Motor Vehicle Refinishing RACT

To help decrease air pollution in the southeastern portion of Wisconsin, the Department of Natural Resources (DNR) created a regulation controlling volatile organic compound (VOC) emissions from motor vehicle refinishing operations. VOCs contribute to the formation of bad ozone (smog). The complete rule can be found in section NR 422.095 of the Wisconsin Administrative Code (Wis. Adm. Code).

Does this Rule Affect My Business?

It depends on the type of business you operate and its location. Operations listed below that are also located in an area that was designated as an ozone nonattainment area are affected by this rule.

- auto body and repair shops
- fleet operator repair and paint shops
- production paint shops
- new and used motor vehicle dealer repair and paint shops
- any facility classified under SIC 7532, including dock repair of imported vehicles and dealer repair of damage during transport

The ozone nonattainment area at the time the rule was written covered the southeast shoreline of Lake Michigan. Affected counties include:

- Kenosha
- Kewaunee
- Manitowoc
- Milwaukee
- Ozaukee
- Racine
- Sheboygan
- Washington
- Waukesha

Are There Exemptions to this Rule?

The following exemptions are allowed:

- Facilities using less than 20 gal/year of coating, as applied, for motor vehicle refinishing are exempt from using the specified application equipment and gun cleaning device described in this summary. The rest of the regulation still applies.
  ⇒ The USEPA issued a rule--Paint Stripping and Miscellaneous Surface Coating at Area Sources—in 2008 that effectively eliminated this exemption. All operations, no matter how small, will need to meet similar application equipment and gun cleaning requirements in the federal rule. More information is provided here [http://dnr.wi.gov/topic/SmallBusiness/Resources/AutoBodyShop.html](http://dnr.wi.gov/topic/SmallBusiness/Resources/AutoBodyShop.html)
- Touch-up coatings are exempt from the entire regulation. These are coatings applied by brush or using hand held, non-refillable aerosol spray cans.
- Educational facilities are exempt from keeping records of the amount and category of each coating purchased. The other record keeping requirements described in this fact sheet, along with the rest of the regulation, must still be followed.

How Does My Business Comply with this Regulation?

Affected businesses must comply in four areas, including:

1. Initial Notification Report
2. Emission Limits
3. Application Equipment Standards
4. Record Keeping Requirements
1. Initial Notification Report

Owners or operators of all existing motor vehicle refinishing operations should have already notified the DNR if they are affected by this regulation. New refinishing operations must notify the DNR within 30 days of startup.

Notification is simple. Write a letter to the DNR and include: the name, address and phone number of your facility where refinishing operations are taking place; and the name and phone number of the person at your facility responsible for compliance with this rule. The notification should be sent to your local DNR contact, found here [http://dnr.wi.gov/topic/AirQuality/Contacts.html](http://dnr.wi.gov/topic/AirQuality/Contacts.html).

2. Emission Limits

All affected facilities must use coatings that meet the VOC limits in Table 1, as applied, excluding water.

In addition, surface preparation products for use on metal substrates are limited to 0.17 kg/liter (1.4 lb/gal), as applied. Surface preparation products for use on plastic substrates have a limit of 0.78 kg/liter (6.5 lb/gal), as applied.

The following averaging formula must be used to calculate the VOC content of a base-coat/clear-coat application system:

\[ \text{VOC}_{b/c} = \left( \text{VOC}_a + 2 \times \text{VOC}_c \right) \div 3 \]

- \( \text{VOC}_{b/c} \): the 'as applied' VOC content of a basecoat/clear-coat system in kg/liter or lb/gal excluding water.
- \( \text{VOC}_a \): the 'as applied' VOC content of the base coat used in kg/liter or lb/gal excluding water.
- \( \text{VOC}_c \): the 'as applied' VOC content of the clear coat used in kg/liter or lb/gal excluding water.

A similar calculation is used for a three- or four-stage application system. Contact the DNR or the SBEAP for help with the calculations.

