AIR POLLUTION CONTROL
GENERAL OPERATION PERMIT (GOP)
FOR HEATSET WEB LITHOGRAPHIC PRINTING PRESSES

In accordance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to 499, Wis. Adm. Code, the owner/operator identified below is hereby granted coverage under this permit and is authorized to operate heatset web lithographic printing presses within a direct stationary source in conformity with the conditions herein.

FACILITY IDENTIFICATION NUMBER (FID) [XXXXXXXXX]

PERMIT NUMBER. This is a General Operation Permit. This General Operation Permit is not issued to an individual facility. This General Operation Permit will be issued once for use by sources that demonstrate that the source qualifies for coverage under this General Operation Permit. Therefore there is no source specific FID or Permit Number for this General Operation Permit. Instead, this permit will be released for coverage to an individual applicant as Permit Number XXXXXXXXX-G08f, where the nine letters of X represent the Facility Identification Number (FID) for the applicant and G08f represents the Heatset Web Lithographic Printing Synthetic Minor Source General Operation Permit issued in the State of Wisconsin.

STACK NUMBER(S): <As provided by the permit application>

EMISSIONS UNIT NUMBER(S): <As provided by the permit application>

Facility Name: <As provided by permit application>
Street Address:
Responsible Official, & Title:

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in this permit. This General Operation Permit has no expiration date and continues in perpetuity, unless revoked or revised. [s. NR 407.10(1)(e), Wis. Adm. Code]

Dated at Madison, Wisconsin, June 15, 2007

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By _____
Jeffrey C. Hanson
Permits and Stationary Source Modeling Section Chief

Applicability

This permit applies to heatset web lithographic printing presses and associated operations identified on the cover page to this permit and located at a facility that meets the following criteria:

- The facility will not have the potential to emit greater than 100 tons of carbon monoxide, nitrogen oxides, sulfur dioxide, PM-10 or volatile organic compounds, once coverage is granted under this permit.
- The facility does not have the potential-to-emit Federal Hazardous Air Pollutants (HAPs) greater than 10 TPY for each individual and individual category of Federal HAP or greater than 25 TPY for all Federal HAPs combined.
- The facility does not claim any exemptions under s. NR 422.03(4), Wis. Adm. Code, for which it might be qualified.
- The stacks that vent emissions from the heatset web lithographic printing presses are unobstructed and oriented in an upwards direction within 10 degrees of vertical.
- The facility elects to limit particulate matter emissions (including condensable particulate matter) to less than 0.5 pounds per hour from each stack that exhausts emissions from printing units to be covered under this permit.

A "Federal Hazardous Air Pollutant (HAP)" means any pollutant that is listed as a hazardous air pollutant under section 112 (b) of the Clean Air Act (42 USC 7412 (b)).

"Associated operations" means operations that, in addition to operation of a printing unit to print on a substrate during production, are necessary in order to create final printed products or to maintain the ability of a printing unit to operate.

Previously Established Emission Limitations

Previously Issued Construction Permits

This operation permit may be used to provide coverage of groups of sources (e.g. heatset web lithographic printing presses) that are in the same source category (e.g. heatset lithographic printing) and that have been permitted under a construction permit which contained restrictions on potential-to-emit VOCs based on a five-year window netting analysis under ch. NR 408, Wis. Adm. Code. In these cases, a separate general operation permit must be used for each group of sources, and the original construction permit restrictions on PTE from each group of sources shall still apply, in addition to any restrictions on PTE contained in this operation permit.

Previously Issued Operation Permits

To qualify for coverage under this general operation permit, the permittee shall submit an application to the Department for each existing operation permit that contains conditions that apply to one or more sources covered under this general operation permit. These applications shall request the Department to revise the variant conditions in those operation permits to be consistent with the conditions in this general operation permit.

Source Elections

The heatset web lithographic printing presses and associated operations covered by this permit are subject to s. NR 424.03, Wis. Adm. Code, and the Department considers each press (including its associated operations) to be part of a separate process line. Under s. NR 424.03(2)(b) and (c), Wis. Adm. Code, 85% emissions control of organic compound emissions is required, or, where 85% control is demonstrated to be technologically infeasible, the permittee must use the latest available control techniques (LACT) and operation practices demonstrating best current technology, as approved by the Department [s. NR 424.03(2)(c), Wis. Adm. Code]. As an alternative to the 85% control requirement, the owner or operator can elect under s. NR 424.03(3), Wis. Adm. Code, to meet the RACT requirements in s. NR 422.142, Wis. Adm. Code. By submitting an application for this permit, the owner or operator is informing the Department of this election, and the Department is approving the request by granting coverage under this permit. This permit requires that each heatset web lithographic printing process line comply with the RACT requirements in s. NR 422.142, Wis. Adm. Code.

To protect ambient quality standards for particulate matter, this general operation permit places a voluntary limit of 0.5 pounds of particulate matter emissions per hour on each stack that exhausts emissions from a printing unit that is covered under this permit. By submitting an application for this permit, the owner or operator is informing the Department of this election, and the Department is approving the request by granting coverage under this permit.

Facilities and associated industrial cleaning operations for which coverage under this GOP is granted are potentially subject to the requirements of s. NR 423.035, Wis. Adm. Code, the Industrial Cleaning Operations Rule. If applicable, requirements of this regulation will be stated in the operation permit that covers industrial solvent cleaning equipment and equipment not granted coverage under this permit that may exist at the facility.

