

## Report From Agency

### REPORT TO LEGISLATURE

NR 422, 423, 439 and 484, Wis. Adm. Code

Application of reasonably available control technology to sources of volatile organic compound emissions in ozone non-attainment counties, and affecting small business

Board Order Number AM-19-08  
Clearinghouse Rule Number 08-102

### **BASIS AND PURPOSE OF THE PROPOSED RULE**

The Department proposes these rules to meet the requirements of Section 182(b)(2) of the federal Clean Air Act. Section 182(b)(2) requires states with moderate ozone nonattainment areas to update existing volatile organic compound (VOC) Reasonably Available Control Technology (RACT) regulations within 1 year of US EPA issuing updated Control Techniques Guidelines (CTG). US EPA issued revised CTGs for four industrial source categories in September 2006 and three more in September 2007. The Department is basing the proposed rules on the revised CTGs. The rule revisions will be incorporated pursuant s. 285.11(6), Stats.

The proposed rules address updated requirements to the following VOC RACT categories.

- Paper Coating
- Metal Furniture Coating
- Large Appliance Coating
- Flat Wood Paneling Coating
- Flexible Package Printing
- Offset Lithographic Printing
- Industrial Cleaning Solvents

### **Summary of the Rules.**

The Bureau of Air Management proposes to update VOC RACT rules based on revised US EPA CTG documents for the above-listed industrial categories. These proposed rules apply in Wisconsin's seven moderate ozone nonattainment counties (Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha). The current limitations previously established in Administrative Code remain in place for each of these RACT categories. The following is a short summary of each proposed rule's provisions, referenced by the proposed rule section.

#### **NR 422.075: Paper Coating**

This proposed rule applies VOC control to paper, film and foil coating lines, and solvent cleaning work practices associated with this source sector. Paper coating lines include lines coating film and foil substrates in a uniform manner. The proposed rule applies to a subset of facilities regulated under the more general NR 422.07 that established RACT for this printing sector. The proposed rule applies new limits based on mass of VOC per mass of coating solids applied to individual coating lines emitting 25 tons per year VOC (maximum theoretical emissions) from the coating applicators and drying ovens. The updated proposed rule establishes work practices to minimize VOC emissions from various activities, including cleaning and material handling, associated with the printing process. The work practices portion of the proposed rule applies to facilities emitting 3 tons of VOC on a 12 month rolling basis from all coating lines and related cleaning activities at the facility. The proposed rule requires coating line operations to achieve a 90% VOC control efficiency through the combination of installation of VOC control devices and/or

use of compliant coatings based on VOC content. The proposed rule also addresses storage and disposal requirements, control requirements, recordkeeping, compliance testing, and certification testing.

**NR 422.105, NR 422.115, NR 422.131: Metal Furniture, Large Appliance and Flatwood Panel Coating**

These proposed rules apply VOC control to metal furniture coating, large appliance coating, flat wood panel coating and associated solvent cleaning work practices at facilities with emissions exceeding 3 tons of VOC on a 12 month rolling basis. The proposed rules require application of new coating limits by coating type based on mass of VOC per volume of coating as applied, excluding water and exempt specific coating operations. The proposed rules also establish a companion control requirement to utilize specific application techniques along with solvent cleaning work practices. If a control device is used to achieve compliance with the coating VOC content limits, the proposed rules require a minimum 90% overall VOC control efficiency. The proposed rules also address storage and disposal requirements, control requirements, recordkeeping, compliance testing, and certification testing.

**NR 422.141: Flexible Package Printing**

This proposed rule applies VOC control to large flexible package printing presses, and associated solvent cleaning work practices. The proposed rule applies to individual large presses emitting 25 tons per year of VOC (maximum theoretical emissions) from inks, coatings and adhesives, combined, from the press dryer. Sources may choose to reduce VOC emissions from large individual presses by either installing control systems or accepting VOC content limits for inks, coatings and adhesives. The solvent cleaning work practices portion of the proposed rule applies to facilities emitting 3 tons of VOC on a 12 month rolling basis from all flexible package printing presses and related flexible package cleaning activities at the facility. The regulation addresses flexible package printing operations through the installation of VOC control devices, and storage and disposal requirements.

**NR 422.143: Lithographic Printing**

This proposed rule applies VOC control to lithographic printing presses emitting 25 tons per year of VOC (maximum theoretical emissions) from heatset inks from the press dryer. In accordance with the CTG, the proposed rule contains emission limitation exemptions for: up to 110 gallons of blanket or roller wash on a 12-consecutive month rolling basis, sheet-fed presses with a maximum sheet size of up to 11 inches by 17 inches, any lithographic press with a total fountain solution reservoir of less than one gallon, the printing of books on a heatset lithographic press, and heatset lithographic presses with a maximum web width of up to 22 inches. The proposed rule also contains VOC content limits for fountain solutions, and blanket or roller wash. The fountain solution and blanket or roller wash limits along with the solvent cleaning work practices portion of the proposed rule apply to facilities emitting 3 tons/year of uncontrolled VOC emissions from all lithographic printing presses and related lithographic cleaning activities at the facility. The proposed rule also addresses storage and disposal requirements, temperature monitoring requirements, control requirements, recordkeeping requirements, compliance testing, and certification testing requirements.

**NR 423.037: Solvent Cleaning**

This proposed rule applies VOC controls to industrial cleaning operations at facilities emitting 3 tons of VOC on a 12 month rolling basis from industrial cleaning operations. The proposed rule limits emissions by establishing solvent and solvent solution requirements, cleaning device and methods requirements, storage and disposal requirements, and recordkeeping requirements. Some industrial cleaning operations are regulated under industry specific RACT rules such as lithographic printers and large appliance manufacturers.

