

CR 94-141



George E. Meyer  
Secretary

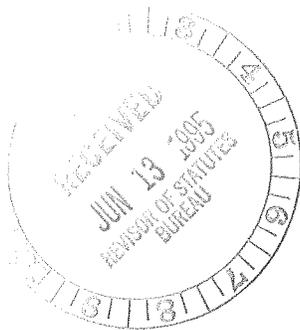
**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

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STATE OF WISCONSIN )  
 )  
DEPARTMENT OF NATURAL RESOURCES )      SS

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-38-94 was duly approved and adopted by this Department on March 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.



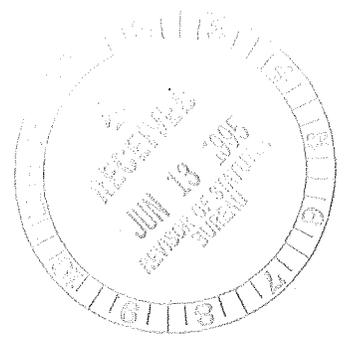
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 8th day of June, 1995.

George E. Meyer  
George E. Meyer, Secretary

(SEAL)

9-1-95

ORDER OF THE STATE OF WISCONSIN  
NATURAL RESOURCES BOARD  
AMENDING AND CREATING RULES



AM-38-94

The Wisconsin Natural Resources Board adopts an order to amend NR 422.02(47), 422.15(1)(intro.) and 484.05(1); and to create NR 422.02(3e), (7m), (16g), (16i), (16k), (41w), (42o), (42u), (50e), (50m) and (52) and 422.125 relating to setting RACT VOC emission limits for wood furniture coating.

Analysis Prepared by the Department of Natural Resources

Authorizing statutes: ss. 144.31(1)(a), 144.38 and 227.11(2)(a), Stats.

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

As part of the Clean Air Act Amendments of 1990, states with ozone nonattainment areas are required to establish Reasonably Available Control Technology (RACT) for major stationary sources of volatile organic compounds (VOC). RACT is defined as the lowest emission rate that a source is capable of achieving considering economic and technological feasibility. Wood furniture is a category with major sources in identified ozone nonattainment areas in Wisconsin. This proposed rule identifies RACT for the wood furniture source category.

Approval for an additional reference to a document previously approved for incorporation by reference will be sought from the Attorney General and the Revisor of Statutes.

SECTION 1. NR 422.02(3e), (7m), (16g), (16i), (16k), (41w), (42o) and (42u) are created to read:

NR 422.02(3e) "Basecoat" means, for the purpose of wood furniture coating, a coat of colored material, usually opaque, that is applied before other inks, coatings, or opaque finishing materials and which usually has a topcoat subsequently applied for protection.

(7m) "Cleaning operation" means, for the purpose of wood furniture coating, any activity in which organic solvent is used to remove accumulated coating residue from equipment used in a finishing operation.

(16g) "Final touch-up and repair" means, for the purpose of wood furniture coating, the localized application of finishing materials after the finishing operation to cover minor imperfections.

(16i) "Finishing material" means, for the purpose of wood furniture coating, coatings used to finish wood furniture, including, but not limited to, basecoats, stains, washcoats, sealers and topcoats. The term "finishing material" does not include industrial adhesives.

(16k) "Finishing operation" means, for the purpose of wood furniture coating, the application of finishing material to a substrate that is subsequently air dried, cured by radiation, or cured in an oven and the use of organic solvent in associated cleaning and washoff operations.

(41w) "Sealer" means, for the purpose of wood furniture coating, any coating applied to substrates to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

(42o) "Stain" means, for the purpose of wood furniture coating, any color coat having a solids content of no more than 8.0%, by weight.

(42u) "Strippable spray booth coating" means, for the purpose of wood furniture coating, a coating that is applied to a spray booth wall as a protective film to receive overspray during finishing operations and that is subsequently peeled off, thereby reducing or eliminating the need to use organic solvents to clean spray booth walls.

SECTION 2. NR 422.02(47) is amended to read:

NR 422.02(47) "Topcoat" means a coating applied over a prime coat or basecoat for the purpose of appearance, identification or protection of the substrate.

SECTION 3. NR 422.02(50e), (50m) and (52) are created to read:

NR 422.02(50e) "Washcoat" means, for the purpose of wood furniture coating, a transparent coating having a solids content, by weight, of 12.0% or less applied over initial stains to protect and control color and prepare the wood for sanding.

(50m) "Washoff operation" means, for the purpose of wood furniture coating, the process of using an organic solvent to remove coating from a substrate.