Permit Shield

Unless precluded by the Administrator of the USEPA, compliance with all emission limitations in this operation permit is considered to be compliance with all emission limitations established under ss. 285.01 to 285.87, Wis. Stats., and emission limitations under the federal clean air act, that are applicable to the source if the permit includes the applicable limitation or if the Department determines that the emission limitations do not apply. The following emission limitations were reviewed in the analysis and preliminary determination and were determined not to apply to this stationary source:

NONE

PART I

A. OPERATIONAL REQUIREMENTS

(1) The permittee shall meet the following requirements:

(a) When printing on a substrate other than metal, metal-foil or plastic, use a fountain solution that has a VOC content as applied of no more than one of the following:
(i) 5.0% by weight if the fountain solution contains no restricted alcohol[1],
(ii) 3.0% by weight if the fountain solution contains any restricted alcohol and is refrigerated to 60°F or less; or,
(iii) 1.6% by weight if the fountain solution contains any restricted alcohol and is not refrigerated to 60°F or less.

(b) When printing on a metal, metal-foil or plastic substrate, use a fountain solution that has a VOC content as applied of no more than one of the following:
(i) 5.0% by weight if the fountain solution contains no restricted alcohol[1],
(ii) 13.5% by weight, if the fountain solution contains any restricted alcohol and is refrigerated to 60°F or less; or
(ii) 1.6% by weight if the fountain solution contains any restricted alcohol and is not refrigerated to 60°F or less.

(c) Use blanket and roller cleaning solutions that, as applied, meet one of the following:
(i) A VOC content of no greater than 30% by weight, or;
(ii) A vapor pressure for each VOC component of less than or equal to 10 mm Hg at 20°C (68°F).

(d) The permittee may use blanket and roller cleaning solutions that do not meet the limitations in I.A.(1)(c), provided that the total amount of those blanket and roller cleaning solutions used at the facility over any 12 consecutive months is less than or equal to one of the following:
(i) If the facility does not print on a plastic substrate, 55 gallons
(ii) If the facility prints on a plastic substrate, 165 gallons
[ss. NR 424.03(3), NR 422.142(2)(b)1. and 4., and NR 422.142(2)(c), Wis. Adm. Code.]

(2) In order to receive credit for retention of VOC-containing materials in shop towels, wipes, pads and other media used for manual cleaning operations, the permittee shall handle the soiled media in a manner that minimizes solvent evaporation and spills and shall meet one or more of the following requirements to receive corresponding credit:

(a) 50% VOC retention (50% emitted as VOCs) may be applied for a cleaning solution if it contains less than 30% VOC by weight or a has a VOC composite vapor pressure of no more than 10 mm Hg at 68°F, or

(b) 40% VOC retention (60% emitted as VOCs) may be applied for a cleaning solution if its VOC composite vapor pressure is greater than 10 mm Hg but less than 25 mm Hg at 68°F, or contains more than 30% VOC by weight.
[s. 285.65(7), Wis. Stats.]

(3) 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 (including VOCs), solvents or mixtures. Such precautions shall include, but are not limited to,

(a) use of caution to prevent spillage or leakage when filling tanks

(b) use of caution when performing the disposal of any VOC containing materials. The permittee shall perform the disposal by a method approved by the Department, such as incineration, recovery for reuse, or transfer in closed containers to an acceptable disposal facility

(c) keep each VOC-containing material in a closed container, except when in use at the facility, when handled during solvent recovery or during transfer to another container, or when filling, draining, or performing cleanup operations. VOC-containing materials include but are not limited to as-received materials, as-applied materials, shop towels, wipes, pads and other media used for manual cleaning operations

(d) use measures such as written plans, work instructions, training documents, signage, or verbal instructions to establish operating practices that prevent the spillage, escape or emission of organic compounds from the handling, transfer, storage and disposal of VOC-containing materials.
[ss. NR 419.03(2), NR 419.04(2), NR 407.09(1)(c)1., (4)(a)1.&(4)(a)3.b, and NR 439.04(1)(d), Wis. Adm. Code, and s. 285.65(7), Wis. Stats.]

(4) The permittee may not cause, allow, or permit the total actual emissions of VOCs from all significant and

[1] "Restricted alcohol" means an alcohol that contains only one hydroxyl (–OH) group and less than 5 carbon atoms.

insignificant emissions units at the facility, including all heatset lithographic web printing units and their associated operations[2], to exceed 99.9 tons of volatile organic compounds per year, calculated[3] monthly as the cumulative total over the most recent period of twelve consecutive calendar months. [s. 285.65(7), Wis. Stats.]

(5) For each heatset web lithographic printing press covered by this permit the permittee shall maintain the dryer air pressure inside the dryer lower than the press room air pressure. [s. 285.65(7), Wis. Stats., and ss. NR 424.03(3), NR 422.142(2)(a), Wis. Adm. Code]

(6) For each heatset web lithographic printing press covered by this permit the permittee shall use a VOC emissions control device to meet the limitation in (a) or (b) that applies to the press:
(a) if the control device used to control VOC emissions from the press is a catalytic incinerator that was installed or modified before January 1, 1982, then reduce VOC emissions from the press dryer exhaust by 85% by weight of total organics, minus methane and ethane.
(b) if the control device used to control VOC emissions from the press is NOT a catalytic incinerator OR if the control device was installed or modified on or after January 1, 1982, then the permittee shall meet one of the following limitations:
(i) reduce VOC emissions from the press dryer by 90% by weight of total organics, minus methane and ethane, or
(ii) maintain a maximum dryer exhaust outlet concentration of 20ppmv, as carbon.
[ss. NR 424.03(3), NR 422.142(2)(a)2. and (a)1., Wis. Adm. Code]

