Air Pollution Control Permit Number: ROP-C02
Air Pollution Control Permit Number: RCP-C02

AIR POLLUTION CONTROL
TYPE C REGISTRATION OPERATION PERMIT (ROP) AND REGISTRATION CONSTRUCTION PERMIT (RCP) FOR PRINTING FACILITIES

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code, the permittee granted coverage under this permit is authorized to operate a direct stationary source in conformity with the conditions herein.

This operation permit does not expire and remains effective unless revised, suspended, or revoked. [Section NR 407.09(1)(b)3., Wis. Adm. Code].

Conditions of the permit marked with an asterisk (*) have been created outside of Wisconsin's federally approved State Implementation Plan (SIP) and are not federally enforceable.

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in this permit.

Dated at Madison, Wisconsin, *September 21, 2020*

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By */s/ Kristin Hart*
Kristin Hart
Chief, Air Permits and Stationary Source Modeling Section

Registration Operation Permit Contents, Important Terms and Other Useful Information

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Glossary of Terms Used in This Permit and Other Useful Information

Annual maximum controlled emissions - For the purposes of this permit, annual maximum controlled emissions are the maximum hourly emissions from a printing press drier ducted to a control device calculated using the control efficiencies allowed under this permit plus any uncontrolled emissions multiplied by 8,760 hours per year for all emissions sources at the facility. Emission units listed in Attachment 3 are not included in the calculation of annual maximum controlled emissions. If an emission unit's physical design makes it impossible to operate 8,760 hours per year, the annual maximum controlled emissions may be calculated taking time restrictions into account.

Capture efficiency means the weight per unit time of an air contaminant entering a capture system and delivered to a control device divided by the weight per unit time of the air contaminant generated by the source, expressed as a percentage.

Control efficiency means the percentage by which a control device or technique reduces the emissions from a stationary source.

Digital printing (direct-to-media printing) is the transfer of electronic files directly from a computer to an electronically driven output device that prints the image directly on the selected substrate. Printing using home and office equipment is excluded from this definition.

Facility-wide emissions are the total emissions generated by all emission sources at the facility, except emission units listed in Attachment 3 of this permit, taking into account any capture efficiency, or reductions made by a control device or technique. When considering reductions made by a control device, only the control devices and control device efficiencies listed in Section G of this permit shall be used.

Flexographic printing means the application of words, designs, or pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other elastomeric materials.

Fugitive emission means an emission from any emission point within a facility other than a flue or stack.

Hazardous air pollutants or contaminants are those regulated by s. 112(b) of the Clean Air Act and ch. NR 445, Wis. Adm. Code, respectively.

Letterpress printing means a web or sheetfed printing line that does not constitute a flexographic printing line, in which the image area is raised relative to the non-image area and the ink is transferred to the substrate directly from the image surface.

Lithographic printing means a planographic printing process where the image and nonimage areas are chemically differentiated; the image area is oil receptive and the nonimage area is typically water receptive.

Heatset web offset press means a lithographic web printing press process where solvents from the printing inks are evaporated by heat from a dryer.

Non-heatset means a lithographic printing process where the printing inks are set without the application of heat. Ultraviolet-cured and electron beam-cured inks and coatings and infra-red heating units are considered non-heatset.

Organic compound is defined in s. NR 400.02(114), Wis. Adm. Code, as any compound comprised of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate.

Overall control efficiency means the fraction of an air contaminant that is captured and controlled by the air pollution control system.

Photochemically Reactive Organic Compounds are defined in s. NR 419.02(14), Wis. Adm. Code, as any of the following: Group A: Hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones, which have olefinic or cyclo-olefinic type unsaturation. Group B: Aromatic compounds with 8 or more carbon atoms to the molecule, except ethylbenzene. Group C: Ethylbenzene, toluene or ketones having branched hydrocarbon structures. Group D: A solvent or mixture of organic compounds in which any of the following conditions are met: (1) More than 20% of the total volume is composed of any combination of compounds listed in group A, B, or C above; (2) More than 5% of the total volume is composed of any combination of the compounds listed in group A above; or (3) More than 8% of the total volume is composed of any combination of the compounds listed in group B above.

Printing facility means a facility that identifies a primary Standard Industrial Classification (SIC) code of 23, 26 or 27 or a primary North American Industry Classification System (NAICS) code of 3231xx or 5111xx for the operations at their business. Printing should not be an ancillary operation at the business.

Process line means one or more actions or unit operations which must function simultaneously or in sequence to manufacture or modify a product. For example, a press or coating line and its associated on-machine and off-machine cleaning operations is considered to be a process line.

Restricted alcohol means an alcohol which contains only one hydroxyl (-OH) group and less than 5 carbon atoms.

Rotogravure printing means the application of words, designs, or pictures to a substrate by means of a roll printing technique which involves an intaglio or recessed image areas in the form of cells.

Screen printing means a process in which ink or coating is passed through a taut screen mesh or fabric, to which a refined form of stencil has been applied, onto a substrate. The stencil openings determine the form and dimensions of the imprint made on the substrate.

Screen printing unit means a printing application station and its associated flashoff area, ovens or dryers, conveyors or other equipment operating as part of the screen printing process. Industrial cleaning operations, including screen reclamation, are considered to be part of the screen-printing process.

Screen reclamation means the removal of the stencil or of residual ink or coating from the screen mesh or fabric with solvent-based materials after excess ink or coating has first been removed manually from the screen or fabric.

Sheet-fed means a printing process where individual sheets of substrate are fed to the press sequentially.

Southeastern Wisconsin AQCR means Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha counties.

Subregion 1 of the Lake Michigan Intrastate AQCR means Winnebago, Outagamie, and Brown counties.

Total heat input capacity is the sum of maximum heat input capacity (in MMBTU/hr) of all fuel burning units at the facility.

Volatile Organic Compounds or VOC is defined in s. NR 400.02(162), Wis. Adm. Code, and means any organic compound which participates in atmospheric photochemical reactions. This includes any such organic compound other than those listed in s. NR 400.02(162)(a), Wis. Adm. Code.

Web-fed printing means a printing process where a continuous roll of substrate is fed to the press.

"**You**", "**your**", "**person**" and "**owner or operator**" throughout this permit means the owner or operator of the facility to which this permit was issued where the term is used.