**SUMMARY OF PUBLIC COMMENTS**

Five organizations, Wisconsin Manufacturers and Commerce [WMC], Printing Industries of Wisconsin [PIW], Specialty Graphic Imaging Association [SGIA], U.S. EPA, and the Wisconsin

Legislative Council Rules Clearinghouse commented on the proposed rule. Printing Industries of Wisconsin is an affiliate of Printing Industries of America, which is the world's largest graphic arts trade association, serving over 12,000 member companies comprised of printers and associated industries serving the printing industries. Specialty Graphics Imaging Association is a trade group that represents entities engaged in the use of screen printing and wide format digital imaging devices.

All three industrial organizations were generally supportive of the proposed rule. WMC's comments focused on several non-rule related issues particularly addressing designation of ozone nonattainment areas in Southeastern Wisconsin. WMC encouraged the Department to move quickly on finalizing the VOC RACT rules and submitting a request to EPA to redesignate the ozone nonattainment areas in the State to attainment.

SGIA's comments focused on the industrial cleaning portions of the rule, particularly on screen reclamation. They were concerned about the potential duplication of control requirements between the existing industrial cleaning regulations and the proposed rule.

PIW provided numerous comments on the lithographic printing portion of the rule. Their comments had several main themes:

- Rule applicability threshold
- Exemptions from the rule
- Emission limits
- Consistency with EPA's Control Technology Guideline document
- Compliance averaging time.
- Streamlining the rule for clarity.

Aside from a few minor technical suggestions, EPA's comments focused on the following issues.

- Reporting and record keeping requirements.
- Work practices
- Solvent concentration limits

The Department adopted the general approach of attempting to be consistent with EPA's Control Technology Guidelines while prohibiting back-sliding on VOC control rules that were already in place. Keeping this general approach in mind, the Department made several changes to the proposed rules based on the comments. Among other minor changes the Department:

- Changed the applicability threshold for several printing and coating operations and solvent cleaning from daily to a 12 month rolling basis.
- Slightly modified work practice requirements for consistency within the coating categories.
- Changed several VOC content limits in the solvent cleaning portion of the rule.

Made several clarifying changes.

Specific comments and the Department's response, organized by commenter, are provided in the attached Response to Comments document.

### **MODIFICATIONS MADE**

Modifications made by the Department are detailed in the attached Response to Comments document.

### **APPEARANCES AT THE PUBLIC HEARING**

The Department held a public hearing on December 5, 2008 at the DNR Southeast Region Headquarters located at 2300 N Dr. Martin Luther King Jr. Drive in Milwaukee. The following appeared as indicated below.

In support: None

In Opposition: None

As interest may appear: Bob Fassbender, 10 E. Doty St., Suite 500, Madison, WI 53707  
Brian Borofka, 333 W. Everett St., Milwaukee, WI 53201  
James Meverden, 5159 N. Bay ridge Ave, Whitefish Bay, WI 53217

### **CHANGES TO RULE ANALYSIS AND FISCAL ESTIMATE**

Modifications were made to the plain language analysis section to reflect the rule changes detailed in the Response to Comments document attached to this report.

The fiscal affect remains the same, and no changes were made.

### **RESPONSE TO LEGISLATIVE COUNCIL RULES CLEARINGHOUSE REPORT**

All Clearinghouse comments that have not become moot have been accepted and the rule revised accordingly except for Clearinghouse comment 5.b. The Department believes that the proposed language referenced in comment 5.b. is clear and is not subject to conflicting interpretations.

### **FINAL REGULATORY FLEXIBILITY ANALYSIS**

The proposed regulations will have a minimal economic cost to individual small businesses because the major control requirements apply only to large facilities. Additionally, solvent cleaning work practices are considered standard industrial practice, therefore it is anticipated that most businesses affected by these proposed rules are already implementing the requirements. The Department has therefore concluded that the proposed rules will not have a significant economic impact on a substantial number of small businesses.

Department of Natural Resources Response to Comments on Proposed Revisions to  
NR 422, 423, 439 and 484, Wis. Adm. Code

Board Order Number AM-19-08

Comments from PIW

**Comment:** The structure of the rule for lithographic printing is confusing with conflicting requirements.

**Response:**

DNR's development of this rule addresses two competing requirements, the federal Clean Air Act (Act), which prohibits backsliding on emission control requirements in nonattainment areas, and state statute, which requires ozone control measures to conform to the Act. DNR wrote the rule to avoid applying new lithographic printing controls in Manitowoc and Kewaunee Counties, which are not required at this time. Additionally, DNR aimed to prevent backsliding for portions of the existing lithographic printing rules in NR 422.142 that are not covered by the new Control Techniques Guidance document (CTG) for lithographic printing published by the US EPA. The CTG is used by EPA as a basis for judging the approvability of state rules submitted as SIP revisions?

As a point of clarification, NR 422.142 applies to lithographic printing operations in 9 counties; Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha. Additional requirements for lithographic printing operations are found in the proposed NR 422.143, but those additional requirements only apply in 7 counties; Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha.

**Comment:**

The DNR's proposed amendments result in two separate and distinct Wis. Adm. Code sections that establish different monthly and daily VOC emissions-based applicability criteria. Existing section NR 422.142(1)(a) establishes a maximum theoretical emissions-based applicability threshold of 1,666 pounds per month from all lithographic printing presses for any facility located in Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha counties; proposed section NR 422.143(1)(a) would establish a significantly lower emissions-based applicability threshold of 15 pounds per day for all facilities in Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha counties, but not facilities located in Kewaunee or Manitowoc counties.

The proposed amendments need to be revised and consolidated into a single rule to eliminate confusion over which standards apply to lithographic printing presses and to ensure printers and the DNR clearly understand the proposed new emissions-based applicability threshold is a substantially lower threshold than currently applied in Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha counties.

**Response:**

The 15 lbs/day emissions threshold was changed to 3 tons on a 12 month rolling basis. The new threshold only triggers solvent cleaning requirements for facilities located within the 7 county area, consistent with the CTG, and therefore does not render the existing rule's general applicability threshold of 1,666 lbs/month mute for the 9 county area.

**Comment:**

The applicability criteria for lithographic presses in Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha counties needs to be expressed as an annual actual emission limit, otherwise the rule will force all subject facilities to develop and maintain hourly or daily material consumption records in order to determine applicability. The variety, combinations, and consumption rate of inks alone would make this a costly and burdensome task.