(7) The permittee may not cause, allow, or permit particulate matter emissions from any stack that vents emissions from the printing presses covered under this permit in excess of 0.50 pounds per hour.
[s. 285.65(7), Wis. Stats., ss. NR 404.04(3), NR 404.04(8), NR 415.05(2), and NR 415.05(1)(o), Wis. Adm. Code]

(8) The permittee shall achieve and maintain the following stack parameters for each stack that vents emissions from a printing press covered under this permit:
(a) during operation of a printing press covered under this permit the stack may not be equipped with a rainhat or other device that impedes the upward flow of exhaust gases; and
(b) the stack shall be directed in an upward exhaust direction within 10 degrees of vertical.
[s. 285.65(7), Wis. Stats., ss. NR 404.04(3), NR 404.04(8), Wis. Adm. Code]

(9) No owner or operator of a direct or portable source on which construction or modification is commenced after April 1, 1972 may cause, allow, or permit emissions[4] of shade or density greater than number 1 of the Ringlemann chart or 20% opacity except in cases defined under s. NR 431.05, Wis. Adm. Code.
[ss. NR 431.05, Wis. Adm. Code]

(10) Whenever a heatset web lithographic printing press covered by this permit is operating, the emissions capture system and the dryer's air recirculation system shall be interlocked. [ss. NR 407.09(1)(c)1. & 4(a)1., NR 422.142(4)(a)1, NR 439.04(1)(d) and NR 439.055(2)(b) & (5), Wis. Adm. Code]

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[2] "Associated operations" means operations that, in addition to operation of a printing unit to print on a substrate during production, are necessary in order to create final printed products or to maintain the ability of a printing unit to operate.
[3] This permit implements the USEPA's formula-based approach for demonstrating compliance with this restriction on potential-to-emit. See the USEPA's Technical Support Document, section 6.3.1, at http://www.epa.gov/ttn/emc/cam/tsd.pdf
[4] The Department does not expect the visible emissions limitation to be exceeded under normal operating conditions, if the permittee complies with the limitations on particulate matter contained in this permit.

B. RECORDKEEPING REQUIREMENTS

(1) If a material received from an off-site supplier is intended for use by one or more heatset web lithographic printing presses or by an associated operation and if the material contains greater than 1% VOC by weight, then at or before the time of application or use the permittee shall

(a) identify and record the material or the class of similar materials to which it belongs, using a unique name or identification code

(b) determine by specification or by calculation and then record:

(i) the VOC content, in pounds of VOC per gallon, of the material or class, and

(ii) when necessary to demonstrate compliance with a weight percent limit in I.A.(1) or to make a calculation under I.B.(2), determine and record the density, in pounds per gallon, of the material or class.

(c) when determining the VOC content or other property for each material in a class of similar materials use the specifications for the material which has the highest (worst case) VOC content in that class.

(d) to determine VOC content or density, the permittee may use one or more of the following specification documents: testing results, the Material Safety Data Sheet from the supplier or manufacturer, general chemical literature, or a compositional analysis (formulation) of the material. When a document states a range of values for a specification, the permittee shall use the value that results in the worst-case VOC content. The permittee may elect to use a VOC content of 100% for materials lacking documentation.

(e) determine and record the vapor pressure, in units of mmHg at 20°C, of each VOC component in each blanket and roller cleaning solution for which the permittee elects to meet the requirement under I.A.(1)(c)(ii).

(f) record the calculations, supplier formulation, and other data used to determine the VOC content of each material and class of similar materials.

[ss. NR 407.09(1)(c)1., (4)(a)1.&(4)(a)3.b., NR 439.04(5)(a), and NR 422.145(4), Wis. Adm. Code]

(2) In order to meet a limitation under I.A.(1)(a), (b), or (c)(i) on a fountain solution or blanket and roller cleaning solution that is diluted with water or is a mixture of two or more materials, the permittee shall use an applicable method below to determine and record the VOC content, in weight percent, of the as-applied material, and for each mixture prepared manually according to a distinct formulation the permittee shall monitor and record the amount of each material used to prepare the mixture:

(a) in lieu of a method otherwise required under (b), (c), or (d), the permittee may test and record the as-applied VOC content of the material or mixture using an applicable method under I.C.

(b) whenever a material is automatically or manually prepared for use, the permittee shall determine and record the VOC content of and identify the distinct formulation used to prepare the material, such that the VOC content of a distinct formulation is calculated only once according to the following formula[5]:

$$V_{Applied} = \left[\frac{\sum_{1}^{n} (C_i Q_i)}{\sum_{1}^{n} (Q_i d_i)} \right]$$

(c) whenever a newly-prepared material is added to a previously-prepared as-applied material that has the same VOC content, the permittee may use that VOC content for the mixture without further calculation.