Abbreviations

AEI – Air Emission Inventory
AQCR – Air Quality Control Region
BACT – Best Available Control Technology
bw – by weight
CO – Carbon Monoxide
department/DNR – Department of Natural Resources
GACT – Generally Available Control Technology
HAP – Hazardous Air Pollutant or Contaminant
HR - Hour
LACT – Latest Available Control Technique and Operating Practices Demonstrating Best Current Technology
LAER – Lowest Achievable Emission Rate
LB - Pounds
MACT – Maximum Achievable Control Technology
MMBTU – million British thermal units
NESHAP - National Emission Standard for Hazardous Air Pollutants
NOx – Nitrogen Oxides
NSPS – New Source Performance Standard
Pb - Lead
PHAP – Hazardous Air Pollutant emitted as a particle
PM – Particulate Matter less than 100 micrometers in diameter
PM_{10} – Particulate Matter less than 10 micrometers in diameter
$PM_{2.5}$ – Particulate Matter less than 2.5 micrometers in diameter
ROP – Registration Operation Permit
RCP – Registration Construction Permit
SDS –Safety Data Sheet
SO_2 – Sulfur Dioxide
TPY – Tons per year
VHAP – Hazardous Air Pollutant emitted as a vapor
VOC – Volatile Organic Compounds
Wis. Adm. Code – Wisconsin Administrative Code
Wis. Stats. – Wisconsin Statutes
YR - Year

A. EMISSION LIMITATIONS

1. Facility-Wide Emissions Limits:

a. Annual emissions of PM_{10}, $PM_{2.5}$, VOC, NO_x, SO_2, and CO from the facility may not exceed 25% of any major source threshold defined in s. NR 407.02(4), Wis. Adm. Code, on a calendar year basis.

b. Annual emissions of Pb from the facility may not exceed 0.5 tons per year on a calendar year basis.

c. Annual emissions of federally regulated HAP listed in s. 112(b), Clean Air Act, except Pb, from the facility may not exceed 50% of any major source threshold defined in s. NR 407.02(4), Wis. Adm. Code, on a calendar year basis.

See the note and Table 1 for the annual facility-wide emissions limits in tons per year calculated based on 25% or 50% of the major source thresholds, as applicable. [s. 285.65(7) and (14), Wis. Stats., and s. NR 407.105(2)(a)1., Wis. Adm. Code]

Note: Major source thresholds vary according to the attainment status of the area in which the facility is located.[1] Table 1 is for informational purposes only; the ton per year values may change if there is a change in the major source threshold.

2. Other Applicable Requirements:

The owner or operator shall comply with all applicable air pollution control requirements in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code, all applicable NSPS under 40 CFR Part 60 and NESHAP under 40 CFR Part 63, and all other applicable federal air pollution control requirements in the Clean Air Act (42 USC 7401 to 7671q) and 40 CFR parts 50 to 97. [s. 285.65(3) and (13), Wis. Stats. and 40 CFR 50 to 97]

3. Equipment Restrictions:

a. Combustion units used at a facility covered by this permit may burn only natural gas, propane, or distillate fuel oil containing 0.0015% sulfur by weight or less.

b. A facility covered by this permit may emit particulate matter only from emission units listed in Attachment 3, heatset web offset presses, and combustion units.

[s. 285.65(7), Wis. Stats.]

4. Visible Emissions:

No owner or operator may cause or allow visible emissions from emissions units as follows, with the exceptions in s. NR 431.05, Wis. Adm. Code:

a. If unit was constructed or last modified on or before April 1, 1972, no greater than 40% opacity,

b. If unit was constructed or last modified on or before April 1, 1972, and the facility is located in subregion 1 of the Lake Michigan Intrastate AQCR or in the Southeastern Wisconsin AQCR, no greater than 20% opacity

OR

c. If unit was constructed or last modified after April 1, 1972, no greater than 20% opacity.

[s. NR 431.04 and 431.05, Wis. Adm. Code]

[1] Contact the Registration Permits Program Coordinator with questions on the current attainment status of the area where the facility is located.

A. EMISSION LIMITATIONS	
Table 1. Facility-Wide Emission Limits[2]	
Pollutant	**Calendar Year Emission Limits**
PM_{10} and $PM_{2.5}$	• 25 ton/year for PM_{10} and $PM_{2.5}$ attainment & moderate nonattainment areas • 17.5 ton/year for serious PM_{10} nonattainment areas
VOC	• 25 ton/year for ozone attainment and basic, rural transport, marginal or moderate ozone nonattainment areas • 12.5 ton/year for serious ozone nonattainment or areas within ozone transport regions except for any severe or extreme nonattainment area for ozone • 6.25 ton/year for severe ozone nonattainment areas • 2.5 tons/year for extreme ozone nonattainment areas
NO_x	• 25 ton/year for ozone attainment and basic, rural transport, marginal or moderate ozone nonattainment areas • 12.5 ton/year for serious ozone nonattainment or areas within ozone transport regions except for any severe or extreme nonattainment area for ozone • 6.25 ton/year for severe ozone nonattainment areas • 2.5 tons/year for extreme ozone nonattainment areas
SO_2	• 25 ton/year
CO	• 25 ton/year for attainment and moderate carbon monoxide nonattainment areas • 12.5 tons/year for serious nonattainment areas, where the department determines a stationary source contributes significantly to CO levels in the area
Pb	• 0.5 tons/year
Section 112(b) HAPs	• 5.0 ton/year for any *single* HAP • 12.5 ton/year for a *combination* of all HAPs

[2] Contact the Registration Permits Program Coordinator with questions on the current attainment status of the area where the facility is located.

A. EMISSION LIMITATIONS

5. General VOC Limitations:

No person may cause, allow, or permit organic compounds to be used or handled without using good operating practices and taking reasonable precautions to prevent the spillage, escape or emission of organic compounds, solvents, or mixtures. Such precautions for printing facilities shall include, but are not limited to:

a. Keep shop towels soiled with inks and clean-up solutions in closed containers when not in use.
b. Cover fountain solution mixing and storage tanks except when adding or draining solution.
c. All VOC-containing materials and waste must be in closed containers except when dispensing or filling.

[s. NR 419.03(2), Wis. Adm. Code, s. 285.65(3), Wis. Stats.]

6. Reasonable Available Control Technology Standards:

Printing facilities subject to the emission limitations in ss. NR 422.14 to 422.145, Wis. Adm. Code, shall meet all applicable requirements of these sections.[3] For informational purposes, Table 2 lists RACT emission limits. For details about applicable requirements refer to ss. NR 422.14 to 422.145.

[ss. NR 422.14(1), NR 422.141(1), NR 422.142(1), NR 422.143(1), NR 422.144(1), NR 422.142(1), Wis. Adm. Code]

7. Organic Compound Limitations for Process Lines:

For any process line that is not subject to the emission limitations listed in A.6. above, and that emits more than 15 pounds per day of organic compounds, the owner or operator shall meet the requirements of s. NR 424.03(2) or (3), Wis. Adm. Code, by meeting a., b. or c. below. Follow the conditions for each process line in a., b., or c., as the permittee specified in the application for this permit[4], and obtain department written approval prior to switching options, in the event of a change at the facility.

a. Apply latest available control techniques and operating practices demonstrating best current technology (LACT) for the process line. The LACT shall be followed at all times the process line is operating.

i. For each process line on which construction or modification last commenced prior to August 1, 1979, and electing to meet LACT, the owner or operator shall limit emissions of photochemically reactive organic compounds to less than 10 tons per calendar year[5].

ii. For each process line on which construction or modification commenced on or after August 1, 1979, and electing to meet LACT, the owner or operator shall limit emissions of VOCs to less than 10 tons per calendar year.