**Response:**

DNR evaluated this comment, and made changes to the proposed rule not only for lithographic printing, but for the other RACT categories as well. DNR replaced the 15 lbs/day applicability thresholds in NR 422.075, NR 422.105, NR 422.115, NR 422.131, NR 422.141 and NR 422.143 with the phrase “emissions equal to or exceeding 3 tons on a 12 consecutive month rolling basis,.”

**Comment:**

Proposed section NR 422.143(1)(a) establishes work practice requirements for any facility in Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha counties where actual VOC emissions from lithographic printing presses “have ever been greater than 15 lbs/day.” This amendment would subject facilities to the rule’s requirements based on historical emissions, not actual VOC emissions. This retroactive application of an emissions threshold is not consistent with the US EPA’s CTG for Offset Lithographic Printing, which established its applicability thresholds based on actual emissions.

**Response:**

DNR revised the proposed rule to replace the phrase “have ever been” with the phrase ‘which exceed.’

**Comment:**

Proposed section NR 422.143(1)(b) establishes emission limitations for an “owner or operator of any heatset web lithographic printing press at a facility in the county of Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, or Waukesha.” The emission limitations of proposed subsection (3) that are referenced in proposed section NR 422.143(1)(b), however, contain limitations for heatset web dryer exhaust as well as limitations for heatset web, non-heatset web, and sheet-fed web fountain solutions and cleaning materials. The US EPA’s CTG for Offset Lithographic Printing is clear that the CTG’s recommendations for fountain solutions and cleaning materials do not apply to “any” press or facility as proposed in section 422.143(1)(b). Page 3 of the CTG for Offset Lithographic Printing states:

“In terms of applicability, we recommend that the control recommendations discussed in this CTG for cleaning materials and fountain solutions apply to any offset lithographic printing operation where the emissions associated with all aspects of that operation equal or exceed 6.8 kg/day (15 lb/day) actual emissions of VOC, or an equivalent level, before consideration of controls.

**Response:**

We take this to mean there was confusion in the applicability thresholds between NR 422.142 and proposed NR 422.143. DNR revised the applicability statement for the proposed rule NR 422.143 to clarify that fountain solution, blanket and roller wash, and work practice requirements are triggered at the emission threshold consistent with the CTG.

**Comment:**

Existing section 422.142(1)(b) contains emissions factors for calculating VOC emissions from lithographic printing presses. While PIW supports the inclusion of these factors in the rule, they should be placed in new section 422.142(7).

**Response:**

DNR created new emission calculation subsections in NR 422.142 and proposed NR 422.143 to address PIW’s concerns.

**Comment:**

Proposed new subsection NR 422.143(2) identifies five rule exemptions that are consistent with the US EPA’s CTG for Offset Lithographic Printing. To prevent confusion over which exemptions apply to lithographic printing presses and streamline the regulation, PIW recommends incorporating new section NR 422.143(2) into the DNR’s existing lithographic RACT regulations

as amended section NR 422.142(2) and re-structuring existing subsections NR 422.142(2) through NR 422.142(6) to be subsections NR 422.142(3) through NR 422.142(7). PIW also recommended moving existing subsection NR 422.142(2)(c)(2.) into amended subsection NR 422.142(2)

**Response:**

To prevent backsliding, DNR will retain the rule structure as proposed in the hearing draft.

**Comment:**

The DNR does not support its claim that the proposed rules will not create a significant economic impact, especially for the small businesses that are prevalent in the lithographic printing industry. The DNR also does not provide any details on the whether they will perform a cost-effectiveness analysis for the add-on control and fountain solution control requirements of the rule or if the DNR will rely upon the cost-effectiveness analysis contained in the US EPA's CTG for Offset Lithographic Printing.

**Response:**

DNR will rely on the cost-effectiveness analysis provided in EPA's CTG.

**Comment:**

The DNR estimates that the total annual cost related to the proposed cleaning requirements is \$1,485 per printing facility, approximately 1.75 times higher than the cost effectiveness for cleaning materials identified in Table 1 on Page 18 of the US EPA's CTG for Offset Lithographic Printing. The DNR does not explain how this higher cost-effectiveness does not represent a significant economic impact and should re-evaluate the technical feasibility of its proposal.

**Response:**

Based on the US EPA's CTG, DNR estimated that the cleaning requirements at facilities would cost \$1,485 per facility, but most of the estimated 26 facilities are likely already complying with the rule requirements. DNR feels that for those facilities not already complying, the estimated \$1,485 is not a substantial burden.

**Comment:**

The DNR should not rely upon the add-on control and fountain solution cost-effective analysis contained in the US EPA's 2006 CTG for Offset Lithographic Printing. US EPA did not conduct a new economic analysis of the impact of the draft CTG for Offset Lithographic Printing and as a result, the impact on small printers is not fully known or understood.

**Response:**

DNR will rely on the cost-effectiveness analysis provided in EPA's CTG.

**Comment:**

New section 422.143(3)(a) establishes dryer exhaust requirements that are not consistent with the US EPA's CTG for Offset Lithographic Printing and need to be revised to eliminate confusion over which standards apply to heatset web lithographic printing presses.

This requirement is not consistent with the US EPA CTG for Offset Lithographic Printing, which recommends add-on controls for heatset web presses that have emissions greater than 25 tpy of VOC emissions from ink oil.

**Response:**

The DNR's proposed language is consistent with the CTG. Proposed language reads as follows:  
"On and after May 1, 2010, no owner or operator of a heatset web lithographic printing press may operate, or cause, allow or permit the operation of a lithographic press that has maximum theoretical emissions of VOCs, from the dryer, equal to or greater than 25

tons per year from heatset inks, unless the owner or operator installs and operates an emission control device and meets the applicable emission limitation as follows...”

