This summary is to help you understand how the Reasonably Available Control Technology (RACT) rule for lithographic printing may affect your business. The RACT rule for lithographic printing reduces the emissions of volatile organic compound (VOC) from inks, fountain solutions, and cleaning solvents.

The RACT rule was recently changed because of the need to obtain additional VOC emission reductions. The change has resulted in the rule having two separate parts which are Part 1 and Part 2. The actual regulations can be found in sections NR 422.142 (Part 1) and 422.143 (Part 2) of Wisconsin Administrative Code.

Part 1 was put in place in 1995 and Part 2, the most recent change, became effective August 1, 2009. In some instances, both Part 1 and Part 2 may apply to your business and in other instances, only one of them. The specific requirements that apply to your operations will depend upon the location and size of your business, the type of lithographic presses, and the emissions from the operation.

**Does this Regulation Affect My Business?**

**RACT Part 1**
This regulation affects your business only if you meet **both** of the following criteria:

- the printing facility is located in Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county, and
- the maximum theoretical emissions (MTE) of VOCs from all lithographic printing presses at your facility are greater than or equal to 1,666 pounds in any one month.

**How Do I Calculate My Maximum Theoretical Emissions?**
Maximum theoretical emissions (MTE) is the quantity of VOC emissions that could be emitted if you operated your printing presses:

- at design capacity or maximum production capacity
- 730 hours per month, and
- do not count reductions of emissions from the use of any pollution control equipment

\[
[24 \text{ hr/day} \times 365 \text{ day/yr}] ÷ 12 \text{ mo/yr} = 730 \text{ hr/mo}
\]

Since this is a hypothetical "worst case" situation, raw materials with the highest VOC content used in practice—such as inks, fountain solutions, coatings, blanket and roller washes—should be used for this calculation. However, to account for VOC retention on the substrate, the rule does allow you to use certain factors when determining the maximum VOC content of inks. Multiply the VOC content of:

- heatset inks by 0.80, and
- non-heatset inks by 0.05.

The calculation of MTE is generally set up as the maximum hourly usage of VOC materials multiplied by the maximum VOC content of the materials. This number is then multiplied by 730 hours per month. The MTE is calculated for each printing press, and the sum of all the presses equals your facility's total monthly MTE for VOC emissions.

If the monthly MTE is greater than or equal to 1,666 pounds, you must comply with the RACT rule. However, you may still avoid the requirements of this rule by obtaining an elective operating permit from the DNR that limits your allowable emissions to less than 1,666 pounds per month or by getting a limit included in your source-specific operation permit.

### RACT Part 2
This regulation affects your business only if you meet both of the following criteria:

- your lithographic printing facility is located in one of the following counties: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha; and
- have actual emissions of VOCs from all lithographic printing presses at your facility are greater than or equal to 3 tons in any consecutive 12-month rolling period, before controls.

Before calculating your actual emissions, you can use Table 1 thresholds to estimate whether you are affected by Part 2. If you are above the thresholds in the table, you may still be exempt but you will have to calculate your actual emissions to be sure.

### How Does My Business Comply with these Regulations?
Businesses must comply with each rule that applies in four areas.

The four areas of compliance include:

1. Emission Limits
2. Record Keeping
3. Compliance Testing and Schedule
4. Certification Requirements

#### 1. Emission Limits
The emission limits for Part 1 and Part 2 are summarized in the following tables for Heatset or Nonheatset printing operations.

The following operations, affected by Part 2 only, are exempt from the **fountain solution requirements** in that table:

- any lithographic press with a total fountain solution reservoir of less than one gallon
- sheet-fed presses with a maximum sheet size of up to 11 inches by 17 inches
- printing of books on any heatset lithographic press
- heatset lithographic presses with a maximum web width of up to 22 inches

In addition, you may use of up to 110 gallons of blanket or roller wash, on a 12-consecutive month rolling basis, that do not meet either the VOC or vapor pressure limits.

**NOTE:** the emission limits refer to “restricted alcohols” which means an alcohol that contains only one hydroxyl (-OH) group and less than 5 carbon atoms; such as methanol, ethanol, propanol and butanol.