(d) whenever a single material (e.g. alcohol) is added to an as-applied material (e.g. fountain solution) that was prepared from a formulation with a lower VOC content than the single material, the permittee shall calculate and record the new as-applied VOC content using the following formula:

[5] Note that this formula, as written, can be used in two ways. First, it can calculate the VOC content of a batch on an absolute basis, where the number of gallons actually added are used to make the calculation. Second, it can be used to calculate the VOC content of the batch on the basis of one total gallon, where the Q_i values are actually fractions of a gallon that add up to one. The set of these fractional values define the "distinct formulation" of the material, since they are the ratios that can be used to prepare a batch of that same material in any amount required.

$$V_{New} = \left(\frac{C_{Old}Q_{Old} + \sum_{1}^{m} (C_k Q_k)}{Q_{Old}d_{Old} + \sum_{1}^{m} (Q_k d_k)} \right)$$

where $\{C_k\}$, $\{d_k\}$, and $\{Q_k\}$ in the formula above correspond to the materials being added to an amount, Q_{Old}, of the as-applied material, and

where the C_{Old} and d_{Old} data are determined either by a test method under I.C., or by the following calculations using the $\{C_i\}$, $\{d_i\}$, and $\{Q_i\}$ data from the current as-applied material's distinct formulation:

$$C_{Old} = \left[\frac{\sum_{1}^{n} (C_i Q_i)}{\sum_{1}^{n} (Q_i)} \right] \qquad d_{Old} = \left[\frac{\sum_{1}^{n} (Q_i d_i)}{\sum_{1}^{n} (Q_i)} \right]$$

where:

$V_{Applied}$ or V_{New} =the VOC content of the as-applied material according to its current or modified formulation (e.g. increased VOC content), respectively, in units of %VOC by weight;
n =the number of materials that were mixed together to prepare a given as-applied fountain solution or blanket and roller cleaning solution from its distinct formulation;
m =the number of materials added to a batch that already contains a mixture;
C_i =the VOC content of the *ith* material (including water), in units of pounds VOC per gallon, that was added to prepare a batch of a given material using its distinct formulation;
Q_i =the amount of the *ith* material (including water) that was added according to a distinct formulation to prepare a given as-applied material, in gallons;
d_i =the density of the *ith* material, in units of pounds per gallon;
Q_{Old} =The amount of the previous mixture of the as-applied material that was present when supplemental material was added, in units of gallons;
C_{Old} =the VOC content of the previous mixture of as-applied material, in units of pounds per gallon, before supplemental material was added;
d_{Old} =the density of previous mixture, in units of pounds per gallon, before supplemental material was added;
d_k =the density of the *kth* supplemental material being added to prepare a new mixture with a distinct formulation, in pounds per gallon;
C_k =the VOC content of each supplemental material, in pounds VOC per gallon, that was added to the current mixture;
Q_k =the amount of each supplemental material added to the current mixture, in units of gallons.

[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]

(3) Whenever a product printed on metal, metal-foil or plastic is under production by one or more presses, the permittee shall determine and record the following for each lithographic printing press that produces the product:

(a) the dates on which the product was printed by the press, and

(b) the fountain solutions, as identified under I.B.(1)(a), in use by the press on those dates of production.

[s. NR 407.09(4)(a)3.b., Wis. Adm. Code]

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[6] Note: Each material j belongs in one and only one material category c. For example: if a specific ink is second in the list of inks used by a printing unit (e.g. a press), then this specific ink corresponds to j=2. If the category for inks is third in a list, then c=3. Thus, $E_{c,2} = E_{3,2}$, and this term will be used to calculate E_3 (the emissions during the month from usage of all inks).

[7] For example, when the permittee uses this formula to calculate E_c for c=2, then $E_2 = E_c$, and the permittee shall use that quantity for the purpose of making the calculation in the next condition. The same is true for other values of c.

(4) For each fountain solution for which the permittee elects to meet the requirement under I.A.(1)(a)(ii) or (b)(ii), the permittee shall monitor and record the temperature of the fountain solution reservoir at least once per 8-hour shift of operation. [ss. NR 422.142(3), NR 422.142(4)(b), and NR 407.09(4)(a)3.b., Wis. Adm. Code]

(5) For each distinct fountain solution formulation identified under I.B.(2)(b) the permittee shall determine and record the chemical name of each restricted alcohol, if any, contained in the fountain solution formulation, where "restricted alcohol" means an alcohol which contains only one hydroxyl (−OH) group and less than 5 carbon atoms. [ss. NR 422.142(2)(b)1. and 4., and NR 407.09(4)(a)3.b., Wis. Adm. Code]

(6) Within 15 days after the end of each calendar month, the permittee shall determine and record the total volume, in gallons, of all as-applied blanket and roller cleaning solutions used during the previous calendar month that did not meet the emission limitations of I.A.(1)(c) and then shall calculate and record total volume, in gallons, of these cleaning solutions that were used during the previous 12 calendar months. [ss. NR 422.142(2)(c)2., NR 422.142(4)(e), and NR 407.09(4)(a)3.b., Wis. Adm. Code]

(7) If the permittee claims credit for retention under I.A.(2)(a) or (b), then the permittee shall determine and record the VOC composite vapor pressure, as applied, of each material (e.g. solvent) used for manual cleaning operations. To determine this quantity, the permittee may use the VOC composite vapor pressure reported on the material's MSDS or other supplier specification document. The permittee may derive VOC composite vapor pressure mathematically by using the following formula with data for the vapor pressure of each component in the material, as reported on an MSDS or in another supplier specification document that reports vapor pressure test results:

$$P_c = \sum_{i=1}^{n} \left[\frac{\frac{W_i P_i}{M_i}}{\frac{W_w}{M_w} + \frac{W_e}{M_e} + \sum_{i=1}^{n} \left(\frac{W_i}{M_i} \right)} \right]$$

Where:

W_i =Weight of the "i"th VOC compound, in grams

W_w =Weight of water, in grams

W_e =Weight of exempt compound (includes all non-VOC compounds), in grams

M_i =Molecular weight of the "i"th VOC compound, in g/g-mole

M_w =Molecular weight of water, in g/g-mole

M_e =Molecular weight of exempt compound (includes all non-VOC compounds), in g/g-mole