**Comment:**

As stated above in comment 1, the DNR’s proposed amendments create two Wis. Adm. Code sections which provide different dryer exhaust requirements for heatset web lithographic presses in different counties. Existing section NR 422.142(2)(a)(1) establishes a 90% control device efficiency for heatset web presses in any facility located in Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha counties; proposed section NR 422.143 (3)(a)(1) would establish a 95% control device efficiency for new devices in all facilities except those located in Kewaunee or Manitowoc counties. The proposed amendments need to be revised to eliminate confusion over which standards apply to lithographic printing presses and to reflect that only new presses or oxidizers installed in Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, or Waukesha counties after May 1, 2010 are required to meet the 95% limit proposed by the DNR.

**Response:**

PIW’s comment appears to have misinterpreted the proposed requirements in s. NR 422.143(3)(a)1. for VOC emission control for dryer exhaust. PIW state that the 95% control requirement should only apply to new presses or oxidizers installed in the 7- county area after May 1, 2010. The proposed rule, and the recommendation in the CTG, bases the required level of control (90% or 95%) on the first installation date of the control device only.

**Comment:**

Proposed new section NR 422.142(3)(a)(2) establishes a capture efficiency for calculating VOC emissions from heatset web lithographic printing presses. While PIW supports the inclusion of this factor in the rule, we recommend moving this section to PIW recommended section 422.142(7).

**Response:**

DNR will retain the structure of the rule proposed in the hearing draft.

**Comment:**

The proposed amendments should allow for the application of site-specific control limits in instances where the proposed limits are economically or technologically infeasible.

**Response:**

A variance procedure already exists in NR 436.05.

**Comment:**

The DNR proposes to modify the term “blanket or roller wash” as defined in NR 422.02(12) to include other cleaning solvents or solutions used to remove ink, oil, and debris from outside the press area or immediately around the press. While PIW supports the intent of the modified definition, the use of the term “blanket or roller wash” to describe other cleaning solvents used on-press is misleading and may cause confusion regarding the requirements of the standard as they apply to blanket wash, roller wash, and other cleaning solutions. It should be deleted and replaced with “cleaning solutions.”

The proposed amendments need to use the term “cleaning solutions” as the operative term for the rule to make it clear the rule’s VOC content and vapor pressure limitations apply to a cleaning solutions in general and not just blanket and roller washes.

The EPA’s expansion of the cleaning material requirements to all cleaning solutions in 2006 resulted in a change in the VOC content limitations from 30% by weight to 70% by weight. It is critical the proposed amendments are consistent with this recommendation since this change was made to accommodate the VOC content of all cleaning solutions used in lithographic printing, not

just blanket and roller wash. As the modified definition for “blanket or roller wash” also affects existing VOC content limit requirements for cleaning materials, the proposed amendments need to revise both the existing and the proposed cleaning solution control requirements to reflect EPA’s 70% VOC content and 10 mm Hg VOC composite vapor pressure recommendations. This would establish the same cleaning solution requirements for all presses covered by the lithographic RACT rule and eliminate the need for new section NR 422.143(3)(c).

**Response:**

Due to backsliding concerns DNR will retain the limit in the proposed rule.

To avoid any unintended consequences with using the term “cleaning solutions,” DNR did not adopt PIW’s suggestion to change the terminology for “blanket and roller wash.” However, DNR did change the definition of blanket and roller wash, which should address PIW’s concerns.

**Comment:**

Existing section NR 422.142(2)(c)(2.) permits the use of cleaning materials that do not meet the control requirements provided the quantity of such materials used in any 12 consecutive months does not exceed 110 gallons for facilities that do not print on plastic or 165 gallons for facilities that do print on plastic. PIW recommends moving this section to a newly created section in NR 422,142(2).

**Response:**

DNR will retain the language in the proposed hearing draft.

**Comment:**

To streamline the regulation, PIW recommends incorporating new section NR 422.143(4) into the cleaning solution requirements of existing section NR 422.142(2)(c) and adding new section NR 422.142(2)(c)(2.) (b.) to require used shop towels be kept in closed containers.

**Response:**

DNR will retain the language in the proposed hearing draft. The proposed language in s. NR 42.143(4) requires the storage of used shop towels in closed containers.

**Comment:**

The DNR’s proposed modification to the term “blanket or roller wash” as defined NR 422.02(12) would render the VOC content and composite partial vapor pressure cleaning solution limitations of amended section NR 422.142(4)(c)1. the operative requirements for cleaning materials used on subject lithographic presses. Existing industrial cleaning operations section NR 423.035(2) contains exemptions for lithographic printing operations regulated under NR 422.142(2)(c) and for cleaning operations in graphic arts pre-press areas. Neither chapters NR 422 nor NR 423 define or provide a reference definition for the term “graphic arts.” The DNR needs [to] reflect the re-structuring of section NR 422.142(2)(c) as recommended in comment 5 above and exempt lithographic pre-press areas from the industrial cleaning operation rule’s requirements.

The DNR also needs to delete the word “lithographic” from the lithographic and letterpress printing components contained in sic [proposed rule] and provide a specific exception for lithographic printing from the ultraviolet ink application equipment limit in ... Table 1 VOC Content Limits for Solvents and Solvent Solutions Used in Industrial Cleaning Operations in order to reflect the modified definition of “blanker or roller wash.”

**Response:**

The term "graphic arts" as defined in s. NR 400.02(74), which includes lithography, applies to chs. NR 422 and NR 423.

Cleaning operations associated with lithographic printing are exempt from s. NR 423.037. DNR modified exemption language in NR 423.037 to clarify this exemption

**Comment:**

The DNR also needs to exempt lithographic pre-press areas from the proposed new industrial cleaning operation requirements in NR 423.037. The DNR also needs to delete the word "lithographic" from the lithographic and letterpress printing components contained in sic [proposed rule] and provide a specific exception for lithographic printing from the ultraviolet ink application equipment limit in ... Table 1 VOC Content Limits for Solvents and Solvent Solutions Used in Industrial Cleaning Operations of proposed new section NR 422.037 in order to reflect the modified definition of "blanker or roller wash."

