

Air Program Fact Sheet Industrial Laundry Facilities

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This document summarizes key air pollution requirements that may apply to industrial laundry facilities. In addition, it explains the assumptions allowed by the Wisconsin Department of Natural Resources (DNR) when calculating maximum theoretical emissions (MTE) and potential to emit (PTE) of volatile organic compound (VOC) emissions from industrial laundries. Finally, this fact sheet is intended to help industrial laundries understand if an air pollution control permit is needed, or if a permit exemption may apply.

Industrial laundry facilities have a Standard Industrial Classification (SIC) code of 7218 and a North American Industry Classification System (NAICS) code of 812332. Common materials laundered at these facilities include: print towels, shop towels, industrial wipes, uniforms, industrial garments, floor mats, mops, dust cloths, tool covers, etc.

What types of emissions come from industrial laundries?

Materials laundered by industrial laundries can contain substantial amounts of VOCs from solvents when laundering print or shop towels, however uniforms and rugs or hospitality related materials are likely to have only incidental solvent content, if any.

Print towels typically have the highest VOC content of any material laundered. VOC emissions may occur due to various activities, including handling/sorting/processing, washing and drying of materials containing VOCs. In addition, VOCs may also be present in the wastewater effluent. For purposes of determining compliance with air pollution requirements, the department typically considers the washers, dryers and wastewater as sources of VOC emissions.

In addition to VOCs, the solvents may contain hazardous air pollutants (HAPs). Industrial laundries may need to obtain Safety Data Sheets (SDS) or other solvent content data from the sources of the towels to determine which HAPs may be emitted.

HAPs are also emitted, along with other criteria pollutants (e.g., particulate matter, nitrogen oxides, sulfur oxides, and carbon monoxide), when fuels are burned in dryers, boilers or furnaces, and emergency generator engines.

What VOC emission factor should be used for print and shop towels?

Calculating VOC emissions from laundry processes requires use of a VOC emission factor based on the weight of material throughput. Emission factors will depend on where the soiled towels come from and the type of detergents used. VOC emissions factors from a laundry might look something like:

- ### lbs of VOC per 1,000 lbs of soiled print towels
- ##.# lbs of VOC per 1,000 lbs of soiled shop towels

Emissions information provided by the permit applicant might also include emission rates from each emission unit. For example, a table with percent VOCs from each unit might look like:

[Values are used for example purposes ONLY]	Percent VOC from each emission unit	
	Washing and wastewater	Drying
Shop towels	70%	30%
Print towels	95%	5%

Facilities should submit site-specific VOC and HAP emission factors, but if none are available contact a trade association for industry developed data. Submittals to the department must include supporting documentation and any other information necessary to justify the use of those factors.

What emission factors should be used for fuel combustion units?

The U.S. Environmental Protection Agency (EPA) has established emission factors for different categories of heaters, furnaces and generator engines. Refer to EPA's emission factors document, called [AP 42](#), specifically Chapter 1 on [external combustion sources for heaters and furnaces](#) and Chapter 3 on [internal combustion sources](#). Each of these chapters is organized by equipment type and/or fuels used in the fuel combustion units. Review the appropriate sections in each chapter that matches equipment at the facility. There will be specific emission factors for each of the criteria pollutants and HAPs emitted from each piece of equipment that burns fuel at the facility.

For assistance on calculating emissions from fuel combustion units, refer to a fact sheet provided by the department's Small Business Environmental Assistance Program (SBEAP), "[Combustion Sources and Air Pollution Construction Permits](#)."

How is MTE of VOCs calculated for industrial laundries?

The definition of MTE in s. NR 400.02(95), Wis. Adm. Code, states:

"...In determining the maximum theoretical emissions of VOCs for a source, the design capacity or maximum production capacity shall include the use of raw materials, coatings and inks with the highest VOC content used in practice by the source."