[ss. NR 407.105(1)(c), and NR 424.03(2)(c), Wis. Adm. Code]

OR

b. If a printing process line meets the specific applicability[6] requirements in any section from ss. NR 422.14 to 422.145, Wis. Adm. Code, but is not subject to that section based on an applicable exemption in Ch. NR 422, Wis. Adm. Code, the owner or operator may elect to meet the emission limitations in ss. NR 422.14 to 422.145, Wis. Adm. Code for the process line. For informational

[3] Contact the Registration Permits Program Coordinator with questions on RACT applicability and requirements.
[4] By approving coverage of a printing facility under this permit, the department has approved the facility's election of which organic compound limit shall be met by each process line.
[5] The department determined that applying 85% control is infeasible when VOC emissions from each process line are capped at 10 tons per year. This emission cap applies to each individual process lines and does not excuse the facility from having to meet the facility-wide VOC limits in condition A.1.
[6] Geographic location and emission rates are not considered in determining if a process line meets the specific applicability requirements. The intention is to allow facilities that are in the same industrial group as those for which the section in NR 422 was written, to elect to follow the conditions in that section.

A. EMISSION LIMITATIONS

purposes, Table 2 lists RACT emission limits. For details about applicable requirements refer to ss. NR 422.14 to 422.145.
[ss. NR 407.105(1)(c) and NR 424.03(2) and (3), Wis. Adm. Code]

OR, If the owner or operator cannot meet one of the above, the following requirement shall be met:

c. Apply 85% control as applicable in i. or ii. below:

i. For a process line constructed or last modified before August 1, 1979, control photochemically reactive organic compound emissions from the process line by at least 85%.

ii. For a process line constructed or last modified on or after August 1, 1979, control volatile organic compound emissions from the process line by at least 85%.

[s. NR 424.03(2), Wis. Adm. Code]

Table 2. List of RACT emission limits. RACT requirements are specific to each type of printing press as follows: [ss. NR 422.14(2)-(4), 422.141(2), 422.142(2), 422.143(3), 422.144(4), and 422.145(2) and (2m), Wis. Adm. Code] [7]

Material	Non-heatset Offset Lithographic Printing	Heatset Web Offset Lithographic Printing
Printing Ink	Not applicable	**Control devices requirements:** **(1) For the presses subject to NR 422.142:** ≥ 90% destruction of VOCs, minus methane and ethane, or outlet concentration of ≤ 20 ppmv as carbon. [s. NR 422.142(2)(a)1., Wis. Adm. Code] **(2) For the presses subject to NR 422.143:** **(a)** ≥ 90% destruction of VOCs as carbon, minus methane and ethane, or outlet concentration of ≤ 20 ppmv as carbon, minus methane and ethane, for existing control devices installed prior to May 1, 2010. **(b)** ≥ 95% destruction of VOCs as carbon, minus methane and ethane, or outlet concentration of ≤ 20 ppmv as carbon, minus methane and ethane, for new control devices installed on and after May 1, 2010. [s. NR 422.143(3)(a)1., Wis. Adm. Code]
Fountain Solution	**Web-fed Presses:** **(1) For the presses subject to NR 422.142:** ≤ 5% VOC by weight (bw) and no restricted alcohol ≤ 13.5% VOC bw if printing on metal or plastic and refrigerated [s. NR 422.142(2)(b)2. & 4., Wis. Adm. Code] **(2) For the presses subject to NR 422.143: [7]** ≤ 5% VOC bw and no restricted alcohol [s. NR 422.143(3)(b)2., Wis. Adm. Code] **Sheet-fed Presses:** **(1) For the presses subject to NR 422.142:** ≤ 5% VOC bw ≤ 8.5% VOC bw if refrigerated ≤ 13.5% VOC bw if printing on metal or plastic, contains restricted alcohol and refrigerated [s. NR 422.142(2)(b)3. & 4., Wis. Adm. Code] **(2) For the presses subject to NR 422.143:** ≤ 5% VOC bw if not refrigerated ≤ 8.5% VOC bw if refrigerated [s. NR 422.143(3)(b)3., Wis. Adm. Code]	**(1) For the presses subject to NR 422.142:** ≤ 1.6% VOC bw if not refrigerated and contains restricted alcohol ≤ 3% VOC bw if refrigerated and contains restricted alcohol ≤ 5% VOC bw if no restricted alcohol ≤ 13.5% VOC bw if printing on metal or plastic, contains restricted alcohol and refrigerated [s. NR 422.142(2)(b)1. & 4., Wis. Adm. Code] **(2) For the presses subject to NR 422.143:** ≤ 1.6% VOC bw if not refrigerated and contains restricted alcohol ≤ 3% VOC bw if refrigerated and contains restricted alcohol ≤ 5% VOC bw and no restricted alcohol [s. NR 422.143(3)(b)1.a., Wis. Adm. Code]

[7] Contact the Registration Permits Program Coordinator with questions on RACT applicability and requirements.

A. EMISSION LIMITATIONS		
Press Cleaning Solution	≤ % 70 VOC bw, **OR** ≤ 10 mm Hg composite partial vapor pressure at 68 °F [s. NR 422.142(2)(c)1., Wis. Adm. Code]	≤ 70% VOC bw **OR** ≤ 10 mmHg composite partial vapor pressure at 68°F [s. NR 422.142(2)(c)1., Wis. Adm. Code]
Material	**Rotogravure, Flexographic Printing**	**Screen Printing**
Printing Ink	**Rotogravure and Flexographic presses subject to NR 422.14:** **(1)** Volatiles in ink ≤ 25% VOC by volume and ≥75% or more of water by volume; **OR** **(2)** ink, minus water, ≥ 60% nonvolatile material by volume; **OR** **(3)** ≥ 90% reduction of VOCs via: **(a)** vapor recovery system that reduces VOCs from capture system by ≥ 90% by weight, **(b)** incineration or catalytic oxidation system that oxidizes ≥ 90% by weight of VOCs, as combustible carbon, that enter the oxidation unit, **(c)** an alternate system with demonstrated reduction efficiency ≥ 90% by weight (only Biofilters are currently approved by the department and EPA); **AND** **(4)** overall control VOCs by weight, ≥ 75% for publication rotogravure, ≥ 65% for packaging rotogravure, or ≥ 60% for flexographic. [s. NR 422.14(2) & (3), Wis. Adm. Code]	**Presses subject to NR 422.145(2):** ≤ 400 g VOC/l (3.3 lb VOC/gal) **Special purpose inks and coatings AND Roll coating:** ≤ 800 g VOC/l (6.7 lb VOC/gal) [s. NR 422.145(2), Wis. Adm. Code]
Industrial Cleaning Operations	≤ 0.05 kg VOC/L (0.42 lb VOC/gal) for product cleaning or surface preparation during manufacturing process ≤ 0.05 kg VOC/L (0.42 lb VOC/gal) for repair cleaning or maintenance cleaning **Cleaning of ink application equipment:** ≤ 0.05 kg VOC/L (0.42 lb VOC/gal) Flexographic except flexible packaging and except ultraviolet ≤ 0.05 kg VOC/L (0.42 lb VOC/gal) for non−flexible packaging rotogravure except ultraviolet ≤ 0.10 kg VOC/L (0.83 lb VOC/gal) for publication rotogravure except ultraviolet < 0.65 kg VOC/L (5.4 lb VOC/gal) for ultraviolet [s. NR 422.14(4)(a), Wis. Adm. Code]	≤ 0.05 kg VOC/L (0.42 lb VOC/gal) for product cleaning or surface preparation during manufacturing process ≤ 0.50 kg VOC/L (4.2 lb VOC/gal) for repair cleaning or maintenance cleaning ≤ 0.50 kg VOC/L (4.2 lb VOC/gal) for cleaning of ink application equipment [s. NR 422.14(4)(a), Wis. Adm. Code]
Material	**Flexible package printing**	
	Subject to NR 422.141: **(1)** VOC control devices with the following minimum overall control efficiency: **(a)** 65% by weight of VOCs as carbon, for a press that was first installed prior to March 14, 1995 and the control device that was installed prior to August 1, 2009. **(b)** 70% by weight of VOCs as carbon, for a press that was first installed prior to March 14, 1995 and the control device that was installed on or after August 1, 2009. **(c)** 75% by weight of VOCs as carbon, for a press that was first installed on or after March 14, 1995 and the control device that was installed prior to August 1, 2009. **(d)** 80% by weight of VOCs as carbon, for a press that was first installed on or after March 14, 1995 and the control device that was installed on or after August 1, 2009. **OR** **(2)** inks, coatings, and adhesives, as applied ≤ 0.8 kg VOC/kg solids (0.8 lb VOC/lb solids), or ≤ 0.16 kg VOC/kg material (0.16 lb VOC/lb material) [s. NR 422.141(2), Wis. Adm. Code]	