<table>
<thead>
<tr>
<th>Type of Printing Operation</th>
<th>12-Month Rolling Material Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet-fed</td>
<td>768 gallons of cleaning solvent and fountain solution additives</td>
</tr>
<tr>
<td>Non-heatset Web</td>
<td>768 gallons of cleaning solvent and fountain solution additives</td>
</tr>
<tr>
<td>Heatset Web</td>
<td>5400 pounds of ink, cleaning solvent, and fountain solution additives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing</td>
<td>≥ 90% destruction of VOCs, or outlet concentration of ≤ 20 pmv as Carbon.</td>
<td>New devices installed after May 1, 2010: ≥ 95% destruction of VOCs, or outlet concentration of ≤ 20 ppmv as Carbon</td>
</tr>
<tr>
<td>Fountain Solution</td>
<td>≤ 1.6% VOC by weight (bw) if not refrigerated</td>
<td>≤ 1.6% VOC bw if not refrigerated</td>
</tr>
<tr>
<td></td>
<td>≤ 3% VOC bw if refrigerated</td>
<td>≤ 3% VOC bw if refrigerated</td>
</tr>
<tr>
<td></td>
<td>≤ 5% VOC bw and no restricted alcohol</td>
<td>≤ 5% VOC bw and no restricted alcohol</td>
</tr>
<tr>
<td></td>
<td>≤ 13.5% VOC bw if printing on metal or plastic, contains restricted alcohol and refrigerated</td>
<td></td>
</tr>
<tr>
<td>Press Clean-up Solvents</td>
<td>≤ 30% VOC bw or Or ≤10 mm Hg vapor pressure (each component) 68°F</td>
<td>≤ 30% VOC bw or Or ≤10 mm Hg vapor pressure composite) at 68°F</td>
</tr>
</tbody>
</table>
2. Record Keeping
If one or both Parts of the RACT rule affects your printing facility, you must keep appropriate records showing compliance. If you are exempt from any portion of the rule, you still must keep records to support your exemption. Keep records at your facility for a minimum of five years. Records are basically identical for both Part 1 and Part 2.

A. Heatset Web
If you are using a heatset web lithographic printing press with an air pollution control device, you must record the following information on each day of operation:

1. control device monitoring data
2. operating time of control device, monitoring equipment and associated printing line or operation recorded in a log
3. a calibration and maintenance log for monitoring and control device equipment

B. Fountain Solutions Requiring Temperature Monitoring
This record keeping requirement applies only to fountain solutions that must be refrigerated, as indicated in the emissions limit tables:

- Record temperature of fountain solutions for each eight hour shift of operation.

C. All Fountain Solutions Used
- Record the percent by weight VOC content as applied and the chemical name of each restricted alcohol.

D. Blanket or Roller-wash
- For each blanket or roller-wash (including any cleaning solvent or solution used to remove excess inks, oils and debris from lithographic printing press equipment, including rollers, plates, and cylinders), record the percent by weight VOC content as applied and the vapor pressure of each VOC component (for Part 1) or VOC composite (for Part 2) as indicated in the emissions limit tables.
- For each month of operation, record the volume of all blanket or roller wash used which does not meet the emission limitations shown in the tables.

3. Compliance Testing
For all lithographic processes: If testing is required, the VOC content of lithographic inks, fountain solutions, and clean-up solvents shall be determined in accordance with s. NR 439.06(3)(j), Wis. Adm. Code, which requires EPA Method 24. In addition, the vapor pressure of each VOC or the composite VOC vapor pressure shall be determined by ASTM D2879-92. For more information on the test methods, check with your supplier or contact the DNR.

When testing is not requested, the Safety Data Sheet can be a source of the VOC contents and vapor pressure data.

For heatset web lithographic printing presses: The owner or operator of a heatset web lithographic printing press shall demonstrate compliance with the appropriate emission limit for the dryer exhaust by performing emission tests on each control device. Initial emission tests for new presses or devices are due within 180 days after installation.