P_c =VOC composite partial pressure at 20°C, in mm Hg

P_i =Vapor pressure of the "i"th VOC compound at 20°C, in mm Hg

[ss. NR 407.09(1)(c)1., (4)(a)1.&(4)(a)3.b., Wis. Adm. Code]

(8) Whenever the permittee elects under condition I.B.(2)(a) to test an alcohol-containing fountain solution, the permittee shall use a hydrometer, equipped and calibrated according to the requirements under I.C.(4), to automatically or manually monitor and record the specific gravity of the fountain solution at least once per 8-hour shift. Using the test data and literature data for the water and alcohol's relevant physical properties, the permittee shall calculate for each test either the VOC content of the fountain solution, in percent by weight, or the specific gravity that corresponds to the VOC content of the solution's reported formulation. [s. NR 407.09(4)(a)3.b., Wis. Adm. Code]

(9) Within 15 business days after the end of each calendar month the permittee shall:
(a) determine and record the sum total amount, in units of gallons, of each VOC-containing material (or of the class of similar materials representing the material) that was used during the previous calendar month by the heatset web lithographic printing units covered under this permit and their associated operations, according one of the following usage monitoring methods:

(i) monitor the material's (or class's) inventory, consumption, or purchase data such that the data segregates the actual use of the material (or class) by all (combined) heatset web lithographic printing units and associated operations covered under this permit from the usage by other units and operations at the facility, and then calculate the material usage for all units and operations covered under this permit using material balances, excluding from the totals any amount of material returned to inventory or recovered as waste and that was not already excluded from the totals for other operations at the facility (e.g. double-counted), or

(ii) allocate the usage of the material (or of its class) to all (combined) heatset web lithographic printing units and associated operations covered under this permit, using an alternative method submitted with the permit application and approved by the Department.

(iii) The permittee may change the monitoring method after coverage is granted under this permit after gaining Department approval of that method. If the Department does not act within 60 days of a receipt of a request to use an alternative method, the method shall be deemed approved.

(b) determine and record within 15 days after the end of each calendar month the actual amount, in gallons, of each VOC-containing cleaning solvent recovered during previous calendar month, if the permittee utilizes a solvent recovery operation to reclaim solvent from shop towels or other manual cleaning media.

(c) record all data and calculations used to determine the quantities of material determined and recorded under (a) and (b).

[ss. NR 407.09(1)(c)1., (4)(a)1.&(4)(a)3.b., Wis. Adm. Code]

(10) The permittee shall use the following two equations to calculate and record within 15 days after the end of each calendar month the total actual emissions of VOC from each of the 4 material categories used by the units and operations covered under this permit during the most recent calendar month, E_c,

(a) Using the following equation for each material j, the permittee shall calculate the total emissions of VOCs during the previous calendar month, $E_{c,j}$, in pounds, due to the use of that material[6],

$$E_{c,j} = U_j x\ C_j x\left(\frac{100\% - R_c}{100\%}\right)x\left\{1-\left(\frac{P_c}{100\%}\right)x\left(\frac{L_d}{100\%}\right)\right\}$$

where

U_j =the amount, in gallons or pounds (as appropriate), of the material j used by units and operations covered under this permit during the most recent calendar month

C_j =the average amount (content) of the pollutant of interest in the material j, measured in pounds per gallon or weight percent (as appropriate)

R_c =the % of the pollutant in the material that is retained and not emitted, according to the retention credit that the material qualifies for under I.A.(2), if any. If the material does not qualify for a retention credit, the permittee shall assume that R_c =0%.

P_c =the % of the pollutant's emissions that is captured prior to control

L_d =the % of the pollutant's emissions controlled by the control device d (if d≥1)

and where

for all heatset web lithographic printing inks, coatings, and thinners used in as-applied formulations, c =1, and

R_1 =0%.

P_1 =0% or, if equipped with a capture system, the capture efficiency demonstrated for that system.

L =0% or, if equipped with a control device, the control efficiency demonstrated for that device.

for all fountain solutions, c =2, and

R_2 =0%

P_2 =0% or, if equipped with a capture system, the capture efficiency demonstrated for that system.

L =0% or, if equipped with a control device, the control efficiency demonstrated for that device.

for all automatic and manual blanket and roller cleaning solutions, c =3, and

R_3 =the percent retention for which the permittee qualifies in accordance with condition I.A.(2).

P_3 =0% or, if equipped with a capture system, the capture efficiency demonstrated for that system.

L =0% or, if equipped with a control device, the control efficiency demonstrated for that device.

for all other solvents and other VOC-containing materials not categorized above, c =4, and
R_4 =0%
P_4 =0%
L =0%

(b) Using the following equation[7] for each material category c, the permittee shall calculate the total emissions, in pounds, of VOCs from that category of materials during the previous calendar month,

$$E_c = E_{c,1} + E_{c,2} + E_{c,3} + ... + E_{c,m}$$

where c is the number representing one of the material categories numbered 1 to 4,
where the facility has a total of m materials used during the most recent calendar month for that category,
where each term ($E_{c,1}$ through $E_{c,m}$) represents the emissions resulting from the total usage of one of the materials in the material category c during the month.