A. EMISSION LIMITATIONS

Material	Non-heatset Web Letter Printing	Heatset Web Letter Printing
Printing Ink	Not applicable	**(1)** ≥ 90% destruction bw of carbon, minus methane and ethane, or outlet concentration of ≤ 120 ppmv as carbon, minus methane and ethane, for existing control devices installed prior to February 1, 2012. **(2)** ≥ 95% destruction bw of carbon, minus methane and ethane, or outlet concentration of ≤ 120 ppmv as carbon, minus methane and ethane, for new control devices installed on and after February 1, 2012. [s. NR 422.144(4)(a)1., Wis. Adm. Code]
Blanket or roller wash	≤ 70% VOC by weight (bw), or ≤ 10 mmHg composite vapor pressure at 68°F. [s. NR 422.14(4)(b), Wis. Adm. Code]	≤ 70% VOC bw, **OR** ≤ 10 mmHg composite vapor pressure at 68°F. [s. NR 422.14(4)(b), Wis. Adm. Code]

B. STACK AND MODELING REQUIREMENTS

1. Facilities that operate heatset web offset printing presses, letterpress printing presses, or distillate fuel oil fired combustion units shall demonstrate they do not and will not cause or exacerbate a violation of an air quality standard by meeting B.1.a. OR B.1.b. below. These requirements do not apply to stacks exhausting any air emission units listed in Attachment 3 or general building ventilation:

a. Facilities not required to conduct air quality analysis:

The owner or operator of a facility that meets both the prescribed stack configuration requirements in B.1.a.i., and Pb emission threshold in B.1.a.ii., AND meets **one** of the emissions source configurations in B.1.a.iii., is **NOT** required to conduct air dispersion modeling analysis:

i. Prescribed Stack Configuration:

(1) All stacks exhaust emissions from unobstructed discharge points that are within 10 degrees of vertical. [s. NR 407.105(2)(a)2, Wis. Adm. Code]

AND

(2) All stacks are taller than any building that influences the dispersion of emissions from the stack. A building is considered to influence the dispersion of emissions from a stack it is located within a circle around the building, the radius of which is 5 times the height of the building. [s. NR 407.105(2)(a)3, Wis. Adm. Code]

ii. Letterpress printing:

(1) Annual maximum controlled emission of Pb from all letterpress at the facility are less than 0.2 tons/year.

iii. Emissions source configuration:

(1) The facility does not contain any heatset web offset presses.

(2) All heatset web offset presses used at this facility emit less than 0.5 lb PM_{10}/hr from each stack.

(3) Annual maximum controlled emissions of PM_{10} from all heatset web offset presses and combustion units combined at the facility are less than 5 tons/year, excluding emissions from the heatset web offset presses that emit less than 0.5 lb PM_{10}/hr.

OR

B. STACK AND MODELING REQUIREMENTS

b. Facilities required to submit air quality analysis:

i. In lieu of meeting the requirements of B.1.a., the owner or operator must provide air quality analysis such as air dispersion modeling analysis for the following air contaminants emitted from stacks venting heatset web offset and letterpress printing presses and stacks venting combustion units that use distillate fuel oil:

(1) PM_{10}, if the annual maximum controlled emissions of PM_{10} from all heatset web offset presses and combustion units combined at the facility are higher than 5 tons/year, excluding emissions from the heatset web offset presses that emit less than 0.5 lb PM_{10}/hr.

(2) Pb, if the annual maximum controlled emissions of Pb from all letterpress at the facility are higher or equal to 0.2 tons/year.

[s. NR 407.105(2)(a)4, Wis. Adm. Code]

The following modeling requirements only apply when making changes at the facility after the permit coverage was granted.

2. Changes at the facility, after the date of coverage under the Registration Permit:

If the owner or operator adds or makes changes to any existing stacks venting emissions from heatset web offset printing presses, letterpress printing presses, or distillate fuel oil fired combustion units which would result in an increase in the ambient impact of the stack's emissions, or adds or changes a heatset web offset press or distillate fuel oil fired combustion unit so as to increase the air emission rates, then the requirements in B.1. shall be met prior making those changes. [8]

[ss. 285.65(3), Stats., and NR 407.105(3)(c), Wis. Adm. Code]

C. PROHIBITIONS

Changes that result in any of the following will make the facility ineligible to remain covered under this Registration Permit. An application for a different type of air permit must be submitted and issued prior to performing any of the following activities.

1. The owner or operator may not add or change emission units or operations so that the emissions of hazardous air contaminants with a control requirement listed in column (i) of Table A under s NR 445.07, Wis. Adm. Code, would require a case-by-case BACT or LAER determination for hazardous air pollutants. [s. NR 407.105(4)(b), Wis. Adm. Code]

2. The owner or operator may not add or change emission units, operations, or stacks so that they cause or exacerbate a violation of an ambient air quality standard. [s. NR 407.105(3)(a), Wis. Adm. Code]

3. The owner or operator may not add or change equipment or raw materials or operations such that the calendar actual emission rates would exceed an emission limit in A.1. [s. NR 406.17(1)(c), Wis. Adm. Code]

4. The owner or operator may not make a change that results in the facility being classified as a major source under chs. NR 405 or NR 408, Wis. Adm. Code or that requires the source to obtain a Part 70 (Title V) permit. [s. NR 407.105(2)(b), Wis. Adm. Code and s. 285.65(7), Wis. Stats.]