3. Application Equipment Standards

Any facility that does not fall under the 20 gal/year exemption must meet the following equipment standards:

**Application Equipment**

- electrostatic application equipment or
- low pressure spray application equipment (e.g., high volume low pressure [HVLP] or low volume, low pressure [LVLP] spray guns)

**Cleanup Equipment**

- spray guns and paint lines must be cleaned with a device that recirculates or reuses solvent and collects the solvent in a closed container
- all VOC containing material, including rags, must be stored in closed containers

4. Record Keeping Requirements

Each affected business must keep the following necessary records on hand for 5 years.

- Monthly records of the amount and category of each coating purchased. (Categories are the types of coatings listed under the "emission limits" section.)
- A unique name or identification number for each coating.
- The VOC content of each coating, in units of pounds (or kilograms) of VOC per gallon (or liter) of coating as applied, excluding water.
Because the ratio of coating, thinner and catalyst may vary, use a calculation representing the maximum possible VOC content, based on the materials you use, or make the appropriate adjustments to your calculations as your mixtures change.

Calculating the VOC content as applied, excluding water is rather complex. You need information from each paint or solvent’s Safety Data Sheet (SDS) to complete the calculation.

**SDS information:**

1. Coating Density = 14 lb/gal
2. Total volatile content, in percent by weight (% by wt) = 45% by wt
3. VOC Content = 40% by wt
4. Water content = 5% by wt

You also need to know the density of water at 8.34 pounds per gallon. Follow the calculation in Table 2.

The value of **6.11 lb VOC per gallon, excluding water**, is what you would record after using that calculation for each of your coatings to show that you meet the VOC content limit.

**Are there Permit Requirements?**

If you are required to meet the motor vehicle refinishing RACT rule, you may also need a construction or operation permit.

**Exemption from Permit Requirements**

There is a specific exemption from the permit requirements so that smaller refinishing operations are not required to obtain an air pollution permit. There are two application processes for air permits: construction permits for any new units or expansions that came in after 1979; or operation permits for existing facilities that are not exempt.

The specific permit exemption level is 1,666 pounds of VOCs per month, prior to entering any control device. This number reflects a facility’s actual emissions, based on the amount of VOC containing material actually used. This amount can never be exceeded, or the exemption will no longer apply and an air permit would be necessary.

Refer to the VOC Emissions Sources and Air Pollution Construction Permits [http://dnr.wi.gov/files/PDF/pubs/am/AM479.pdf](http://dnr.wi.gov/files/PDF/pubs/am/AM479.pdf) fact sheet provided by the SBEAP for information on how to calculate the monthly exemption level. If you meet the exemption level for any new paint booth or coating system project, you are exempt and not required to obtain a construction permit. If you meet the exemption level for your whole existing coating system, then you are exempt from needing an operation permit.

You can learn more about air permit exemption options on the webpage: [http://dnr.wi.gov/topic/SmallBusiness/Exemptions.html](http://dnr.wi.gov/topic/SmallBusiness/Exemptions.html)

If you are not exempt from requirements, contact the DNR or the SBEAP (see below) for assistance with completing application forms.

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**Table 2. Example calculation of VOC content as applied, excluding water.**

<table>
<thead>
<tr>
<th>Step</th>
<th>Calculation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Water in coating:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$14 \text{ lb coating} \times \frac{5 \text{ lb water}}{100 \text{ lb coating}}$</td>
<td>$0.70 \text{ lb H2O}$</td>
</tr>
<tr>
<td>2.</td>
<td>Volume water in coating:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\frac{0.7 \text{ lb water}}{100 \text{ lb coating}} + \frac{8.34 \text{ lb water}}{100 \text{ lb coating}}$</td>
<td>$0.084 \text{ gal H2O}$</td>
</tr>
<tr>
<td>3.</td>
<td>Mass of VOC in coating:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\frac{14 \text{ lb coating} \times 40 \text{ lb VOC}}{100 \text{ lb coating}}$</td>
<td>$5.6 \text{ lb VOC}$</td>
</tr>
<tr>
<td>4.</td>
<td>lb VOC per gallon, excluding water:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\frac{5.6 \text{ lb VOC}}{100 \text{ lb coating}} + (1 - 0.084) \text{ gal-H2O}$</td>
<td>$6.11 \text{ lb VOC}$</td>
</tr>
</tbody>
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