[ss. NR 407.09(4)(a)1. and (4)(a)3.b., Wis. Adm. Code]

(11) The permittee shall use the following equation to calculate and record within 15 days after the end of each calendar month the total actual emissions, E_M, of VOCs from the units and operations covered under this permit during the previous calendar month, in units of tons,

$$E_M = \left(\frac{E_1 + E_2 + E_3 + E_4}{2000} \right)$$

where units and operations covered under this permit during the previous calendar month used N categories of VOC-containing materials, and
where E_1 through E_4 were calculated under the previous condition for each category.
[ss. NR 407.09(4)(a)1. and (4)(a)3.b., Wis. Adm. Code]

(12) Within 15 days after the end of each calendar month the permittee shall use the following equation to calculate and record E_T, which is the total VOC emissions, in tons, from the entire facility, including all heatset web lithographic printing units and associated operations covered under this permit, during the most recent 12 consecutive calendar months,

$$E_T = E_{M1} + E_{M2} + E_{M3} + E_{M4} + E_{M5} + E_{M6} + E_{M7} + E_{M8} + E_{M9} + E_{M10} + E_{M11} + E_{M12}$$

where the terms E_{M1}, E_{M2}, E_{M3}, etc., are the total VOC emissions, in tons, from all emission units and operations at the facility, including the heatset web lithographic printing units and associated operations covered under this permit.
[ss. NR 407.09(4)(a)1. and (4)(a)3.b., Wis. Adm. Code]

(13) The permittee shall collect and record the following information for each control device:
(a) whenever a heatset web lithographic printing press covered by this permit is operating, the permittee shall monitor and record the temperature in the primary combustion chamber of a thermal oxidizer and the inlet to the catalyst bed for a catalytic oxidizer every 15 minutes,
(b) a log of operating time for the control device, its operational variable monitoring equipment, and the associated printing press or presses, and
(c) a maintenance log for each control device and its operational variable monitoring equipment, detailing all routine and non-routine maintenance performed on the control device and its monitoring equipment, including the dates and duration of any outages or equipment failure.
[ss. NR 407.09(1)(c)1., NR 439.04(1)(b) and (d), NR 439.055(2), and NR 422.142(4)(a), Wis. Adm. Code]

C. TEST METHODS FOR MATERIAL CONTENT AND EMISSIONS

(1) Whenever the Department requires compliance testing of an ink or coating that is not thin-film-radiation-cured, in order to determine the VOC content or density of the material, the permittee shall use U.S. EPA Method 24 in 40 CFR part 60, Appendix A, to determine organic solvent content, unless the Department has approved the permittee to use an alternative method. For thin-film-radiation-cured coatings and inks the permittee may determine VOC content by specification or calculation, using a document allowed under I.B.(1)(c).
[ss. NR 407.09(1)(c)1. & (4)(a)1. and NR 439.06(3)(b), Wis. Adm. Code]

(2) Whenever compliance testing of a clean-up solvent, thinner, or other material (except an ink or coating) is required in order to determine the VOC content or density of the material, the permittee shall use a method to determine organic solvent content and density that has been approved by the Department. The permittee may use U.S. EPA Method 24 in 40 CFR part 60, Appendix A, to determine VOC content and density of these materials. [ss. NR 407.09(1)(c)1. & (4)(a)1. and NR 439.06(3)(b), Wis. Adm. Code]

(3) Whenever compliance testing is required in order to determine the VOC composite vapor pressure of a material or to determine the vapor pressure of each component in a material, the permittee shall use method ASTM D2879-97 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.10(39m), unless the Department has approved the permittee to use an alternative method. [s. NR 439.06(3)(a), Wis. Adm. Code]

(4) Whenever compliance testing is required in order to determine the VOC content or density of a fountain solution that consists only of water and a single alcohol, the permittee shall use an ASTM-rated hydrometer that is equipped with an ASTM-rated thermometer that has temperature correction or that is subsequently adjusted for temperature, to measure the specific gravity of the solution. For each test the permittee shall use the average of all readings during that test to determine and record the solution's specific gravity. Before conducting the test, the permittee shall calibrate the monitoring device for the type of alcohol in the fountain solution, using a standard solution. Unless the permittee elects to test with an automatic hydrometer device, the permittee shall conduct the test manually and take 3 successive readings within a 10 minute period. If the permittee elects automatic testing, the permittee shall take at least one reading per hour of operation, using an automatic hydrometer device that has a visual, analog, or digital readout with an accuracy of $\pm 0.5\%$ of the quantity being measured. [ss. NR 439.055(3), (4), (5), and (6), Wis. Adm. Code]

(5) To perform compliance testing required under I.B. for determining organic compound emission concentrations or emission rates, the permittee shall use Method 18, 25, or 25A in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 484.04 (13), to determine the VOC concentration at the sampling points. The permittee may not use Method 25A if the outlet VOC concentration is greater than 100 ppmv, as carbon. When determining the VOC concentration, the permittee shall heat the probe during testing to at least the exhaust gas stream temperature. [ss. NR 422.142(5)(a), and NR 439.06(3)(a), Wis. Adm. Code]

(6) Whenever a compliance emission test for particulate matter emissions is required, the permittee shall use one of the following U.S. EPA Methods 5, 5A, 5B, 5D, 5E, 5F, 5G, 5H or 17 in 40 CFR Part 60, Appendix A, incorporated by reference in Section NR 484.04, Wis. Adm. Code, for determining particulate matter emissions, **and** the permittee shall use U.S. EPA Method 202 in 40 CFR Part 51, Appendix M, incorporated by reference in s. NR 484.04, for determining condensable particulate matter emissions.
[ss. NR 439.06(1), NR 439.07(8)(n), and NR 407.09(1)(c)1., Wis. Adm. Code].