[8] Contact the Registration Permits Program Coordinator with questions about modeling requirements.

C. PROHIBITIONS

5. The owner or operator may not make a change to the primary activity that would result in the facility not been classified as a printing facility or result in printing becoming an ancillary operation. [s. NR 407.105(4)(b), Wis. Adm. Code]

D. COMPLIANCE DEMONSTRATION REQUIREMENTS

All Facilities need to meet the compliance demonstration requirement in D.1. and D.2. below.

1. Annual Facility-wide Emission Calculations:

By **March 1st** of each year, for the previous calendar year, the owner or operator shall do one of the following to determine if they meet the emissions limits in A.1. [s. NR 407.105(1)(c), Wis. Adm. Code]

a. Maintain records demonstrating that material and/or fuel usage, or total heat input capacity is below the respective thresholds in Attachment 1 without a control device.

OR

b. Calculate annual facility-wide emissions of PM_{10}, VOCs, SO_2, NO_X, CO, Pb, each federally regulated HAP, and all federally regulated HAPs combined as follows:

- **i.** All emissions from the facility shall be included in the calculation except emissions from units listed in Attachment 3;
- **ii.** Emissions shall be calculated using department approved methods.[9]
- **iii.** If the facility uses a control device to reduce emissions, the overall control efficiencies for those pollutants that are listed in Section G of this permit or the efficiency specifically required in an applicable requirement, whichever is higher, shall be used to calculate annual facility-wide emissions.
- **iv.** *Alternate Control Efficiency*: An overall control efficiency higher than that listed in Section G of this permit or required by an applicable requirement may be used in the emission calculations for thermal and catalytic oxidizers when the facility has demonstrated a higher overall control efficiency through a department approved stack test performed within the last 5 years or as required in s. NR 439.075, Wis. Adm. Code.
- **v.** Annual facility-wide emissions shall be calculated using the actual operating schedule, actual amounts of raw materials used or products produced, or actual amounts of fuels burned during the calendar year.

2. Other Applicable Requirements:

The owner or operator shall ensure that appropriate methods for demonstrating compliance are in place and followed for all other requirements applicable to this facility in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code, all applicable NSPS under 40 CFR Part 60 and NESHAPs under 40 CR Part 63, and all other applicable federal air pollution requirements in the Clean Air Act (42 USC 7401 to 7671q) and 40 CFR parts 50 to 97. [s. NR 407.105(1)(c), Wis. Adm. Code, 40 CFR 50 to 97]

[9] Emission Determination for the Printing Industry can be found at https://dnr.wi.gov/files/PDF/pubs/am/am525.pdf.

D. COMPLIANCE DEMONSTRATION REQUIREMENTS

Facilities that need to use a control device to meet any applicable limit shall meet the following compliance demonstration requirements:

3. If the owner or operator must use a control device to meet the facility-wide annual emissions limit in A.1., or any other applicable emission limitation in ch. 285, Wis. Stats., chs. NR 400 to NR 499, Wis. Adm. Code, NSPS under 40 CFR Part 60, NESHAPs under 40 CR Part 63, and any other applicable federal air pollution requirement in the Clean Air Act (42 USC 7401 to 7671q and 40 CFR parts 50 to 97), then the following requirements shall be met:

- **a.** The control device shall be listed in Section G of this permit or otherwise specifically required by an applicable air pollution requirement.
- **b.** The control device shall meet, at a minimum, the overall control efficiency listed in Section G for the device or the efficiency specifically required in the applicable requirement, whichever is higher. If a facility is using a higher overall control efficiency to calculate annual emissions in Condition D.1., then the control device shall meet that efficiency at all times.
- **c.** The control device shall be used at all times the emission unit is operating except if an exception is allowed by the applicable requirement. [s. NR 407.105(1)(c), Wis. Adm. Code]
- **d.** A facility opting to use an *Alternate Control Efficiency*, as allowed under D.1.b.iv., to demonstrate compliance with the annual facility-wide emission limits in A.1 of this permit must verify that they can meet that overall control efficiency by performing a stack test within 5 years of the date of the previous department approved stack test. [s. NR 439.075(1)(b) and (c), Wis. Adm. Code]

Facilities that are meeting the limit in A.7.a. shall meet the following compliance demonstration requirement.

4. By **March 1st** of each year, the owner or operator shall calculate the amount of photochemically reactive organic compounds or VOCs, as appropriate, emitted by each process line subject to LACT in A.7.a, for the previous calendar year. Emissions may not exceed 10 tons per process line. Alternatively, material usage at each process line may not exceed the thresholds in Attachment 2 of this permit. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code]

5. Malfunction Prevention and Abatement Plans:

The owner or operator of a facility shall, for each emission unit that emits hazardous substances or emits more than 15 pounds in any day or 3 pounds in any hour of an air contaminant for which emissions limits have been adopted, prepare a malfunction prevention and abatement plan to prevent, detect, and correct malfunctions or equipment failures which may cause any applicable emission limitation to be violated or which may cause air pollution. The plan shall be in writing and updated at least every **5 years** and shall include:

- **a.** Identification of the individual responsible for inspecting, maintaining, and repairing the air pollution control equipment;
- **b.** The maximum intervals for inspection and routine maintenance of the air pollution control equipment. The maximum interval for routine inspection and maintenance may not exceed that recommended by the manufacturer unless otherwise specified in a plan prepared under this section;
- **c.** A description of the items or conditions that will be checked;
- **d.** A listing of materials and spare parts that will be maintained in inventory;
- **e.** A description of the corrective procedures that will be taken in the event of a malfunction or failure which results in the exceedance of the applicable emission limitation. These corrective procedures shall achieve and maintain compliance with the applicable emission limitations as

D. COMPLIANCE DEMONSTRATION REQUIREMENTS

expeditiously as possible but not longer than the time necessary to discontinue operation of the source consistent with safe operating procedures;

f. A description of the activities and maximum intervals for routine maintenance and inspection of instrumentation installed and operated to monitor the operations of air pollution control equipment as required under s. NR 439.055(1), Wis. Adm. Code. The maximum interval for inspection and routine maintenance may not exceed that recommended by the manufacturer of the instrumentation unless otherwise specified in a plan prepared under this section;

g. The calibration schedule for any device which monitors either a source or air pollution control equipment operational variables. The time between calibrations may not exceed one year or as specified in a plan prepared under this section, whichever is shorter; and

h. Such other information as the department may deem pertinent.

[s. NR 439.11, Wis. Adm. Code]

6. Control of Malodorous Emissions:

The owner or operator of a facility shall not cause, allow, or permit emission into the ambient air of any substance or combination of substances in such quantities that an objectionable odor is determined to result unless preventive measures satisfactory to the department are taken to abate or control such emission. The abatement or control requirements may include but are not limited to:

a. Use of catalytic incinerators, after burners, scrubbers, adsorbers, absorbers or other methods approved by the department;

b. Removal and disposal of odorous materials;

c. Use of methods in handling and storage of odorous materials that minimize emissions;

d. Follow prescribed standards in the maintenance of premises to reduce odorous emissions; and

e. Use of best available control technology to reduce odorous emissions. [s. NR 429.03, Wis. Adm. Code]

E. RECORDKEEPING AND MONITORING REQUIREMENTS

All facilities must keep the following records.

