AIR MANAGEMENT PROGRAM FACT SHEET

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Industrial Solvent Cleaning Operations RACT Rule Parts 1 and 2

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Industrial Solvent Cleaning RACT Rule

Facilities with industrial solvent cleaning operations may be required to meet reasonably available control technology (RACT) rules. Wisconsin Department of Natural Resources (DNR) writes RACT rules based on U.S. Environmental Protection Agency's (EPA) Control Techniques Guidelines (CTG). The rules apply to facilities based on whether the area where they are located is or has been in nonattainment status with an ozone national ambient air quality standard. Industrial Solvent Cleaning RACT rule Part 1 requirements are detailed in s. NR 423.035, Wis. Adm. Code, while Part 2 requirements are found in s. NR 423.037. These requirements apply to operations depending on the location and size of the facility, and the type of operation where the solvents are used. Review both Parts 1 and 2 as one or both may apply to the operation.

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 to businesses with industrial cleaning operations located 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 facility would generate if operations ran at full capacity 24 hours a day, 365 days a year, without considering any emissions reductions from any control device installed. To determine if this rule applies, calculate MTE using only VOC emissions that are not already regulated by another RACT rule.

Look for one of the code citations listed below after each permit condition 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
- 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 entire 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, and located in one of the counties listed, this rule applies to the facility. A business with maximum theoretical emissions of VOCs greater than those thresholds may avoid this rule by obtaining a "synthetic minor" permit from DNR. This means limiting the actual VOC emissions from the industrial cleaning operations to less than 25 or 100 tons per year depending on the location.

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

Other exemptions may apply to the 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
- cleaning operations in graphic arts pre-press areas

RACT Part 2—Applicability and exemptions

This regulation applies to businesses with industrial cleaning operations located 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
- cleaning operations association with the activities listed below:

- aerospace assembly and component coating operations
- automobile refinishing
- can coating
- coating of marine vessels, other equipment intended for exposure to a marine environment
- coating manufacturing
- coil coating
- fabric and vinyl coating
- flat wood panel and wood flat stock coating
- flexographic printing
- furniture metal coating
- large appliance coating
- letterpress printing
- lithographic printing
- locomotive and railcar assembly and coating operations
- miscellaneous metal parts and products coating
- motor vehicle and mobile equipment assembly and coating operations
- paper, film, and foil coating
- plastic parts and products coating
- resin, coating, ink, and adhesive mixing and molding equipment operation
- rotogravure printing
- screen printing
- surface preparation of numismatic dies and precision optics
- synthetic resins manufacturing
- wood furniture coating

The following sections of Part 2 do not apply to industrial adhesives and adhesive primers: solvent limits in Table 1, control equipment requirements, general prohibitions, alternative compliance option, and extra recordkeeping.

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 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 the facility, then 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
- 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

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	-
• Ink & Adhesive Manufacturing	-	1.7
Cleaning of coatings/adhesives application equipment (excluding adhesives for Part 2)		0.42
• General	4.6	-
• Architectural coatings	7.9	-
• Ultraviolet coatings	6.7	-

Table continued below...

- 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

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	0.42
• Flexographic (Part 2 - excluding Packaging) * general * plastics, coated paper, metal foil	 0.42 7.4	 - -
• Rotogravure * publication * packaging	 6.3 0.42	 NA
• Lithographic or letterpress * on-press components * removable press components	 (30% by wt) 0.42	 - -
• Screen Printing	6.4	-
• Ultraviolet ink (except screen printing)	6.7	-
Cleaning of application equipment (polyester resin)	0.42	0.42

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.

Control equipment

The facility may have control equipment installed 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, except in the following operations:

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

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 Mercury (Hg)
- 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, the facility must keep records based on the time frame of that exemption. If solvent use is measured in gallons per day, keep daily records of the number of gallons of solvents used for industrial cleaning operations.

For applicability under Part 2, keep records of:

- 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, the facility must keep records in the appropriate units, e.g., pounds VOC per gallon, etc. If the facility has installed a control device, keep records of any stack test results to demonstrate the percent efficiency for capture and control.

Facilities affected by Part 2 must keep these records as well:

- name and identification of the cleaning solvent and the associated cleaning activity
- the VOC content, based on Method 24, as employed or VOC composite partial vapor pressure

For more information:

- Review NR 423
- Visit DNR's solvent cleaning operations website.
- Contact the SBEAP at DNRSmallBusiness@wisconsin.gov or 1-855-889-3021

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