Below are some important aspects to this MTE definition for industrial laundries to consider:

- The term "source" has a dual meaning in this definition and refers either to the entire facility or an individual emission unit (i.e., washer or dryer).
- Print towels contain the "highest VOC content used in practice by" launderers. If a facility launders print towels, that facility would have to consider this material and its high VOC content for all machines capable of laundering solvent containing materials at the facility when calculating MTE. A facility that does not launder print towels would not use the VOC content for print towels when calculating MTE.
- The only circumstance in which print towels would not be used in MTE calculations for a source is when the unit is not designed to launder them (e.g. not allowed by owner's manual), or if there are specific circumstances that would preclude laundering them. If a washing machine includes special seals compatible with solvents, then that machine is considered capable of laundering solvent-laden materials.
- Facilities that do not launder print or shop towels or other high VOC containing materials should maintain documentation of the of contracts held in order to demonstrate that these materials are never received.

Is wastewater effluent from laundering considered an emission source?

If a facility has wastewater pre-treatment capabilities on site (e.g. dissolved air flotation, holding tank, pond, etc.), an estimate of VOC emissions should be included in a permit application. The department will include this equipment in the permit as an emission source.

If the wastewater from laundering VOC-containing materials discharges directly to the municipal wastewater treatment facility (i.e., the publicly owned treatment works or POTW), it can be considered an insignificant emission unit due to the short retention time on site at the facility. Note that insignificant emission units must be noted in permit applications and emission estimates will be included in facility-wide MTE calculations.

How does a solvent extraction unit affect PTE and MTE calculations?

If a facility is required, by a department-issued air pollution control permit or order, to use a solvent extraction unit prior to washing to remove solvent before laundering, the facility can consider the reduction in emissions due to removal of solvent in calculating PTE, but not for MTE calculations.

What other assumptions may be considered when calculating MTE?

The definition of MTE in s. NR 400.02(95) also states

“...Realistic operating conditions shall be taken into account in determining emissions under this subsection.”

The phrase “realistic operating conditions” in the definition is meant to allow for real physical conditions that make it unreasonable to assume a source could operate 8,760 hours per year or 24 hours a day or for a continuous hour, etc. Facilities may not use economic considerations, such as supply and demand, in determining a realistic operating condition that can be considered in MTE calculations. For example, stating that there is only enough demand to operate one 8-hour shift per day may not be considered a realistic operating condition.

Is a construction permit required for industrial laundry facilities?

If replacement or installation of new equipment does not meet the maximum theoretical emissions thresholds in the general construction permit exemptions in s. NR 406.04(2), Wis. Adm. Code, a facility could request a construction permit exemption under s. NR 406.04(1q), Wis. Adm. Code for low actual emissions. Use of the actual emissions-based permit exemption requires that the facility submit an exemption request and receive approval prior to construction. In addition to the exemption request, the facility must submit an application for revision of its operation permit. The operation permit would need to be revised to contain an emissions cap for the new emission unit to keep it below the exemption thresholds, along with related compliance demonstration, monitoring and recordkeeping requirements.

If two or more emission units are installed within a short time frame, such as within 18 to 24 months, these units may be considered a single construction project. If the department considers the installation to be a single project, the units would be evaluated under the same exemption request or construction permit application. Contact the department for assistance with determining whether two (or more) projects would need to be combined in one permit review.

Learn more about exemptions and construction permits on the [Air permit options](#) webpage. For those new to the air permit process, and for help getting started on building an air permit application, visit the [SBEAP permit page](#).

What other requirements might apply to an industrial laundry facility?

There are federal requirements that might apply to [process heaters, boilers \(furnaces\)](#) and [generator engines](#). Learn more by visiting the SBEAP webpages on these topics.

For more information:

- Permit information:
 - Permit information can be found on DNR’s website at: <http://dnr.wi.gov/topic/AirPermits/Options.html>.
 - For questions about construction permits, contact the NSR Coordinator at 608-266-7718.
 - For questions about registration permits, contact the Registration Permit Coordinator at DNRAMROPSAIRPERMIT@wisconsin.gov.
- For questions on air pollution or other environmental requirements, contact the SBEAP at 855-889-3021 or DNRsmallbusiness@wisconsin.gov.

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