1. Records to Calculate Annual Emissions:

The owner or operator shall maintain records sufficient to calculate annual facility-wide emissions for the previous calendar year as required in Condition D.1.

[ss. NR 407.105(1)(c) and 439.04(1)(d), Wis. Adm. Code]

2. Recordkeeping and Monitoring Requirements for all Other Applicable Requirements:

The owner or operator shall conduct monitoring and maintain records sufficient to demonstrate compliance with all other applicable requirements in ch. 285, Wis. Stats., and chs. NR 400 to NR 499, Wis. Adm. Code, all applicable NSPS under 40 CFR Part 60 and NESHAPs under 40 CR Part 63, and all applicable federal air pollution requirements in the Clean Air Act (42 USC 7401 to 7671q) and 40 CFR parts 50 to 97.

[ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code, 40 CFR 50 to 97]

E. RECORDKEEPING AND MONITORING REQUIREMENTS

Facilities with heatset web offset presses and fuel combustion units firing distillate fuel oil must keep the following records:

3. Records to Calculate PM_{10} Emissions:

The owner or operator shall maintain records used to calculate the amount of PM_{10} from each heatset web offset press stack and the annual maximum controlled emissions of PM_{10} from the facility, except for air emissions units identified in Attachment 3. [s. NR 439.04(1)(d), Wis. Adm. Code]

The records required in E.1 and E.2. may be kept in a variety of ways. The following requirements apply based on the type of records that are kept.

4. Records for Emissions from Fuel Combustion:

a. If the total heat input capacity of all fuel combustion units at the facility is equal to or less than the capacity listed in Attachment 1, then the owner or operator may demonstrate compliance with facility wide emission caps for SO_2, NOx and CO by maintaining a list of all fuel burning units with their maximum heat input capacity, in MMBTU/hr, and the types of fuels burned each year, **OR**

b. If the total heat input capacity of all fuel combustion units at the facility is greater than the capacity listed in Attachment 1, then the owner or operator shall record the amount and type of fuel purchased or used at the facility for the previous calendar year. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code]

5. Organic compound and s. 112(b) Clean Air Act HAP Records: If materials containing regulated organic compounds or HAPs regulated under s. 112 (b) of the Clean Air Act are used at the facility, the owner or operator shall:

a. If meeting the material usage thresholds indicated in Attachment 1 and/or 2, record the amount of all material used (inks, coatings, solvents, etc.) in pounds or gallons as appropriate, with separate totals for:

i. The amount (lb or gal) of materials containing any VOCs, for each process line meeting limit A.4.a and for the total facility,

ii. The amount (lb or gal) of materials containing the same individual 112(b) HAP, and

iii. The combined amount (lb or gal) of all materials containing any 112(b) HAPs; **OR**

b. If calculating emissions, record the amounts of each material used and the specific VOC or s. 112(b) HAP content in each material as necessary to perform the emission calculations. Alternatively, use the amounts of each material used along with the highest VOC and HAP content of the materials used to represent each class of material (inks, solvents, adhesives, coatings, etc.) used by the facility. [s. NR 407.105(1)(c), Wis. Adm. Code]

6. For each material containing organic compounds and s. 112(b) HAPs used at the facility, maintain a safety data sheet (SDS), or other equivalent document, listing the amount of each VOC and s. 112(b) HAP in the material. [s. NR 407.105(1)(c), Wis. Adm. Code]

E. RECORDKEEPING AND MONITORING REQUIREMENTS

Monitoring and Recordkeeping requirements associated with stacks and modeling requirements. Only facilities with heatset web offset or letterpress presses or fuel combustion units need to keep these records.

7. Records of Stack Parameters:

The owner or operator of a facility subject to the requirements of B.1. or B.2. shall keep and maintain on-site technical drawings, blueprints or equivalent records that describe or illustrate the physical stack parameters of each stack. [s. 285.65(3), Wis. Stats.]

8. Modeling Records:

If the owner or operator performed an air dispersion modeling analysis to demonstrate eligibility for this permit, or to demonstrate that changes protect ambient air quality standards as required under B.1. or B.2., of this permit, the owner or operator shall maintain on site records of the modeling input files used in the modeling analyses and the output files sufficient to show the results of all required air dispersion modeling analyses. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code]

Other Monitoring and Recordkeeping requirements that may apply to the facility.

9. Records Retention:

The owner or operator shall keep on site all records required by this permit for at least **5 years**, unless a longer time period is required under any other condition of this permit or by statute or rule. [ss. NR 407.105(1)(c), NR 439.04(1)(d), and NR 439.04(2), Wis. Adm. Code]

The monitoring and recordkeeping requirements below apply to facilities that must use a control device in order to meet any limit in this permit.

10. Air Pollution Control Device Monitoring and Maintenance:

If an emission unit at the facility is equipped with an air pollution control device, the owner or operator shall:

- **a.** Monitor the operation of the control device to ensure that it is operating properly. The parameters to be monitored and the frequency of monitoring are contained in E.13. of this permit.
- **b.** Perform maintenance on the control device as recommended by the control device manufacturer, or where manufacturer's recommendations are not available, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [ss. 285.65(3), Wis. Stats and NR 407.105(1)(c) and NR 439.055, Wis. Adm. Code]

11. Air Pollution Control Device Operational Parameter Ranges:

The owner or operator shall maintain a list of the proper control device parameter ranges for each control device at the facility. These ranges shall be based on the control device manufacturer's recommendations or where manufacturer's recommendations are not available, determined in a manner consistent with safety and good air pollution control practices for minimizing emissions. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code]

12. Calibration of Monitoring Devices:

All instruments used for measuring source or air pollution control equipment operational variables shall be calibrated yearly or at a frequency based on good engineering practice as established by operational history, whichever is more frequent. [s. NR 439.055(4), Wis. Adm. Code]

E. RECORDKEEPING AND MONITORING REQUIREMENTS

13. Air Pollution Control Device Monitoring Records:

For each control device used to meet any applicable limit in this permit, the owner or operator shall monitor and record the appropriate control device parameters at the specified frequency as listed in Table 3. If the facility operates a type of control device that is not listed below, then the owner or operator shall keep records of control device parameters which demonstrate the proper operation of the device per the manufacturer's specifications or where manufacturer's recommendations are not available, in a manner consistent with safety and good engineering practices for minimizing emissions. [ss. NR 407.105(1)(c), NR 439.04(1)(d) and 439.055, Wis. Adm. Code]

