



What is the Organic Compound Rule?

To help decrease air pollution in Wisconsin, the Department of Natural Resources (DNR) created regulations to control volatile organic compound (VOC) emissions. These Reasonably Available Control Technology (RACT) regulations require specific industries to reduce VOC emissions. VOCs have been found to be a primary component in the formation of bad ozone (smog).

Even if a business is not among the specific industries affected by RACT regulations, if organic compound emissions are generated from its main process, the facility may be affected by the requirements of section NR 424.03 in the Wisconsin Administrative Code, which covers emissions of organic compounds from process lines.

When does this rule affect a business?

Does a facility operate a process line that emits organic compounds? A process line is “one or more actions or unit operations which must function simultaneously or in sequence in order to manufacture or modify a product.” A unit might not be considered a process if there is no final product for sale. DNR will determine whether a unit is considered a process.

Any process line that must meet a requirement in chapters NR 419-423 is not required to meet the rule in NR 424.03.

What are the exemptions to this rule?

There are four possible exemptions to the rule:

- a process line that is located outside the counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha and was not constructed or changed in some way since April 1, 1972
- a process line that is an organic compound-water separation system processing less than 200 gallons per day
- a process line that is an enclosed (on at least 3 sides) paint spraying operation with less than 30 pounds of VOC emissions per day
- any other process line that always has less than 15 pounds VOC emissions per day

What does a business need to do if it is exempt?

Showing that a facility is exempt from this rule will depend on which exemption applies. If a facility is exempt solely because of location and when the process line was constructed or changed, then nothing else needs to be done. If it is exempt because its emissions are below one of the exemption levels, then records must be kept to document the exemption.

Each of the quantitative exemption levels is based on either the amount of material used or VOC emissions over a set period of time. The time period in the exemption determines how often records need to be kept. For the “pounds VOC per day” exemptions, daily records are needed to show emissions below the specified level every day of operation.

The most difficult part of this is calculating the quantity of VOC emissions.

1. Start keeping records of how much coating and thinning solvent (in gallons) is used daily at the process line. Also, include VOCs from clean up solvents directly related to the process, like gun cleaner for painting operations.

2. Get copies of the Safety Data Sheet (SDS) for each coating and thinning or clean up solvent used on the process line. These should be available from the supplier. Look in the Physical Characteristics section of the SDS, and be sure it lists either:
 - VOC content in pounds per gallon (lb/gal), or
 - VOC content in percent (%) by weight (wt) and density of the coating in lb/gal.
3. If a facility does not have the information necessary to get the value for VOC content in lb/gal, it should ask the supplier. The supplier should know the VOC content of the materials they supply. To calculate VOC content in lb/gal from the percent by weight (% by wt) and the coating density, follow this example:

Equation:

$$\text{Coating density (lb/gal)} \times \text{VOC content (\% by wt)} / 100 = \text{VOC content (lb VOC/gal)}$$

Example Characteristics:

$$\text{Coating Density} = 14 \text{ lb/gal} \quad \text{VOC content} = 40\% \text{ by wt}$$

Calculate:

$$14 \text{ lb/gal} \times 40 / 100 = 5.6 \text{ lb VOC/gal}$$

4. Once the VOC content in lb/gal is determined, calculate VOC emissions. Multiply the VOC content by the amount of coating used, measured in gallons, to get pounds of VOC per day for that coating. For example, if a facility uses 5 gallons of a coating with 5.6 lb VOC/gal for one day:
 $5 \text{ gal/day} \times 5.6 \text{ lb VOC/gal} = \mathbf{28 \text{ lb VOC/day}}$.
5. Complete this calculation for each coating, thinning and clean up solvent used each day. Then add together the VOC emissions from all coatings and solvents used to get the total VOC emissions in pounds per day. If this total is less than the daily exemption allowed for the process line, the facility is exempt from the requirements in NR 424. However, any records, whether paper or electronic, must be kept on site for five years.

How does a business comply with this regulation?

If a facility is not exempt from NR 424, requirements are based on the year of construction of the process line.

1. If installation of a process line, or the most recent changes to it, occurred before August 1, 1979, then you have to control **only photochemically reactive organic compounds** by 85%. DNR has a specific definition of those organic compounds, but basically it refers to compounds that have a certain level of reaction with sunlight to form other compounds (like ozone) when released into the air. The supplier may know which organic compounds in their coatings and solvents meet the definition. DNR staff can also help review the SDS to determine which compounds meet the definition.

Some materials containing organic compounds do not actually contain any photochemically reactive organic compounds. A facility would not be required to control emissions from these materials. If none of the materials contain any photochemically reactive organic compounds, then it would not be required to control emissions at all.

2. If the process line was installed on or after August 1, 1979, then all VOC emissions must be controlled by 85%. DNR has a different definition for VOCs than for the photochemically reactive organic compounds.
3. If a facility can show the DNR that it is not feasible to control emissions from the process line under requirements 1 or 2 above, alternate requirements may be applicable.

For instance, a facility may have a high exhaust flow and a low emissions rate. The conditions considered infeasible to control depend on conditions at the particular process line under review and the cost to install an appropriate control device. DNR may be able to help determine the cost of a control device, or the facility may hire a consultant to perform that task. DNR's Small Business Environmental Assistance Program (SBEAP) has fact sheets available to help with hiring a consultant and finding consultants who work in Wisconsin:

- *Tips for Hiring an Environmental Consultant:* <http://dnr.wi.gov/files/pdf/pubs/sb/sb005.pdf>
- *Clean Air Consultants:* <http://dnr.wi.gov/files/pdf/pubs/sb/sb004.pdf>

If a facility can show that the cost of control is infeasible, the alternate requirements that will then apply are called Latest Available Control Techniques and operating practices (LACT). LACT requirements are specific to the conditions at the process line.

One example is a business where a certain type of coating or other raw material is required to manufacture a particular product. The VOC content of that coating or raw material is very high—say, greater than 8.0 pounds VOC per gallon—but no known material with lower VOC content will work properly for the process. As part of the LACT requirements, DNR may set a deadline by which the facility must find a lower VOC content material. This is only one example. Ask DNR if there are any existing LACT determinations for similar process lines.

4. One other compliance option is available under section NR 424.03. If one of the RACT requirements listed in the organic compound emissions rule in ch. NR 422, Wis. Adm. Code, fits the type of process, but the facility is otherwise exempt from the rule in NR 422, it could choose to meet the limit anyway. In some industries this is the easier option, because the VOC containing materials available from the suppliers already meet the RACT limits in NR 422. If the materials used already meet a RACT rule in NR 422, complying with NR 424.03 could minimize changes to the operations.

Additional information and assistance

The requirements in section NR 424.03 of the Wisconsin Administrative Code are complex. Contact the SBEAP for assistance at 855-889-3021 or DNRSMBusiness@wisconsin.gov. More information about the rule is also available from the DNR Air Management Program; you can find contact information for staff at <http://dnr.wi.gov/topic/AirQuality/Contacts.html>.

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