(52) "Wood furniture" means any wood product that is within one of the following standard industrial classification codes, as described in the Standard Industrial Classification Manual, 1987, incorporated by reference in s. NR 484.05:

- (a) 2434 - wood kitchen cabinets.
- (b) 2511 - wood household furniture, except upholstered.
- (c) 2512 - wood household furniture, upholstered.
- (d) 2517 - wood television, radios, phonograph and sewing machine cabinets.
- (e) 2519 - household furniture, not elsewhere classified.
- (f) 2521 - wood office furniture.
- (g) 2531 - public building and related furniture.
- (h) 2541 - wood office and store fixtures, partitions, shelving and lockers.
- (i) 2599 - furniture and fixtures, not elsewhere classified.

SECTION 4. NR 422.125 is created to read:

NR 422.125 WOOD FURNITURE COATING. (1) APPLICABILITY. This section applies to the wood furniture finishing operations of any wood furniture manufacturing facility which is located in the county of Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha, and whose maximum theoretical emissions of VOCs from all wood furniture finishing operations at the facility is greater than or equal to 25 tons per year.

(2) EMISSION LIMITATIONS. After one year after the effective date of this section ... [Revisor inserts date], no owner or operator of a wood furniture finishing operation may cause, allow or permit the emission of any VOCs in excess of the following limitations:

(a) General limits. Except as provided in par. (b), either of the following:

1. 0.8 kilograms per kilogram of solids (0.8 pounds per pound), as applied, for topcoats only.

Note: There is no restriction on the VOC content of the sealers used by those electing to comply under subd. 1.

2. 1.9 kilograms per kilogram of solids (1.9 pounds per pound), as applied, for sealers and 1.8 kilograms per kilogram of solids (1.8 pounds per pound), as applied, for topcoats.

(b) Acid-cured alkyd amino coatings. When the owner or operator is using acid-cured alkyd amino vinyl sealers or acid-cured alkyd amino conversion varnish topcoats, any of the following:

1. Where the sealer is an acid-cured alkyd amino vinyl sealer and the topcoat is an acid-cured alkyd amino conversion varnish topcoat, 2.3 kilograms per kilogram of solids (2.3 pounds per pound), as applied, for sealers and 2.0 kilograms per kilogram of solids (2.0 pounds per pound of solids), as applied, for topcoats.

2. Where the sealer is not an acid-cured alkyd amino vinyl sealer and the topcoat is an acid-cured alkyd amino conversion varnish topcoat, 1.9 kilograms per kilogram of solids (1.9 pounds per pound), as applied, for sealers and 2.0 kilograms per kilogram of solids (2.0 pounds per pound), as applied, for topcoats.

3. Where the sealer is an acid-cured alkyd amino vinyl sealer and the topcoat is not an acid-cured alkyd amino conversion varnish topcoat, 2.3 kilograms per kilogram of solids (2.3 pounds per pound), as applied, for sealers and 1.8 kilograms per kilogram of solids (1.8 pounds per pound), as applied, for topcoats.

(c) Strippable spray booth coatings. 0.8 kilograms per kilogram of solids (0.8 pounds per pound) for strippable spray booth coatings, as applied.

(3) COMPLIANCE METHODS. (a) Emission averaging. In addition to using provisions of s. NR 422.04 or 425.05 to demonstrate compliance, an owner or operator may demonstrate compliance with the emission limitations in sub. (2)(a) and (b) by showing that total daily actual emissions calculated using Equation 2 are less than or equal to total daily allowable emissions calculated using Equation 1.

$$E_{ALL} = 0.9 \left[ \sum_{i=1}^n A_{TCI} S_{TCI} + \sum_{i=1}^n A_{SEI} S_{SEI} + \sum_{i=1}^n A_{WCI} S_{WCI} + \sum_{i=1}^n A_{BCI} S_{BCI} + \sum_{i=1}^n A_{STI} S_{STI} \right] \text{ (Equation 1)}$$

where:

$E_{ALL}$  is the total daily allowable VOC emissions from all coatings involved in the average in kilograms (pounds)

$i$  is a subscript denoting an individual coating

$n$  is the number of different wood furniture coatings in an individual coating category applied during the actual production day and which are involved in the average

$A_{TCi}$  is the lowest of the applicable emission limitation under sub. (2)(a) or (b), or other limitation imposed by permit, order or approval, or the actual emission rate, as of the date of the notification required under sub. (5), in kilograms VOC per kilogram solids (pounds VOC per pound solids), for topcoat  $i$  as delivered to the applicator

$S_{TCi}$  is the total amount of solids in topcoat  $i$ , in kilograms (pounds), delivered to the applicator during the actual production day

