

Requirements for Flexographic and Rotogravure Printing Operations

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Chapter NR 422 of the Wisconsin Administrative Code covers the control of volatile organic compound (VOC) emissions from surface coating, printing, and asphalt surfacing operations. In section NR 422.14, Wis. Adm. Code, flexographic and rotogravure printing operations are addressed. This fact sheet provides a summary of requirements for those operations. The location and size of your printing operations will determine how this regulation affects you. In counties that do not meet the air quality standard for ozone (listed below), the threshold size for facilities affected is smaller than in the counties that meet the standard.

Exemptions to the Regulation

Not every printer operating flexographic or rotogravure presses needs to comply with this regulation. You can qualify for an exemption if:

- your facility is located within Kenosha, Milwaukee, Ozaukee, Racine, Washington, or Waukesha County and your MTE (maximum theoretical emissions) for VOCs are less than 25 tons per year; or
- your facility is located outside Kenosha, Milwaukee, Ozaukee, Racine, Washington, or Waukesha County and your MTE (maximum theoretical emissions) for VOCs are less than 100 tons per year.

Your MTE is the amount of pollution your facility could emit if operated at maximum capacity level, 24 hours a day, 365 days per year. If your facility is not exempt under the levels above, but your coating and ink usage never exceeds 55 gallons over any 12-consecutive month period, you do not have to meet any of the applicable requirements described here.

How Do I Comply with this Regulation?

If your press does not meet any of these exemptions, you must either:

1. Meet an emission limit.

For inks used:

- the volatile fraction* of ink (as it's applied to your substrate) must contain 25% or less VOC by volume and 75% or more water (including any compounds defined as non-VOC) by volume; or
- the ink (as applied, and minus water and other non-VOC compounds) contains at least 60% by volume nonvolatile material.

** The volatile fraction of the ink includes VOCs, non-VOCs, and water. DNR provides a list of organic compounds defined as non-VOC. Contact the Small Business Environmental Assistance Program (SBEAP) staff for that list of compounds.*

2. Install a control device.

Printers choosing to use higher VOC inks must install some sort of control device.

Acceptable control devices include:

- a vapor recovery system which would capture and reduce VOC emissions by 90%, by weight
- an incinerator or catalytic oxidation system that would destroy the VOCs by 90%, by weight
- an alternative method of control approved in writing by DNR

Controlling emissions by installing an incinerator (a.k.a. thermal or catalytic oxidizers) uses the process of combustion to destroy or reduce VOCs. Vapor recovery systems include equipment such as carbon adsorbers or condensers. A carbon adsorber collects VOCs on some absorbing material, which then must be desorbed and sent off-site for treatment or reuse. A refrigerated condenser collects VOCs by cooling the exhaust air, which is also collected for off-site treatment or reuse.

A more recently available alternative is a biofiltration system that destroys VOCs using microbes. These control devices are highly complex and require an outside consultant for design and installation. The SBEAP provides a list of consultants and a fact sheet on *Tips for Hiring an Environmental Consultant*.

Any control device must achieve an overall control efficiency at the following levels, as applicable:

- 60% of emissions from flexographic presses
- 65% of emissions from packaging rotogravure
- 70% of emissions from publication rotogravure

Controlling emissions from a flexographic press by 60% **overall** means the capture system and control device combined must **remove and destroy** 60% of the VOCs from the press(es). If emissions from the affected press(es) are not isolated (e.g., they are just released in the general building air), then you may have to enclose and capture those emissions.

3. Maintain records.

You are required to maintain certain records appropriate for the compliance options you have chosen.

a. *If You Meet One of the Emission Limits*

You are required to maintain the following records **on a daily basis** to demonstrate that you meet an emission limit:

- a unique name or identification for each coating, as applied
 - the VOC content of each coating, as applied, in the units necessary to demonstrate compliance
- b. If You Installed a Control Device More frequent record keeping is required for a control device, to show that emissions have been controlled **continuously**:
- the **operating parameter(s)** for the control device should be recorded at least once every 15 minutes
 - a log of operating time for the capture system, control device, monitoring equipment and the associated press stations
 - a maintenance log for the capture system, control device, and monitoring equipment detailing any maintenance performed and including dates and duration of any outages

An operating parameter is one or more characteristics of the control device:

- bed temperature for thermal incinerator
- inlet and outlet temperature to bed for catalytic incinerator
- time in adsorption phase for adsorber bed
- temperature of collected solvents in condenser
- pH and moisture content of a biofilter's media

These are just a few possible operating parameters. Your DNR air permit writer or compliance inspector can provide information about which parameters are appropriate for your control device.