Table 3. Air Pollution Control Monitoring Parameters

If the facility operates this control device:	The permittee must monitor this parameter:	The permittee must record a reading this often:
Centrifugal collector (cyclone)	Pressure drop	Once every 8 hours of source operation or once per day, whichever yields the greater number of measurements
Fabric filter and HEPA filter, including baghouses and cartridge collectors	Pressure drop **or** Output of bag leak detection system	Pressure drop: once every 8 hours of source operation or once per day, whichever yields the greater number of measurements Bag leak detection system: once per day of operation
Thermal oxidizer	Temperature in the combustion chamber	Once every 15 minutes
Catalytic oxidizer	Temperature in the inlet to the catalytic bed; **and** Catalyst bed reactivity	Once every 15 minutes As per manufacturer specification
Condenser	Condenser outlet gas temperature	Once every 15 minutes
Bio-filter	Bed temperature, moisture content	Once every 8 hours of source operation or once per day, whichever yields the greater number of measurements

F. REPORTING AND NOTIFICATION REQUIREMENTS

All facilities covered by this permit shall comply with the following reporting and notification requirements:

1. Annual Summary of Monitoring and Certification of Compliance:

By **March 1st** of each year, the owner or operator shall submit an annual summary of monitoring and a compliance certification to the department, uploaded through the permittee's Web Access Management System (WAMS) ID. Alternatively, the permittee may submit a hard copy of the reports to the department.

a. The report submitted under this condition shall meet the requirements of s. NR 439.03(1)(b) and (c), Wis. Adm. Code.

b. The time period to be addressed by the report is the January 1 to December 31 period that precedes the report.

F. REPORTING AND NOTIFICATION REQUIREMENTS

c. The report shall include a list of the air emissions units operated at the facility during the reported year.

d. If the facility had a deviation, a Deviation Summary Report shall be included with the following information:
- **i.** Permit condition or rule;
- **ii.** Deviation period;
- **iii.** Description of the deviation;
- **iv.** Method used to identify the deviation;
- **v.** Cause of deviation; and
- **vi.** Corrective actions taken.

e. The report shall be certified by a responsible official as to the truth, accuracy, and completeness of the report. [ss. NR 407.105(1)(c), NR 439.03(1)(b) and (c), NR 439.03(2) and (4), Wis. Adm. Code]

2. Air Emission Inventory Report:

By **March 1st** of each year, the owner or operator shall submit an air emission inventory (AEI) report of annual emissions or throughput information in accordance with ch. NR 438, Wis. Adm. Code. If facility emissions are below the reporting thresholds in ch. NR 438, Wis. Adm. Code, the facility shall submit either an Under-Thresholds Notification (UTN), or a full inventory report. Air emissions from units listed in Attachment 3 shall be included in the AEI report or considered in the UTN. [ss. NR 407.105(1)(c) and NR 438.03(1)(c), Wis. Adm. Code]

3. Next Business Day Deviation:

The owner or operator of a source which has been issued an operation permit shall report to the department by the next business day any deviation from permit requirements, the probable cause of the deviation, and any corrective actions or preventive measures taken or which will be taken to prevent future deviations. [s. NR 439.03(4)(c), Wis. Adm. Code]

4. Annual Air Emission Fees:

The owner or operator shall pay an annual emissions fee to the department at the rate specified in s. 285.69(2), Wis. Stats. The fees are due by June 30 of each year. [ss. 285.69(2), Stats., and NR 410.04, Wis. Adm. Code]

Additional reporting for facilities that changed ownership or made a physical change or a change in the method of operation or raw material during the past year.

5. Change of Ownership or Control:

The Air Management Program shall be notified of a change of ownership or control of a facility covered by this permit within 30 calendar days. The notification shall include a written agreement between the current and new owner which sets forth a specific date for the transfer of permit responsibility, coverage, and liability. [s. NR 407.105(1)(c), Wis. Adm. Code]

6. Reporting requirement for facilities required to provide an air quality analysis:

If required to perform an air quality analysis prior to making changes under B.2., the owner or operator shall submit with the annual compliance certification required in F.1. the following information associated with operational changes at the facility:

a. A brief description of the change which caused the need for an analysis under B.2.

F. REPORTING AND NOTIFICATION REQUIREMENTS

b. The results of any air quality modeling performed under B.2., including the modeled concentrations, the background concentration, and the total concentrations. [ss. NR 407.105(1)(c) and NR 439.04(1)(d), Wis. Adm. Code]

Note: This requirement does not apply to changes at emission units that emit exclusively volatile organic compounds, to emissions units listed in Attachment 3 or to stacks serving exclusively as general building ventilation.

Facilities that want to change operations in such a way that they'll no longer be eligible for this permit must notify the department as follows before making these changes:

7. Changes Rendering the Facility Ineligible for this Permit:

If the owner or operator plans to make a change at the facility that will result in the facility no longer being eligible for this permit:

a. Before making the change, the owner or operator shall submit to the department an application for a construction permit, unless the change is exempt under chs. NR 405, 406 and 408, Wis. Adm. Code.

b. Before making the change, the owner or operator shall request in writing that coverage under this registration permit be revoked upon issuance of any required air permit and submit to the department an application for a different type of permit, if required.

c. The owner or operator may not make the change until any required air pollution control construction and/or operation permit(s) are obtained. [s. NR 407.105(6)(a) and (e), Wis. Adm. Code]

Additional reporting requirements.

8. Other Reporting and Notification Requirements:

The owner or operator shall meet the reporting and/or notification requirements specified in any limitation or standard applicable to the facility including any applicable NSPS and applicable NESHAPs[10]. Dates by which the notifications are due are specified in the applicable regulation.

Submit all required reports or notifications to the department electronically through the permittee's Web Access Management System (WAMS) ID. Alternatively, the permittee may submit a hard copy to an alternate address provided by the department. For federal rules or when an applicable regulation requires it, submit a copy of the reports or notifications to the USEPA using the Compliance and Emissions Data Reporting Interface (CEDRI). [s. NR s. NR 439.03, Wis. Adm. Code]

[10] NSPS and NESHAP may require submittal of an initial Notification and a Notification of Compliance Status.

G. AIR POLLUTION CONTROL DEVICE EFFICIENCY REQUIREMENTS

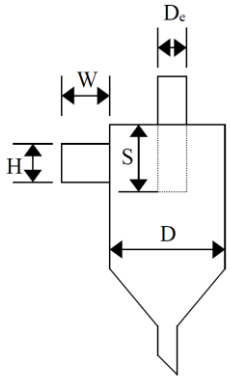
Control Device	Overall Control Efficiency for Total Enclosures			Overall Control Efficiency for Hoods		
	PM	PM_{10}/ PHAP	VOC/ VHAP	PM	PM_{10}/ PHAP	VOC/ VHAP
Low efficiency cyclone[11]	40%	20%	-	32%	16%	-
Medium efficiency cyclone[11]	60%	40%	-	48%	32%	-
High efficiency cyclone[11]	80%	60%	-	64%	48%	-
Wall filters (including paint overspray filters and rotary drum filters)	95%	95%	-	76%	76%	-
Fabric filter and HEPA filter, including baghouses and cartridge collectors	98%	92%	-	78%	73%	-
Thermal oxidizers	-	-	90%	-	-	76%
Catalytic oxidizers	-	-	90%	-	-	76%
Condenser	-	-	70%	-	-	56%
Bio-filter	-	-	80%	-	-	64%

Table 5. Cyclone Efficiency

- To determine a cyclone's efficiency level, calculate each of the "ratio dimensions" listed in the table below and determine which efficiency level (i.e., high, medium, or low) it corresponds with. If one or more ratio dimensions fall into a different cyclone efficiency level, then the lowest efficiency level should be used.
- See Diagram 1 below for cyclone dimension nomenclature.

