carbon	NR 422.142(5)(a)
(15m) 40 CFR part 60 Appendix A, Method 25A	Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer	NR 422.142(5)(a)

SECTION 10. NR 484.10(39m) is created to read:

Standard No.	Standard Title	Incorporated by Reference For
NR 484.10(39m) ASTM D2879-92	Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope	NR 422.142(5)(d)

The foregoing rule was approved and adopted by the State of Wisconsin Natural Resources Board on February 23, 1995.

The rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin 4/21/95.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By

George E Meyer
George E. Meyer, Secretary

(SEAL)