Will I Require a Permit?

Only the smallest presses might be exempt from either construction or operation permits.

If you are not exempt from the permit requirements, you then need to review the permit options. There are currently three types of permits available to sources:

- Registration Operation Permits - for those who can limit emissions to 25% or 50% of the major source thresholds, these permits allow you to construct without a permit so long as you meet the eligibility

thresholds

- General Operation Permits - which are only available for certain industries but also allow construction without a permit if you meet the permit criteria, and
- Source-specific construction permits - which are written specific to a facility's operations.

What Will the Application Cost?

For Registration and General permits there are no application fees. However, you will pay an annual fee based on which permit you are issued:

- Registration Operation Permits: \$400
- General Construction Permits:
 - \$400 if emissions capped less than 80 TPY
 - \$4100 if at least 80 TPY but less than 100 TPY

When applying for a source-specific construction permit, enclose a check for \$7,500, payable to the Department of Natural Resources, when the application is submitted. Costs associated with the construction permit review process will vary depending on which requirements apply to the proposed project. Some costs are outlined below.

- \$3,000 minor source review;
- \$12,000 major source review;
- \$4,500 or \$12,000 for minor or major modifications (respectively);
- \$2,500 for a stack test of a single pollutant, and \$1,250 for each additional pollutant up to 3; maximum of \$6,000 (may not be required in all permits);
- \$1,000 air quality analysis for minor source;
- \$5,000 expedited review of a minor source (this speeds up the review of the application).

The application fee will be returned by DNR if the project does not need a construction permit or it will be applied to your final fee if the project does need a permit. If a permit is not required, you may then begin construction. If a permit is required, you must wait until a permit is issued by DNR to begin construction. There is always a possibility that DNR will deny your permit, if you cannot meet all the construction before receiving a permit.

What Are the Permit Review Steps?

For Registration and General Permits, the application process is very simple.

Registration Permits have a simplified process and can be applied for online by answering fewer than 15 questions. To apply, use the Online Application System through DNR's Switchboard (<http://dnr.wi.gov/topic/AirPermits/Apply.html>). A few of the questions require some calculations or collecting information, and the program will time-out if stopped in the middle. It may save time to complete the appropriate Registration Permit Guide prior to starting the online application:

- For Type A ROP <http://dnr.wi.gov/files/PDF/pubs/am/AM539.pdf>
- For Type B ROP <http://dnr.wi.gov/files/PDF/pubs/am/AM546.pdf>

Once the application is completed, print out the final summary page, sign the form and mail to DNR. This process may change once DNR can accept electronic signatures.

General Permits also have simple application forms, but they are not yet available online. For more information, go to: <http://dnr.wi.gov/topic/AirPermits/Options.html> and select the "general" tab.

Applying for a source-specific construction permit is a more extensive process. After a complete application has been submitted, DNR staff goes through the review process, which can take from 20 to 60 days or more depending on the size of the project and the current queue of applications. When the review is completed, the DNR then prepares a preliminary decision to approve or deny the application and publishes a notice in a local paper. The notice gives the public 30 days from the date the paper was published to comment on the proposed project. **This is also the facility's chance to review the permit and provide DNR with comments on elements in the permit.**

If the public shows significant interest in the proposed project or specifically requests one, the DNR will schedule a public hearing within 60 days after the end of the public comment period. Then DNR will issue or deny the construction permit within 60 days after the close of the public hearing. Note that this means a public hearing could add up to 120 days to the process.

If there is minimal interest during public comment, DNR can issue the permit immediately after the 30 days is up. Once issued, the construction permit is effective for 18 months, with a possibility for a one time 18-month extension upon request.

Additional Assistance

You may contact the DNR or Small Business Environmental Assistance Program (SBEAP) to get the permit application materials and instructions, or you can go online at: <http://dnr.wi.gov/topic/AirPermits/>. If you have questions about how to complete the forms you can contact DNR or the SBEAP to help arrange a pre-application meeting. For more information, contact SBEAP staff at 855-889-3021 or DNRSMBusiness@wisconsin.gov or visit their web page (<http://dnr.wi.gov/topic/SmallBusiness/>). Contact information for Air Management Program staff can be found at: <http://dnr.wi.gov/topic/AirQuality/Contacts.html>.

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