

Air Program Fact Sheet

Industrial Solvent Cleaning Operations

RACT Rule - Parts 1 and 2

July 2019

In order to reduce emissions of volatile organic compounds (VOCs) in areas of Wisconsin that cannot meet the national air quality standard for ozone, the Department of Natural Resources (DNR) issued rules for certain industrial categories that are called Reasonably Available Control Technology (RACT) rules. One of those is a RACT rule on industrial solvent cleaning operations.

Part 1 requirements of this rule are detailed in s. NR 423.035, Wis. Adm. Code, while Part 2 requirements are found in s. NR 423.037, and apply to your operations depending on the location and size of your business, and the type of operation where the solvents are used. NOTE: REVIEW BOTH PARTS 1 AND 2; ONE OR BOTH MAY APPLY TO YOUR OPERATION.

Revisions to the rule effective February 2012 include changes to Part 1 and Part 2 exemptions, storage and disposal provisions, recordkeeping provisions, and Part 2 VOC limits displayed in Table 1.

For this rule, **industrial cleaning** means: the process of cleaning products, product components, tools, equipment, or general work areas during production, repair, maintenance, or servicing with solvents or solvent solutions.

RACT Part 1—Applicability and Exemptions

This regulation applies businesses with industrial cleaning operations in:

- Kenosha, Milwaukee, Ozaukee, Racine, Washington or Waukesha counties, whose maximum theoretical emissions (MTE) of volatile organic compounds (VOCs) are greater than 25 tons per year; or
- Kewaunee, Manitowoc, or Sheboygan counties, whose MTE of VOCs is greater than 100 tons per year.

The MTE is the level of VOC emissions a business would generate if operations ran at full capacity 24 hours a day, 365 days a year, without taking into account any emissions reductions from any control device installed. To determine if this rule applies to you, be aware that the MTE of VOCs applies only to those VOCs that are not already regulated by another RACT rule.

If you have a permit, look for one of these code citations after your permit conditions related to VOC emissions to determine what is already regulated by a RACT rule:

- sections NR 419.05, 419.06, or 419.08;
- any section in chapters NR 420 and 421;
- any other section in NR 422 besides 422.035; or
- sections NR 423.03, 423.04, 423.05, 424.04 or 424.05.

To calculate MTE for VOCs from industrial cleaning operations:

- 1) calculate the total MTE of VOCs from the whole facility
- 2) calculate the MTE of VOCs regulated by another VOC RACT rule (see above for list)
- 3) subtract the amount in #2 from the amount in #1

If the amount calculated in #3 is greater than the applicability levels of 25 TPY or 100 TPY, depending on your county location, this rule applies to your business.

For assistance with calculating the MTE of VOCs for your facility, contact the Small Business Environmental Assistance Program (SBEAP). Staff can review your calculations or provide a fact sheet and Excel spreadsheet with examples.

Other exemptions may apply to your industrial cleaning operations, even if the MTE of VOCs from industrial cleaning is greater than the applicability level.

All sections of Part 1 do not apply to:

- operations regulated under sections NR 421.05 (2m), 421.06 (2m), 422.05 (3), 422.06 (3), 422.075(3), 422.08 (3), 422.083 (3m), 422.09 (6), 422.095(7), 422.105 (5), 422.115 (5), 422.125 (4m), 422.127 (3m), 422.131 (3), 422.14 (4), 422.141(3), 422.142 (2) (c), 422.143 (3) (c) and (4), 422.144 (4) (b) and (5), 422.145 (2m), 422.15 (9), 422.155 (5), or 423.03, Wis. Adm. Code,
- stripping of cured coatings, cured inks or cured adhesives, and
- cleaning operations in graphic arts pre-press areas.

RACT Part 2—Applicability and Exemptions

This regulation applies to businesses with industrial cleaning operations in:

- Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha Counties, and
- actual VOC emissions from industrial solvent cleaning operations of 3 tons per year, based on a rolling consecutive twelve months without controls.

All sections of Part 2 do not apply to:

- operations regulated under sections NR 422.127 (3m) or 423.03, Wis. Adm. Code;
- stripping of cured coatings, cured inks or cured adhesives;
- cleaning operations in graphic arts pre-press areas, letterpress printing;
- cleaning operations association with other RACT or MACT categories (see list in the rule) with coating operations, including lithographic printing and flexographic printing.

Exemptions that Apply to Both Parts 1 and 2

The solvent limits shown in Table 1 do not apply to:

- cleaning associated with lab tests on coatings, adhesives or inks, research and development programs, and lab tests in quality assurance labs
- medical device and pharmaceutical manufacturing facilities using less than 1.5 gal/day of solvents or solvent solutions for industrial cleaning

Requirements may still apply in the categories of cleaning methods and devices, storage and disposal, control equipment, general prohibitions, and record keeping.

The solvent limits in Table 1 and the general prohibitions in the rule do not apply for aerosol cleaning products used in quantities of no more than 160 fluid ounces per day.

The general prohibitions in the rule do not apply to:

- cleaning with spray bottles,
- cleaning nozzle tips of automated spray equipment systems except for robotic systems programmed to spray into a closed container, and
- automatically applied blanket or roller wash.