**Response:**

Cleaning operations associated with lithographic printing are exempt from s. NR 423.037. DNR modified the exemption language in NR 423.037 to clarify this exemption.

**Comment:**

Proposed new section NR 422.143(6)(a)1. requires records of control device monitoring data in accordance with NR 439.055, which requires temperature monitoring in both the primary chamber and afterburner of an incinerator. This dual monitoring requirement is unnecessary as only the oxidizer operating temperature is needed to determine normal operations. Also, the term "incinerator" should be replaced with "oxidizer" as it is more accurate. The proposed amendments also need to include temperature monitoring requirements for catalytic oxidizer systems. It is not necessary to measure the temperature difference across the catalyst bed in these systems as this temperature difference is not indicative of normal operation. While this may be a common monitoring requirement for other industries, it is one that does not provide meaningful data on a consistent basis. The primary reason is due to the large variations in coverage experienced on a per job and daily basis. The coverage will dictate the amount of ink that will be required to be used to produce a job and since ink accounts for more than 95% of stack VOC emissions, the temperature rise across the catalytic bed will continuously fluctuate and the fluctuations can be very dramatic. The printing industry has had extensive discussions with US EPA on this issue and US EPA has accepted the fact that the change in temperature does not provide meaningful results. This is the reason why this requirement does not appear in the CTG for Offset Lithographic Printing or any of US EPA's recent guidance documents or Maximum Available Control Technology rules for printing operations. The rule should only require the temperature in a catalytic oxidizer system to be monitored upstream of the catalyst bed. Page D-18 of the US EPA's TSD for Title V Permitting of Printing Facilities states: "Typically, the temperature at the inlet to the catalyst chamber (bed) is used to monitor and control the oxidizer operation. Most catalytic oxidation systems are set up to measure both the inlet and outlet temperatures of the catalyst chamber. While the differential temperature across the catalyst does provide an indication of catalyst activity, it does not provide a quantifiable indication of the efficiency of the system for operations subject to variable VOC loading, as in some elements of the printing/flexible packaging industry. The primary purpose of the outlet temperature measurement is for protection of the catalyst from overheating. Inlet operating temperatures are based on catalyst manufacturer's recommendations and are proven through compliance emissions testing."

Therefore, new section NR 422.143(6)(a) should be deleted, existing paragraph 422.142(4) renumbered to be NR 422.142(5), and section NR 422.142(5)(a) revised to read:

- (a) The owner or operator of a heatset web lithographic printing press that is subject to the VOC control device requirements of sub. (3)(a) of this rule shall:
1. Install, calibrate, maintain, and operate temperature monitoring and recording equipment which shall:
    - a. For catalytic oxidizer control systems, the temperature monitoring and recording equipment shall monitor the gas temperature upstream of the catalyst bed at least once every fifteen minutes by an analog or digital recording device. The catalyst bed material shall be inspected annually for general catalyst condition and any signs of potential catalyst depletion. The permittee shall also collect a representative sample of the catalyst from the oxidizer, per manufacturer's recommendations, and have it tested to evaluate the catalyst's capability to continue to function

at or above the required control efficiency. An evaluation of the catalyst bed material shall be conducted whenever the results of the inspection indicate signs of potential catalyst depletion or poor catalyst condition based on manufacturer's recommendations, but not less than once per year.

b. For thermal and regenerative oxidizer control systems, the temperature monitoring and recording equipment shall monitor and record the oxidize operating temperature at least once every fifteen minutes.

c. The temperature to be monitored by subd. (1)(a) and (1)(b) above shall be established during testing required to demonstrate compliance with the emission standard in section (3)(a) of this rule. The temperature shall be computed as the time-weighted average of the temperature values recorded during the test. The facility must maintain the oxidizer at a 3- hour average temperature no less than 50°F below the average temperature observed during the most recent stack test to demonstrate continuous compliance. Temperature monitoring is required only when a connected press is operational.

**Response:**

Most of PIWs proposed revisions are already contained in our current rule language under NR 422.142(4)(a)1., NR 439.055(1)(d), NR 439.055(2)(a) and NR 439.055(2)(b). Our proposed language under NR 422.143(6)(a)1. is similar to the existing NR 422.142(4)(a) aside from the NR 439.055 reference. This reference is automatically included in any permit required to monitor a control device.

To limit any unintended consequences with the proposed rule, the Department did not change the term "incinerator" to "oxidizer."

A 3-hour temperature average is utilized in a test to demonstrate compliance with permit limits.

**Comment:**

For cleaning solution requirements, the proposed amendments need to reflect the use of the term "cleaning solutions" instead of "blanket and roller wash" and incorporate the US EPA's recommendations for VOC composite partial vapor pressure limitations.

**Response:**

DNR changed the definition of blanket and roller wash to reflect the concept presented in PIW's comment.

**Comment:**

Existing section NR 422.142(5)(c) and (5)(d) specify Method 24 and ASTM D2879-97 as the test methods for determining the VOC content of lithographic inks, fountain solutions, and cleaning solvents and the VOC component vapor pressure of cleaning solutions, respectively. Proposed section NR 422.143 also lists Method 24 (NR 422.143(7)(c)) as the compliance test method for VOC content, but does not provide a method to determine the VOC composite partial vapor pressure of cleaning solutions. In addition, the rule needs to allow the use of a material balance calculation to demonstrate compliance with the VOC content and composite partial vapor pressure limits of the rule. Some small presses do not require diluting fountain solution mixtures or cleaning solutions with water. In these instances where no dilution occurs, the as-applied VOC content of the non-diluted solution would be readily available from the product's supplier or Material Safety Data Sheet (MSDS). Thus, the proposed amendments also need to permit the use of supplier provided Method 24 data to demonstrate compliance.

**Response:**

It has been the DNR's policy to allow manufacturer supplied MSDS or formulation data to be used to establish material VOC content. However, when a test is required by the DNR, the results of the test outweigh any VOC content determination based on MSDS or formulation data.