(7) Whenever a visible emissions test is required to demonstrate compliance, the permittee shall use US EPA Method 9 for this purpose. [s. NR 439.06(9)(a)1., Wis. Adm. Code]

(8) To demonstrate compliance with the appropriate destruction efficiency or emission rate in limitation I.A.1.a.(6), the permittee shall perform compliance emission tests on each control device that is used to reduce the VOC emissions from a heatset web lithographic printing press covered by this permit. For each such control device the permittee shall perform an initial test on the control device, if one has not already been performed in accordance with s. NR 422.142(6)(b)1.,Wis. Adm. Code, within 180 days after installation of the first heatset web lithographic printing press that was controlled by the device. The permittee shall perform an emission test that demonstrates compliance with I.A.1.a.(6) every forty-eight (48) months within 90 days of the anniversary date of the initial emission test, and for each test the permittee shall follow the methods and procedures listed in s. NR 439.07, Wis. Adm. Code. [ss. NR 407.09(4)(a)3.b., NR 422.142(5)(a) and (b), and NR 422.142(6)(b)2., Wis. Adm. Code]

(9) Prior to performing a compliance emission test, the permittee shall submit to the Department in writing an emissions compliance test plan at least twenty (20) business days prior to the scheduled date of the test. The test plan submitted by the permittee shall include the information required under s. NR 439.07(2), Wis. Adm. Code. As part of the test plan, the Department shall be given the opportunity to have a representative present to witness the test. [ss. NR 407.09(4)(a)3.b., NR 422.142(5)(a), NR 439.07(2), NR 439.07, and NR 439.075(1)(b), Wis. Adm. Code]

(10) During each compliance emission test on a control device the permittee shall operate all emission units connected to the control device at capacity or as close to capacity as practicable, and the permittee shall determine the average combustion temperature of the control device. If the operation of the emission units at capacity is not feasible, the permittee shall operate them at a capacity which is approved by the Department. [ss. NR 407.09(4)(a)3.b., NR 422.142(5)(a), NR 439.07(1), and NR 439.075(1)(b), Wis. Adm. Code]

(11) For each control device used to control VOC emissions from a heatset web lithographic printing press covered by this permit the permittee shall install, calibrate, maintain, and operate temperature monitoring devices to the extent necessary to continuously measure the primary combustion chamber and afterburner temperatures for the control device. The permittee shall ensure that each monitoring device has an accuracy that is at least as accurate as the level specified by s. NR 439.055(3), Wis. Adm. Code. [ss. NR 407.09(4)(a)3.b., NR 439.055(1), and NR 439.055(3), Wis. Adm. Code]

(12) Whenever a compliance VOC emission test that is required by I.C.(8) is performed on a control device or printing press dryer, the permittee shall submit two (2) written copies of the emission test report to the Department within sixty (60) days after completion of the test. The emission test report shall include, but is not limited to, the information set forth in s. NR 439.07(9), Wis. Adm. Code, and the following information:
(a) if the permittee is meeting the limitation in I.A.(5)(a) or I.A.(5)(b)(i), then the report shall identify the VOC destruction efficiency of the control device, in units of percent by weight reduction of total organics minus methane and ethane. The report shall identify the average combustion chamber and afterburner temperature that was measured during the test and the minimum combustion chamber and afterburner temperature that is approved by the Department for monitoring the performance of the control device.
(b) if the permittee is meeting the limitation in I.A.(5)(b)(ii), then the report shall identify the maximum dryer exhaust concentration, in units of ppmv, as carbon, that was measured during the test. [ss. NR 407.09(1)(c)1. & 4(a)1., NR 439.04(1)(d) and NR 439.07(9), 422.142(6)(b)2., Wis. Adm. Code]

D. CHANGES MADE UNDER THIS GENERAL OPERATION PERMIT[8]

(1) Notwithstanding the requirements of s. NR 406.04(1) and (2), Wis. Adm. Code, no construction permit is required prior to commencing construction, reconstruction, replacement, relocation or modification of a stationary source at this facility, if the project meets all of the following criteria:

(a) the construction, reconstruction, replacement, relocation or modification will not result in the source's violating any term or condition of this permit or render the facility ineligible for this permit.

(b) the construction, reconstruction, replacement, relocation or modification does not require a permit under ch. NR 405 or 408.

[s. NR 407.10(4)(a), Wis. Adm. Code]

(2) Notwithstanding requirements in chs. NR 401 – 439, Wis. Adm. Code, that may require such a test, no initial or periodic compliance emissions tests[9] for particulate matter emissions or PM-10 are required upon construction of a new heatset lithographic web press under I.D.(1) or during subsequent operation of the press. However, the Department may require such a test at any time at its discretion. [ss. NR 439.075(1)(c), NR 439.075(4)(a)1.d.3., Wis. Adm. Code]

(3) If a construction permit is required, the permittee shall obtain a construction permit under ch. NR 405, 406 or 408, as applicable. The permittee may not commence construction, reconstruction, replacement, relocation or modification prior to receiving the construction permit, which may be an individual, general, or registration construction permit. The permittee shall also apply for an individual operation permit, a revision of its operation permit or a registration operation permit under ch. NR 407, Wis. Adm. Code. [s. NR 407.10(4)(c), Wis. Adm. Code]

(4) The permittee shall keep records adequate to demonstrate that the criteria in I.D.(1) were met. [s. NR 439.04(1)(d), Wis. Adm. Code]

(5) No later than 30 calendar days from commencing construction, reconstruction, replacement, relocation or modification, the permittee shall notify the Department of the action and provide information explaining how the source is meeting the criteria for an exemption under I.D.(1). [s. NR 407.10(4)(b), Wis. Adm. Code]

(6) The owner or operator shall keep records of any physical change[10] to a stack or process at the facility that could result in an increase in emissions or an increase in the ambient impact of the emissions from the facility. These records shall include a description of the change, the date the change was made (i.e., start date of construction or modification) and a statement indicating that, after the change, the facility will continue to qualify for this permit. [s. NR 439.04(1)(d), Wis. Adm. Code]

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[8] Note that additional exemptions from a construction permit, as provided in ss. NR 406.04(2), (2m), (4), (5), and (6), Wis. Adm. Code, are available for certain types of changes that meet the exemption criteria, including exempt relocations, exempt replacements, the general category of exempt sources, and exclusions from modification, including the use of an alternate fuel or raw material, VOC RACT compliance, resumption of operation, increase in production rate, increase in hours of operation, change of ownership, routine maintenance or repair, and "other changes".