### Table 3: RACT Emission Limits Non-heatset Offset Lithographic Printing

<table>
<thead>
<tr>
<th>Material</th>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Fountain Solution</td>
<td>Webfed presses: ≤5% VOC by weight (bw) and no restricted alcohol</td>
<td>Webfed presses: ≤5% VOC by weight (bw) and no restricted alcohol</td>
</tr>
<tr>
<td></td>
<td>≤13.5% VOC bw if printing on metal or plastic and refrigerated</td>
<td>Sheetfed Presses: ≤5% VOC bw if not refrigerated</td>
</tr>
<tr>
<td></td>
<td>Sheetfed Presses: ≤5% VOC bw if not refrigerated</td>
<td>≤8.5% VOC bw if refrigerated</td>
</tr>
<tr>
<td></td>
<td>≤13.5% VOC bw if printing on metal or plastic, contains restricted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>alcohol and refrigerated</td>
<td></td>
</tr>
<tr>
<td>Press Clean-up</td>
<td>≤30% VOC bw</td>
<td>≤30% VOC bw or ≤10 mm Hg vapor pressure (composite) at 68°F</td>
</tr>
<tr>
<td>Solvents</td>
<td>Or ≤10 mm Hg vapor pressure (each component) at 68°F</td>
<td></td>
</tr>
</tbody>
</table>
Compliance tests will be performed on of the following schedules:

- 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 VOC destruction every 24 months. Each biennial test shall be performed within 90 days of the anniversary date of the initial emission test.
- 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 VOC destruction every 48 months. Each test shall be performed within 90 days of the anniversary date of the initial emission test.

4. Certification Requirements

The certification deadline for existing presses affected by Part 1 has passed. For all new presses (other than heatset presses) affected by Part 1, written certification with applicable emission limitations and, if applicable, temperature monitoring must be submitted to the DNR no later than 180 days after installation. For new heatset web presses affected by Part 1, compliance test results and written certification of compliance must be submitted within 60 days after the compliance test.

Any new presses or facilities affected by Part 2 when they start up must provide a compliance certification either through a permit application or, if exempt from a permit, provide written certification of compliance. Written certification of compliance should include the following:

1. name of facility
2. address where printing activities are taking place
3. statement of compliance with the applicable sections of the rule
4. signature of the owner (or signature of the person at your facility responsible for ensuring compliance with this rule)

Pollution Prevention Tips
Following these pollution prevention tips may help you reduce your VOCs.

Good Housekeeping
- Cover all solvents, used clean-up towels and wipes.
- Limit solvent use by using pumps or squeeze bottles, rather than pails, to wet cleanup cloths.

Computer-to-Plate (CTP) systems
- Neutralize CTP chemistry with high pH.
- Consider using chemistry free CTP systems.

Inventory
- Order and manage to minimize expiration date of materials.
- Centralize responsibility for storing and distributing solvents.

Printing Process
- Use inks with the lowest possible VOC content for the application.
- Properly store oxidizing ink to prevent skin from forming or use “stay open” inks.

Cleanup
- Use automatic blanket washers.
- Use cleanup solution with a lower VOC content or lower vapor pressure.
Additional Assistance
You may contact the DNR or Small Business Environmental Assistance Program (SBEAP) to get additional assistance or resources, or you can go to webpages designed specifically for Printers:

- [http://dnr.wi.gov/topic/Sectors/Printing.html](http://dnr.wi.gov/topic/Sectors/Printing.html)
or

For more information, contact SBEAP staff at 855-889-3021 or [DNRSmallBusiness@wisconsin.gov](mailto:DNRSmallBusiness@wisconsin.gov) or visit their web page ([http://dnr.wi.gov/topic/SmallBusiness/](http://dnr.wi.gov/topic/SmallBusiness/)). Contact information for Air Management Program staff can be found at: [http://dnr.wi.gov/topic/AirQuality/Contacts.html](http://dnr.wi.gov/topic/AirQuality/Contacts.html).

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Wisconsin Department of Natural Resources
Bureau of Air Management
Box 7921- AM/7
Madison, WI 53707
PHONE 608-266-7718 • FAX 608-267-0560
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