$A_{SEi}$  is the lowest of the applicable emission limitation under sub. (2)(a) or (b), or other limitation imposed by permit, order or approval, or the actual emission rate, as of the date of the notification required under sub. (5), in kilograms VOC per kilogram solids (pounds VOC per pound solids), for sealer  $i$  as delivered to the applicator

$S_{SEi}$  is the total amount of solids in sealer  $i$ , in kilograms (pounds), delivered to the applicator during the actual production day

$A_{WCI}$  is the lowest of 9.0, or other limitation imposed by permit, order or approval, or the actual emission rate, as of the date of the notification required under sub. (5), in kilograms VOC per kilogram solids (pounds VOC per pound solids), for washcoat  $i$  as delivered to the applicator

$S_{WCI}$  is the total amount of solids in washcoat  $i$ , in kilograms (pounds), delivered to the applicator during the actual production day

$A_{BCi}$  is the lowest of 1.2, or other limitation imposed by permit, order or approval, or the actual emission rate, as of the date of the notification required under sub. (5), in kilograms VOC per kilogram solids (pounds VOC per pound solids), for basecoat  $i$  as delivered to the applicator

$S_{BCi}$  is the total amount of solids in basecoat  $i$ , in kilograms (pounds), delivered to the applicator during the actual production day

$A_{STi}$  is the lowest of 0.791, or other limitation imposed by permit, order or approval, or the actual emission rate, as of the date of the notification required under sub. (5), in kilograms VOC per liter (pounds VOC per gallon), for stain  $i$  as delivered to the applicator

$S_{STi}$  is the total amount of stain  $i$ , in liters (gallons), delivered to the applicator during the actual production day

$$E_{ACT} = \left[ \sum_{i=1}^n A_{TCi} S_{TCi} + \sum_{i=1}^n A_{SEi} S_{SEi} + \sum_{i=1}^n A_{WCI} S_{WCI} + \sum_{i=1}^n A_{BCi} S_{BCi} + \sum_{i=1}^n A_{STi} S_{STi} \right] \text{ (Equation 2)}$$

where:

$E_{ACT}$  is the total daily actual VOC emissions from all coatings involved in the average in kilograms (pounds)

$i$  is a subscript denoting an individual coating

$n$  is the number of different wood furniture coatings in an individual coating category applied during the actual production day and which are involved in the average

$A_{TCi}$  is the actual VOC content of topcoat  $i$ , in kilograms VOC per kilogram solids (pounds VOC per pound solids), as delivered to the applicator during the actual production day

$S_{TCi}$  is the total amount of solids in topcoat  $i$ , in kilograms (pounds), delivered to the applicator during the actual production day

$A_{SEi}$  is the actual VOC content of sealer  $i$ , in kilograms VOC per kilogram solids (pounds VOC per pound solids), as delivered to the applicator during the actual production day

$S_{SEi}$  is the total amount of solids in sealer  $i$ , in kilograms (pounds), delivered to the applicator during the actual production day

$A_{WCI}$  is the actual VOC content of washcoat  $i$ , in kilograms VOC per kilogram solids (pounds VOC per pound solids), as delivered to the applicator during the actual production day

$S_{WCI}$  is the total amount of solids in washcoat i, in kilograms (pounds), delivered to the applicator during the actual production day

$A_{BCI}$  is the actual VOC content of basecoat i, in kilograms VOC per kilogram solids (pounds VOC per pound solids), as delivered to the applicator during the actual production day

$S_{BCI}$  is the total amount of solids in basecoat i, in kilograms (pounds), delivered to the applicator during the actual production day

$A_{STI}$  is the actual VOC content of stain i, in kilograms VOC per liter (pounds VOC per gallon), as delivered to the applicator during the actual production day

$S_{STI}$  is the total amount of stain i, in liters (gallons), delivered to the applicator during the actual production day

(b) Capture systems. Notwithstanding s. NR 422.04(4), an owner or operator demonstrating compliance with the emission limitations in sub. (2) as allowed under s. NR 422.04(2)(c) shall do all of the following:

1. Determine the overall control efficiency needed to demonstrate compliance daily using Equation 3.

$$R = ((C - E)/C) (100) \quad \text{(Equation 3)}$$

where:

R is the overall efficiency of the control system needed to demonstrate compliance on a daily basis, expressed as a percentage

C is the highest VOC content of all coatings subject to this paragraph on any given day in kilograms per kilogram of coating solids (pounds per pound of coating solids), as applied

E is the emission limitation applicable to the coating in kilograms per kilogram of coating solids (pounds per pound of coating solids), as applied

2. Document that the value of C in Equation 3 is obtained from the VOC and solids content of the as applied finishing material.