[9] Since the permit enforces a limit of 0.5 pounds per hour on each stack based on sound theoretical calculations of condensable PM emissions and based on the well-established insignificance of PM emissions from the burning of gaseous fossil fuels, this waiver from compliance emissions testing is appropriate.

[10] Examples of changes that may result in an increase in the ambient impact of a facility's emissions include, but are not limited to, addition or modifications of processes, or changes to pollution control devices, stacks parameters, stack locations, and building heights.

E. HAZARDOUS AIR POLLUTANT REQUIREMENTS

(1) The permittee may emit to ambient air a hazardous air contaminant that is listed under Table A of chapter NR 445, Wis. Adm. Code, and that does not have a control requirement listed under column (i) of Table A, only if the facility emissions of the contaminant meet at least one of the following conditions (a), (b), (c), or (d):

(a) the contaminant is released to ambient air by general building ventilation sources and all applicable thresholds in column (h) of Table A for the contaminant are stated either in 1-hour or 24-hour average time periods

(b) the contaminant is released to ambient air by general building ventilation sources and all of the following requirements are met for the contaminant:
(i) at least one applicable threshold in column (h) of Table A for the contaminant is stated in terms of an annual time period
(ii) the contaminant has a threshold limit value established by the American Conference of Governmental Industrial Hygienists, in the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2000
(iii) the permittee demonstrates to the department that it is in compliance with applicable occupational safety and health administration requirements

(c) the contaminant is released in quantities that do not exceed the appropriate threshold level in columns (c) to (f) of Table A, provided that the stack that vents the emissions meets the following criteria:
(i) the emissions are from an unobstructed discharge point and
(ii) the stack is oriented in an upward direction within 10 degrees of vertical

(d) the owner or operator limits emissions so as not to cause an ambient air quality concentration off property that exceeds column (g) of Table A, where applicable

[ss. NR 445.07(1), NR 445.07(5)(d)1, Wis. Adm. Code]

(2) The permittee may emit to ambient air a hazardous air contaminant that is listed under Table A of chapter NR 445, Wis. Adm. Code, that does have a control requirement listed under column (i) of Table A, only if the contaminant has a unit risk factor established by either the USEPA or the California Air Resources Board and if the facility emissions of the contaminant meet at least one of the following conditions (a) or (b), where inhalation impact is defined under s. NR 445.08(2)(c), Wis. Adm. Code:

(a) the inhalation impact off property from each individual contaminant with a control requirement in column (i) does not exceed 1 in 10^{-6} (1 in a million), or

(b) the inhalation impact from all contaminants with a control requirement in column (i) does not exceed 1 in 10^{-5} (1 in 100,000), where applicable.

[ss. NR 445.07(1), NR 445.08(2)(c), Wis. Adm. Code]

(3) The permittee may not cause, allow, or permit from the facility at which the printing unit(s) covered by this general permit are located the emission of Federal Hazardous Air Pollutants (HAPs) greater than 10 tons per year for each individual and individual category of Federal HAP or greater than 25 tons per year for all Federal HAPs combined. Federal HAP emissions shall be calculated no less frequently than monthly as the cumulative total over the most recent period of twelve consecutive calendar months. [s. 285.65(7), Wis. Stats.]

F. REPORTING REQUIREMENTS

(1) Unless otherwise specified in an operation permit covering the facility, the permittee shall submit an annual certification of compliance with the terms and conditions of this permit, along with an annual monitoring summary report containing the monitoring results required in this permit, to the Wisconsin Department of Natural Resources, Bureau of Air Management (AM/7), Compliance Team Leader, P.O. Box 7921, Madison, WI 53707-7921, or to the attention of Air Program Compliance at the address of the Department's Service Center that is located nearest to the facility. Compliance certifications and monitoring summary reports made to the Department shall cover all equipment covered by air pollution control operation permits, including those granted coverage under this general operation permit.

(a) The time period to be addressed by the report is the January 1 to December 31 period which precedes the report, or the time period for the report required by an existing permit, if any. However, the report does not need to address any calendar month during which the permittee was not subject to this permit for at least part of the month.
(b) The reports shall be submitted to the Service Center Office (or Central Office) within 60 days after the end of each reporting period.
(c) The information included in the reports shall comply with the requirements of Part II Section N of this permit, including but not limited to the information required under s. NR 439.03(8), Wis. Adm. Code.
(d) Each report shall be certified by the responsible official as to the truth, accuracy and completeness of the report.
(e) The methods used to determine the permittee's compliance status shall be the same methods which are required under s. NR 407.09(1)(c)1.

[ss. NR 439.03(1)(c), NR 439.03(8), and NR 439.03(10), Wis. Adm. Code]

(2) All records required under this operation permit shall be retained and maintained for at least five (5) years and shall be made available to Department personnel upon request during normal business hours. [s. NR 439.04, s. NR 439.05, & s. NR 407.09(4)(a)3.b Wis. Adm. Code]