ASTM D2879-97 was specified in s. NR 422.142(5)(d) because the limit was on an individual VOC component basis. The proposed rule changes that to a VOC composite partial vapor pressure, and creates a definition for that term. The definition includes 2 equations for calculating the composite pressure. DNR assumes that these equations would be adequate to determine the composite pressure.

**Comment:**

Comments related to emission calculation.

**A. Ink Oil Retention**

Heatset Inks – We recommend using a 20 percent VOC retention factor for petroleum ink oils and a 100 percent retention factor for vegetable ink oils in heatset inks. The VOC emissions, before consideration of any control, from a heatset ink would therefore be 80 percent of the petroleum ink oil content. The petroleum ink oil content of a heatset ink can be determined from formulation data (e.g., technical data sheet or material safety data sheet). We believe that a Method 24 test of a heatset ink will volatilize the petroleum ink oils and will not volatilize the vegetable ink oils.

Sheet-fed and coldset web inks - We recommend using a 95 percent VOC retention factor for petroleum ink oils and a 100 percent retention factor for vegetable ink oils in sheet-fed and coldset web inks. The VOC emissions from a sheet-fed or coldset web ink would therefore be 5 percent of the petroleum ink oil content. The petroleum ink oil content of a sheet-fed or coldset web ink can be determined from formulation data (e.g., technical data sheet or material safety data sheet). We believe that an EPA Method 24 test of a sheet-fed or coldset web ink will volatilize the petroleum ink oils and will not volatilize the vegetable ink oils. The ASTM method D6419 (Standard Test Method for Volatile Content of Sheet-Fed and Coldset Web Offset Printing Inks) is a more precise method for determining the volatile (petroleum ink oil) content of sheet-fed and coldest web inks than ASTM D2369 which is referenced in EPA Method 24.

**B. Retention of Low VOC Composite Vapor Pressure Cleaning Materials in Shop Towels** We recommend using a 50 percent VOC retention factor for low VOC composite vapor pressure cleaning materials in shop towels where (1) VOC composite vapor pressure of the cleaning material is less than 10 mm Hg at 20 °C, and (2) cleaning materials and used shop towels are kept in closed containers.

**C. Carryover of VOC from Automatic Blanket Wash and Fountain Solution to Offset Lithographic Heatset Dryers**

We recommend using a 40 percent VOC carryover (capture) factor for automatic blanket washing when the VOC composite vapor pressure of the cleaning material is less than 10mm Hg at 20°C. We recommend using a 70 percent VOC carryover (capture) factor for alcohol substitutes in fountain solution.

**D. Capture of Petroleum Ink Oil in Heatset Dryers**

For heatset web offset lithographic presses and heatset web letterpress presses, we believe capture efficiency for VOC (petroleum ink oils) from oil based paste inks and oilbased paste varnishes (coatings) can be demonstrated by showing that the dryer is operating at negative pressure relative to the surrounding pressroom. We recommend 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. We do not recommend conducting a capture efficiency test in this situation. Conventional heatset lithographic inks and varnishes are paste-type materials. The VOC in these materials are oils with high boiling points, which volatilize only within the dryer. Some ink oils, nominally 20 percent, are not volatilized and remain in the substrate. If other types (e.g., fluid type) of coating materials are used on a heatset lithographic press or a heatset letterpress press, we recommend that capture efficiency testing be conducted for the VOC from these other materials if the printer wants to take into account the effect that the dryer controls have on VOC emissions from these other types of coatings. The most common

other types of coatings materials used on heatset presses are waterbased or radiation (ultra-violet light or electron beam) cured materials which generate minimal VOC emissions.” PIW recommends inserting new section 422.142(7) to the proposed amendments. The recommended section will clarify the methodology for estimating actual emissions in the lithographic printing industry, saving administrative time and costs for both the DNR and the lithographic printing industry.

The recommended section should read as follows:

(7) Retention Factors and Capture Efficiencies (a) For purposes of determining VOC emissions from offset lithographic printing operations, the following retention factors and capture efficiencies shall be used:

1. A portion of the VOC contained in inks and cleaning solution is retained in the printed web or in the shop towels used for cleaning. The following retention factors shall be used:

- a. A 20% VOC retention factor shall be used for heatset inks printed on absorptive substrates, meaning 80% of the VOC in the ink is emitted during the printing process and is available for capture and control by an add-on pollution control device.
- b. A 95% VOC retention factor shall be used for sheet-fed and non-heatset web inks printed on absorptive substrates, meaning 5% of the VOC in the ink is emitted during the printing process.
- c. A 50% VOC retention factor shall be used for cleaning solution VOC in shop towels for cleaning solutions with a VOC composite vapor pressure of no more than 10 mm of mercury (Hg) at 20°C (68°F) if the contaminated shop towels are kept in closed containers, meaning 50% of the VOC used on the shop towels is emitted during the cleaning process.

2. A portion of the VOC contained in inks, fountain solutions, and automatic blanket washes on heatset presses is captured in the press dryer for control by add-on pollution control devices. The following capture efficiencies are to be used:

- a. A 100% VOC carry over efficiency shall be used for inks. All the VOC in the ink that is not retained is assumed to be volatilized in the press dryer. Capture efficiency testing for heatset dryers is not required if it is demonstrated that pressure in the dryer is negative relative to the surrounding press room and the airflow is into the dryer.
- b. A 70% VOC carry over efficiency shall be used for fountain solutions containing alcohol substitutes.
- c. A 40% VOC carry over efficiency shall to be used for automatic blanket wash solutions with a VOC composite vapor pressure of no more than 10 mm of mercury (Hg) at 20°C (68°F).

**Response:**

DNR created new emission calculation subsections in NR 422.142 and proposed NR 422.143 to address PIW's concerns.

**Comments:**

PIW recommends adding or amending the following definitions in NR 422.02 in order to clarify the applicability and compliance requirements of the rulemaking in regards to the lithographic printing industry:

Alcohol - Any of the following compounds, when used as a fountain solution additive for offset lithographic printing: ethanol, n-propanol, and isopropanol.