3. Comply with the requirements, and determine the actual overall efficiency of the control device, using the procedures of ss. NR 439.055, 439.06, 439.07 and 439.075.

4. Demonstrate compliance when R as determined under subd. 1. is greater than or equal to the overall efficiency of the control device determined under subd. 3.

(4) APPLICATION TECHNOLOGY. An owner or operator of a wood furniture manufacturing facility shall only apply finishing materials using electrostatic application, flow coating, dip coating, a low-pressure spray method, paint brush, hand roller or roll coater with the following exceptions:

(a) When applying finishing materials that have an as applied VOC content no greater than 1.0 kilogram per kilogram of solids (1.0 pound per pound of solids).

(b) When applying final touch-up and repair finishing materials.

(c) When using a control device to meet the applicable requirements of this section.

(5) INITIAL COMPLIANCE CERTIFICATION AND NOTIFICATION REQUIREMENTS.

(a) Emission limitations. Any owner or operator subject to this section shall submit a written notification to the department within 60 days after the compliance deadline in sub. (2), or upon changing the method of operation when such a change would result in a change in the emission limitations applicable under sub. (2). The notification shall contain:

1. The name and location of the facility.

2. The name or identification number of all finishing operations subject to this section and the applicable emission limitations.

3. Certification that all wood furniture finishing operations are in compliance with the applicable emission limitations.

(b) Emission averaging. Any owner or operator of a wood furniture manufacturing facility achieving compliance with the emission limitations of sub. (2) by means of the emission averaging method allowed under sub. (3)(a) shall notify the department by 60 days prior to the compliance

deadline in sub. (2), upon startup of a new finishing operation, or upon changing the method of compliance to sub. (3)(a). The notification shall contain:

1. The name and location of the facility.

2. The name or identification number of each coating which will participate in the average and the coating line or lines on which it will be applied.

3. A description of the method by which the owner or operator will measure or calculate the kilograms (pounds) of solids or liters (gallons) of finishing material applied each day.

4. An example of the format in which the records required under sub. (6) will be kept.

(6) RECORDKEEPING REQUIREMENTS. In addition to the applicable requirements in s. NR 439.04, any owner or operator subject to this section shall collect and record the following information for each coating line or finishing operation:

- (a) A unique name or identification number for each affected finishing material and strippable spray booth coating.

- (b) The VOC content of each affected finishing material, as applied, and each strippable spray booth coating, as applied, in units of kilograms VOC per kilogram of solids (pounds VOC per pound of solids).

- (c) If compliance is being achieved under the provisions of sub. (3)(a), the total daily actual and allowable VOC emissions as calculated using the equations in sub. (3)(a) and all information used in the calculations.

- (d) Notwithstanding s. NR 439.04(5)(e), if compliance is being achieved with the emission limitations in sub. (2) by the use of a control device, all of the following:

1. The overall efficiency of the control system needed to demonstrate compliance as determined under sub. (3)(b) on a daily basis.

2. The actual overall efficiency of the control system as determined under sub. (3)(b).

3. On a daily basis, the compliance status of all finishing operations achieving compliance under sub. (3)(b).

4. Control device monitoring data.
5. A log of operating times for the capture system, control device, monitoring devices and the associated coating line or operation.
6. The 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 5. NR 422.15(1)(intro.) is amended to read:

NR 422.15(1)(intro.) APPLICABILITY. This section applies, subject to the provisions of s. NR 425.03, to all coating line application areas, conveyors, flashoff areas, drying areas, forced air driers, and ovens of any industry categorized under the 2-digit major groups of 33 to 39 as described in the Standard Industrial Classification Manual, 1987, incorporated by reference in ~~NR 484s.~~ NR 484.05, which are involved in the surface coating of miscellaneous metal parts and products with the following exceptions:

SECTION 6. NR 484.05(1) as affected by Clearinghouse Rule 94-104 (as adopted) is amended to read:

Document Reference	Document Title	Incorporated by Reference For
NR 484.05(1) NTIS Order No. PB 87-100012	Standard Industrial Classification Manual, 1987	NR 400.02(47m) NR 400.02(51m) NR 400.02(91) NR 405.02(8) NR 407.02(17)(intro.) NR 407.05(4)(b) NR 408.02(5) NR 410.02(4) NR 421.02(2e) NR 421.02(11e) <u>NR 422.02(52)</u> NR 422.15(1)(intro.) NR 438.02(1)

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

The rule shall take effect 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 June 8, 1995.

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

By George E. Meyer  
George E. Meyer, Secretary

(SEAL)