The solvent limits in Table 1, control equipment requirements, general prohibitions, and alternative compliance option do **not** apply to **digital printing**.

Requirements for Parts 1 and 2

One or both parts of the rule may apply, based on their different applicability and exemptions. If both parts apply to your facility, then you should use solvents that meet the most restrictive VOC content limit that applies. Table 1 contains a list of the VOC content limits in Part 1 and 2 as identified in the appropriate column.

Other requirements may apply, including:

- specific solvent cleaning application methods or equipment (whether application or control devices),
- monitoring of leaks,
- storage and disposal procedures,
- record keeping, and
- reporting.

These requirements are described here:

Cleaning Devices and Methods

One or more approved methods or devices must be used to apply solvent or solvent solutions:

- physically rub a surface with a rag, paper, sponge, or cotton swab moistened with the solvent
- closed containers or hand-held spray bottles to apply solvent without aerosols or other propellants
- equipment that can be closed at all times except when placing or removing items to be cleaned
- remote reservoir cleaner with cover or valve to close off reservoir, flow directed to prevent splashing, no porous items allowed and maintained leak-free
- a non-atomized flow method with closed collection system for used solvent
- flushing method with closed collection system for used solvent

Storage and Disposal

Non-absorbent, non-leaking containers must be used to store solvents and solvent solutions. These containers must be closed at all times except when filling or emptying. Any porous materials moistened with solvents or solvent solutions must also be stored in closed, non-absorbent, non-leaking containers. Facilities covered by Part 2 must transport cleaning materials containing VOCs in closed containers or pipes.

Table 1. VOC Limits for Industrial Cleaning Solvents		
Activity	Part 1 VOC Content (lb/gal)	Part 2 VOC Content (lb/gal)
Product Cleaning		
➤ General	0.42	0.42
➤ Electrical components		
* general	4.2	0.83
* cables	-	3.3
* printed circuit boards, with devices attached	-	6.7
➤ Laminated wood		
* General	3.8	-
* PVC	5.8	-
➤ Medical devices and pharmaceuticals	6.7	6.7
➤ Screen printing	6.4	-
Repair and Maintenance		
➤ General	0.42	0.42
➤ Electrical components	7.5	-
* general	-	0.83
* cables	-	3.3
➤ Medical devices and pharmaceuticals		
* tool, equipment, machinery	6.7	6.7
* general work surfaces	5.0	5.0
➤ Screen printing	4.6	-
Cleaning of coatings/adhesives application equipment (excluding adhesives for Part 2)		
➤ General	4.6	0.42
➤ Architectural coatings	7.9	-
➤ Ultraviolet coatings	6.7	-
Table continued below...		

Control Equipment

You may install control equipment instead of meeting the limits in Table 1, or instead of using the required cleaning devices and methods, as long as the control meets one of the following:

- an overall control efficiency of 85% for VOC emissions
- a VOC capture efficiency of 90% and an output VOC concentration of 50 ppm, with no dilution
- the requirements of any other applicable RACT rule under chapters NR 420 to 422

General Prohibitions

No solvent or solvent solution can be atomized unless one of the control devices is used.

Alternative Compliance Option

Instead of meeting the limits in Table 1, a facility affected by:

- Part 1 can use any solvent or solvent solution that has a vapor pressure for each VOC component less than or equal to 10 mm Hg, or
- Part 2 can use any solvent or solvent solution that has a VOC composite partial pressure less than or equal to 10 mm Hg.

Recordkeeping

All records must be maintained for five years.

For each of the exemptions, you must keep records based on the time frame of that exemption. If solvent use is measured in gallons per day, you must keep daily records of the number of gallons of solvents used for industrial cleaning operations.

For applicability under Part 2, you should have:

- the VOC content of each solvent or solvent solution used
- the volume and the total emissions without controls of each solvent or solvent solution used each month
- the total emissions without controls from all solvents or solvent solutions for each consecutive 12-month period

For the limits in Table 1 or the alternative option, you must keep records in the appropriate units, e.g., pounds VOC per gallon, etc. If you have installed a control device, then you must also keep records of any stack test results to demonstrate the percent efficiency for capture and control.

Table 1. (continued)		
VOC Limits for Industrial Cleaning Solvents		
Activity	Part 1 VOC Content (lb/gal)	Part 2 VOC Content (lb/gal)
Cleaning of application equipment (ink)		
➤ General	0.42	-
➤ Flexographic (Part 2 - excluding Packaging)		
* general	0.42	-
* plastics, coated paper, metal foil	7.4	7.4
➤ Rotogravure	6.3	
* publication	0.42	NA
* packaging		
➤ Lithographic or letterpress	(30% by wt)	-
* on-press components	0.42	-
* removable press components		
➤ Screen Printing	6.4	-
➤ Ultraviolet ink (except screen printing)	6.7	-
Cleaning of application equipment (polyester resin)	0.42	0.42

For more information:

- To read NR 423: https://docs.legis.wisconsin.gov/code/admin_code/nr/400/423.pdf
- More information on Solvent cleaning operations: <https://dnr.wi.gov/topic/SmallBusiness/Resources/Solvent.html>
- Contact the SBEAP at DNRSsmallBusiness@wisconsin.gov or 1-855-889-3021

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