Ratio Dimensions	High Efficiency	Medium Efficiency	Low Efficiency
Height of inlet, H/D	≤0.44	>0.44 and <0.8	≥0.8
Width of inlet, W/D	≤0.2	>0.2 and <0.375	≥0.375
Diameter of gas exit, D_e/D	≤0.4	>0.4 and <0.75	≥0.75
Length of vortex finder, S/D	≤0.5	>0.5 and <0.875	≥0.875

Diagram 1. Cyclone Dimension Nomenclature



[11] See Table 5 to determine a cyclone's efficiency level for purposes of this permit.

ATTACHMENT 1 THE FOLLOWING ANNUAL MATERIAL AND FUEL USAGE THRESHOLDS ENSURE THAT EMISSIONS WILL NOT EXCEED EMISSIONS CAPS IN A.1.	
Press Type	**Material Usage[12]**
Sheetfed/ Non-heatset Lithographic	7,125 gallons of cleaning solvent and fountain solution additives, combined
Heatset Web Offset Lithographic	50,000 lb of ink, cleaning solvent and fountain solution additives, combined
Digital Printing	5,500 gallons of solvent from inks and clean up solutions, combined
Rotogravure Printing (Water-based and UV)	200,000 lb of water-based and/or UV inks, coatings, and adhesives
Rotogravure Printing (Solvent)	50,000 lb of solvent from inks, dilution solvents, coatings, and adhesives.
Letterpress Printing	50,000 lb of ink and cleaning solvent
Screen Printing	7,125 gallons of solvent from inks and clean up solutions
Flexographic (Water-based and UV)	200,000 lb of water-based and/or UV inks, coatings, and adhesives
Flexographic (Solvent)	50,000 lb of solvent from inks, dilution solvents, coatings, and adhesives.
Multiple press types at one facility	Find the lowest threshold above that applies to at least one of the presses at the facility and compare total material usage to that threshold. If material usage is greater than that threshold, then facility must calculate emissions to determine if eligible.
Federal HAPs	**Material Usage**
Federal **HAPs**, individual	1,333 gallons of all press materials containing that federal HAP, regardless of the percentage content
Federal **HAPs**, combined	3,333 gallons of all press materials containing at least one federal HAP, regardless of the percentage content
Fuel (Unit Size)	**Fuel Usage**
Natural Gas[13] (<10 million Btu/hr)	500 million cubic feet/yr
Natural Gas (10-100 million Btu/hr)	350 million cubic feet/yr
Distillate Fuel Oil (sulfur = 0.0015% wt. or less)	2,500,000 gallons/yr
Fuel	**Total Heat Input Capacity Cap**
Natural Gas and Distillate Fuel Oil (sulfur = 0.0015% wt. or less)	39 MMBtu/hr

[12] The material usage threshold for heatset presses has been shown to restrict the PM_{10} emissions to level below the 25 TPY emission cap, even for uncontrolled presses.
[13] Natural gas includes propane.

ATTACHMENT 2

THE FOLLOWING ANNUAL MATERIAL USAGE THRESHOLDS ENSURE THAT EMISSIONS WILL NOT EXCEED THE LACT REQUIREMENT IN A.7.a.

Press Type	Material Usage
Sheetfed/ Non-heatset Lithographic	768 gallons of cleaning solvent and fountain solution additives
Heatset Web Offset Lithographic	5,400 lb of ink, cleaning solvent and fountain solution additives
Digital Printing	2,425 gallons of solvent from inks, clean up solutions
Rotogravure Printing (Water-based and UV)	80,000 lb of water-based and/or UV inks, coatings, and adhesives
Rotogravure Printing (Solvent)	20,000 lb of solvent from inks, dilution solvents, coatings, and adhesives.
Letterpress Printing	20,000 lb of ink and cleaning solvent
Screen Printing	2,840 gallons of solvent from inks, clean up solutions
Flexographic (Water-based and UV)	80,000 lb of water-based and/or UV inks, coatings, and adhesives
Flexographic (Solvent)	20,000 lb of solvent from inks, dilution solvents, coatings, and adhesives.

ATTACHMENT 3

EMISSION UNITS NOT SUBJECT TO CERTAIN REQUIREMENTS

1. Convenience space heating units with heat input capacity of less than 5 million Btu per hour that burn gaseous fuels, liquid fuels, or wood
2. Convenience water heating
3. Maintenance of grounds, equipment, and buildings, including lawn care, pest control, grinding, cutting, welding, painting, woodworking, general repairs, and cleaning, but not including use of organic compounds as cleanup solvents
4. Boiler, turbine, generator, heating, and air conditioning maintenance
5. Pollution control equipment maintenance
6. Internal combustion engines used for warehousing and material transport, forklifts and courier vehicles, front end loaders, graders and trucks, carts, and maintenance trucks
7. Fire control equipment
8. Janitorial activities
9. Office activities
10. Fuel oil storage tanks with a capacity of 10,000 gallons or less
11. Stockpiled contaminated soils
12. Demineralization and oxygen scavenging of water for boilers.
13. Purging of natural gas lines.
14. Particulate matter from natural gas combustion in press dryers, control device, and other heating units so long as fuel usage or heat input capacity caps in Attachment 1 are met.
15. Aerosol cans
16. Pad printing
17. Pre-press equipment, such as: photo-processing, typesetting, or image-setting equipment;
18. Proofing systems utilizing water-based, ink jet, dry toner, or dye sublimation or proof press designed to evaluate product quality;
19. Plate-making equipment or screen preparation activities utilizing water-based developing solutions;
20. Equipment used to make blueprints.
21. Cold cleaning manual parts washers with less than 10 square feet of surface area.
22. Dry toner or other digital presses that apply water-based inks.
23. Substrate finishing activities which involve paper folding, cutting, folding, trimming, die cutting, embossing, foil stamping, drilling, saddle stitching, sewing, perfect binding, vacuum forming or other activities that do not generate VOCs and whose particulate emissions are vented inside the facility.
24. Adhesive application activity involving hot melt, extrusion, catalyzed solvent-less, or water-based adhesives.
25. Pneumatic system for collecting paper/film/paperboard scrap from cutting operations.
26. Any emission unit, operation, or activity that has, for each air contaminant, maximum controlled emissions that are less than the level specified in Table 3 of ch. NR 407, Wis. Adm. Code. Multiple emissions units, operations, or activities that perform identical or similar functions shall be combined for the purposes of this determination.
27. If the maximum controlled emissions of any air contaminants listed in Table 3 of ch. NR 407, Wis. Adm. Code, from all emission units, operations or activities at a facility are less than 5 times the level specified in Table 3, for those air contaminants, any emission unit operation or activity that emits only those air contaminants.