Alcohol Substitutes – Non-alcohol additives that contain VOCs and are used in the fountain solution. Some additives are used to reduce the surface tension of water; others are added to prevent piling (ink build-up).

Cleaning Material – With respect to a surface coating operation or graphic arts operation, a liquid solvent or solution used to clean the operating surfaces of a printing press and its parts. For purposes of this standard, cleaning solutions include, but are not limited to blanket wash, roller wash, metering roller cleaner, plate cleaner, impression cylinder washes, rubber rejuvenators, and other cleaners used for cleaning a press, press parts, or to remove dried ink or coating from areas around the press.

Dampening System - Equipment used to deliver the fountain solution to the lithographic plate.

Fountain Solution - A mixture of water and other volatile and non-volatile chemicals and additives used in lithographic printing operations that maintains the quality of the printing plate including

preventing debris build up (e.g., spray power, paper fiber, coating particles, dried ink particles, and other materials), and increases viscosity and reduces the surface tension of the water so that it spreads easily across the printing plate surface. The fountain solution wets the non-image area so that the ink is maintained within the image areas. Non-volatile additives include mineral salts and hydrophilic gums. Alcohol and alcohol substitutes are the most common VOC additives used to reduce the surface tension of the fountain solution.

**Fountain Solution Batch** – A supply of fountain solution that is prepared and used without alteration until completely used or removed from the printing process. For the purposes of this rule, this term may apply to solutions prepared in either discrete batches or solutions that are continuously blended with automatic mixing units.

**Fountain Solution Reservoir** - The collection tank that accepts fountain solution re-circulated from printing unit(s). In some cases, the tanks are equipped with cooling coils for refrigeration of the fountain solution.

**Heatset** - A lithographic printing process where the printing inks are set by the evaporation of the ink oils in a heatset dryer.

**Heatset Dryer** - A hot air dryer used in heatset lithography to heat the printed substrate and to promote the evaporation of ink oils.

**Inking System** - A series of rollers used to meter ink onto the lithographic plate. The system can include agitators, pumps, totes, and other types of ink containers.

**Lithographic printing or lithographic printing operation** - A planographic printing process where the image and non-image areas are chemically differentiated; the image area is oil receptive and the non-image area is water receptive. This method differs from other printing methods, where the image is typically printed from a raised or recessed surface.

A lithographic printing operation includes, but is not limited to, a heatset web lithographic printing operation, a coldset web offset lithographic printing operation, and a sheet-fed offset lithographic printing operation.

**Non-heatset Lithographic Printing** - A lithographic printing process where the printing inks are set by absorption and/or oxidation of the ink oil, not by evaporation of the ink oils in a dryer. Use of an infrared heater or printing conducted using ultraviolet-cured or electron beam-cured inks is considered non-heatset.

**Offset Lithography**- A 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.

**Press** - A printing production assembly composed of one or more units used to produce a printed substrate including any associated coating, spray powder application, heatset web dryer, ultraviolet or electron beam curing units, or infrared heating units.

**Sheet-fed Lithographic Printing**- means a non-heatset lithographic printing process where individual sheets of substrate are fed into the press sequentially.

**Unit** - The smallest complete printing component, composed of inking and dampening systems, of a printing press.

**VOC Composite Partial Vapor Pressure** - The sum of the partial pressure of the compounds defined as VOCs.

**Response:**

A number of the suggested definitions are not used in the proposed rule or are already defined and therefore, are not included in the proposed rule. Only definitions of "Fountain Solution Reservoir" and "VOC Composite Partial Vapor Pressure" were added.

Comments from WMC

**Comment:**

WMC made several comments unrelated to the proposed rule as follows:

- That the DNR should submit these rules to US EPA without delay.
- The nonattainment area boundaries are flawed due to the use of the Chiwaukee Prairie monitor as the design site for the Milwaukee metro area.

- The DNR must seek to re-designate the ozone nonattainment areas to attainment as quickly as possible.
- State laws require that air quality standards may not be more stringent than the federal standards.

**Response:**

- DNR is working to adopt the rules as quickly as possible.
- The RACT rules are required in moderate ozone nonattainment areas. The proposed rules are only effective in those areas. The issue of the Chiwaukee Prairie monitor should be addressed in the context of designating ozone nonattainment areas for 2008 8-hour standard.
- DNR is working as quickly as possible to develop a re-designation request that EPA will find complete.
- WMC's comment on the air quality standards is irrelevant, since the statute clearly addresses standards promulgated under Section 109 of the Clean Air Act. RACT rules are not air quality standards and are required under Section 182 of the Clean Air Act.

**Comment:**

DNR is applying RACT rules to counties that are in attainment with the standard.

**Response:**

The proposed rules only apply in the 7 counties designated as moderate ozone nonattainment areas.

**Comment:**

Change NR 422.04(1) to allow monthly averaging for compliance rather than daily averaging.

**Response:**

WMC proposes to make a change to a rule that is not germane to the proposed rule. Additionally, a relaxation of this rule is not allowed under the anti-backsliding provisions of the federal Clean Air Act.

Comments from SGIA

**Comment:**

Regulation of solvent usage under NR 422.145(2)(d) and NR 423.037 will result in conflicting regulatory language and duplicative requirements for screen reclamation for all screen printing facilities operating in the counties of Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha.

**Response:**

When screen reclamation is regulated under NR 422.145(2)(d), it isn't regulated under s. NR 423.037. Screen reclamation isn't ever regulated under both NR 422.145(2)(d) and NR 423.037. NR 423.037 is constructed to implement all recommended exclusions from US EPA's Control Techniques Guidelines (CTG) for industrial cleaning solvents and to avoid any potential backsliding. The regulatory language and reporting requirements remain essentially unchanged in NR 423.037.

**Comment:**

"In 2010, the new industrial solvent cleaning requirements will apply to all facilities with emissions from industrial solvent cleaning operations of 15 pounds or more per day. This will result in duplicative regulatory requirements for all screen printing facilities operating in the counties of Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha. Due to this duplication, we disagree with the DNR's assertion that there will be minimal economic impact on the small business community. Facilities subject to both regulations will be required to keep two

distinct set of records, as well as incur duplicative, and often, contradictory, permitting requirements.”

**Response:**

In proposed NR 423.037, the threshold of 15 lb/day of actual uncontrolled emissions is drawn directly from EPA’s CTG for industrial cleaning solvents. Note that this threshold has been changed to the annual equivalent of 3 tons per year of actual uncontrolled emissions in response to a previous comment. If cleaning operations at screen printing facilities are not regulated under NR 422.145(2)(d), they may be regulated under NR 423. This structure has not changed by the addition of NR 423.037.

The screen printing VOC content limits in Table 1 that appear in NR 423.037 are the same as the limits that exist in NR 423.035. These are the limits that were negotiated between the DNR, Serigraph Inc. and Specialty Graphic Imaging Association (SGIA) during the development of NR 423.035. These limits were established as reasonable through these negotiations.

**Comment:**

SGIA recommends that NR 422.145(2)(d), screen reclamation, be repealed when NR 423.037 becomes effective.

**Response:**

The proposed rule does not apply to NR 422.145(2)(d). Therefore, repeal of NR 422.145(2)(d) would constitute back-sliding and is not allowed under the federal Clean Air Act.

**Comment:**

SGIA recommended that the following definition be added to NR 423.02:

Screen reclamation - means the removal of the stencil or of residual ink or coating from the screen mesh or fabric after excess ink or coating has been removed from the screen or fabric.”

**Response:**

The term “screen reclamation” is not used in ch. NR 423. Consequently, the addition of this definition to ch. NR 423 would not provide any clarification.

Comments from EPA

**Comment**

EPA made the follow comment related to the printing and coating sections of the proposed rule: “Wisconsin’s draft work practices appear less effective and do not match up with the cleaning material work practices in the CTG.”

**Response:**

The CTG’s developed by EPA for the source categories addressed by this rule are not consistent with regard to the recommended work practice requirements. The Department compared the CTGs for the coating categories and revised the rule to include consistent work practices in each coating category that reflect reasonable and appropriate requirements.

**Comment:**

EPA indicated that there were no specific record keeping requirements in NR 439.04(3) to determine whether the 3 tons on a 12 consecutive month rolling basis is exceeded.

**Response:**

The Department disagrees with this comment. NR 439.04(3) requires sources to keep adequate records to support each exemption claim. If a source wants to claim an exemption from emission limits, the Department expects that the source would keep the necessary records to support their

claim. The Department feels it is not necessary to specify those record keeping requirements in the proposed rule.

**Comment:**

EPA suggested a minor language change on the metal furniture, large appliance and flatwood panel portions of the proposed rule. The phrase "related cleaning activities" is more specific than and should replace "the associated activities."

**Response:**

The Department did not make the minor language change, since the proposed rule language was more comprehensive than EPA's suggested change.

**Comment:**

EPA suggested a table of compliance alternatives be added to the proposed rule.

**Response:**

The Department did not add the compliance alternatives table. Those alternative compliance measures are already covered in our existing rules.

**Comment:**

EPA indicates that the applicability statement for lithographic printing should be expanded to include letterpress printing.

**Response:**

The Department has previously sent a negative declaration to EPA indicating that there are no letterpress printers in the affected area that are major sources. Since EPA accepted that negative declaration, it is not necessary to establish RACT for letterpress printing by rule. The Department therefore did not make the suggested change.

**Comment:**

EPA made the following detailed comments related to lithographic printing:

1. The first sentence in (a) should be expanded to "...including related lithographic cleaning and fountain solution activities..."
2. (c) & (d) - The exemptions for the printing of books on a heatset lithographic press and heatset lithographic presses with a maximum web width of 22 inches should only be from the add-on control requirements of (3)(a).
3. (a) & (b) - should be "...20 ppmv as hexane on a dry basis."

**Response:**

The Department revised the rule to address EPA comments in 1 and 2 above. DNR did not change the rule for measurement of VOC in 3 above, since the Department believes the proposed rule accurately describes the measurement of VOC from these processes.

**Comment:**

EPA commented that the basis for the exemptions in the solvent cleaning portion of the proposed rule must be justified, especially those limits that exceed 0.42 lb/gal of VOC.

**Response:**

The VOC content limits exceeding the generally recommended CTG VOC content limit of 0.42 lb/gal can be broken into two categories: those matching South Coast Air Quality Management District (SCAQMD)'s Rule 1171 (Solvent Cleaning Operations) VOC content limits and those established through negotiation with industry during the development of the first solvent cleaning RACT rule (NR 423.035). Some of the non-water based limits drawn from SCAQMD were not current with latest version of SCAQMD's Rule 1171 amended on 2/1/08. The Department revised the VOC content limits for the following source categories:

- "Electrical apparatus components and electronic components" (s. NR 423.037(3)(a)2. and s. NR 423.037(3)(b)2.),
- "Cleaning of coatings application equipment or adhesives application equipment...General" (s. NR423.037(3)(c)1.),
- "Rotogravure printing - publication" (s. NR423.037(3)(d)3.) and
- "Ultraviolet ink application equipment..." (s. NR423.037(3)(d)6.)

The Department set realistic and achievable VOC content limits in NR423.035 through lengthy negotiations with industry. The following limits were set in such a manner:

- "Laminated wood products" (s. NR 423.037(3)(a)3),
- "Screen printing" (s. NR 423.037(3)(a)5., s. NR 423.037(3)(b)4. and s. NR423.037(3)(d)5.),
- "Architectural coatings" (s. NR 423.037(3)(c)2.),
- "Ultraviolet coatings" (s. NR 423.037(3)(c)3.),
- "Flexographic printing - excluding packaging" (s. NR 423.037(3)(d)2.b.) and
- "Letterpress printing" (s. NR 423.037(3)(d)4.a.)

The Department believes that no further rule changes are needed to address source categories where VOC content limits were negotiated with affected sources. The Department will provide further justification for the exemptions to EPA when the rule is submitted for their approval.