

**WISCONSIN AIR POLLUTION CONTROL  
PERMIT APPLICATION  
FORM-BY-FORM INSTRUCTIONS**

**PUB AM-565**

(Supplement to AM-300)

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES

P. O. BOX 7921

MADISON, WI 53707

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## Introduction

This document is designed to supplement the [Wisconsin Air Pollution Control Operation Permit Application Instructions publication \(AM-300\)](#) and the instructions found on the back of each permit application form. This form-by-form instruction document offers expanded explanations of certain items as well as examples.

## Helpful Tips

Form 4530-100 is required for all air permit and exemption applications.

The completed Form 4530-100 must be signed by the facility's Responsible Official and submitted, with all other applicable application materials, according to the instructions in Item 22 on Form 4530-100:

Submit two paper copies of completed form(s), with ink signature on this form, and additional information to:

WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
BUREAU OF AIR MANAGEMENT  
P.O. BOX 7921  
MADISON, WI 53707-7921

OR Email an electronic copy to [DNRAMAirPermit@wisconsin.gov](mailto:DNRAMAirPermit@wisconsin.gov) and mail one complete paper copy with ink signature to the address above.

Air permit applications and any required application fees must be submitted according to the above instructions to be officially received and entered into the department's central processing system. Deviating from submittal instructions will cause unnecessary processing delays. Applications submitted directly to individual department staff are unofficial copies and do not initiate the department's application review process.

Each emissions unit, control device, and stack must have one unique identification number that is consistently used throughout each application form, table, plot plan, and permit. Avoid using alternate identifiers/names in the application.

The department uses a standard convention of S## to identify stacks, C## to identify control equipment, B## to identify boilers, and P## to identify other emissions units. The department's system can accommodate alpha-numeric identification numbers up to ten characters. Using identifiers currently in use by the department for existing equipment is recommended and will reduce confusion.

If an item on a form does not seem applicable, review the form's instructions for clarification. If, after reading the instructions, it appears the item still does not apply, write "Not Applicable".

If it is not possible to include the information in the space provided, use Form 4530-135, the Supplemental Information form. Alternately, additional information may be provided in a cover letter or appendix to the application.

In lieu of forms 4530-103 and 4530-126 through 4530-129, the department will accept and encourages submittal of the required information in table format. All requested information must be submitted with the application. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

Non-Part 70 sources are **not** required to complete forms 4530-118 through 4530-125. Please refer to the following document to determine whether or not the facility is a Part 70 source: [Wisconsin Air Pollution Control Operation Permit Application Instructions publication \(AM-300\)](#).

## **Form 4530-100 - Facility Identification**

This form is required for all air permit applications and determination of exemption requests. It provides identifying information for the facility. The following information supplements the instructions found on the back of Form 4530-100.

**Item 2. SIC and NAICS.** Provide the industrial code identifying the primary business activity. Include both Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes. The codes for the facility can often be found on the first page of the facility's annual Air Emissions Inventory Report. To confirm that the most up-to-date codes are used, go to <https://www.census.gov/eos/www/naics/>.

**Item 3. Facility Identification (FID) Number.** Every permit application form asks for the facility identification (FID) number. This 9-digit number can be found at the top of each page of the facility's annual *Air Emissions Inventory* Report. If the facility has never been issued a FID number, then enter "none assigned" in the blank. This is a signal to the department to assign the facility a FID number.

**Item 8. Is the facility located in an area designated as “nonattainment”?** To find out if the facility is located in a "nonattainment" area, visit <https://dnr.wi.gov/topic/AirPermits/Nonattainment.html>. Areas are designated "nonattainment" by pollutant. For example, the facility's county may be nonattainment for ozone, but attainment for all other criteria pollutants. If the facility's area is attainment for all pollutants, check "No". If the facility's area is in nonattainment for any pollutant, check "Yes".

**Item 20. Construction Permit Actions.** Indicate if a construction permitting action is being requested.

**Section A.** Indicate the type of Permit Action being requested (if applicable). Each construction permitting action has a specific fee listed in parentheses following the item. Payment must be submitted along with the application.

If requesting that the Construction Permit application receive an expedited review, check the box indicated. The expedited review fee does not need to be submitted with the application. The expedited review fee will be included in the final permit invoice, if the applicable deadline was met by the department.

**Section B.** Indicate the type of exemption being requested (if applicable). Submit the appropriate fee indicated in parentheses after the selected option.

**Section C.** Each New Construction/Modification Permit or Construction Permit Revision selected in Section A, **must also have an Operation Permit Action identified in Section C.** If the whole facility is exempt from an operation permit, then Section C. should be left blank. Additional information on exemptions may be found here: <https://dnr.wi.gov/topic/SmallBusiness/Exemptions.html>

**Item 21. Operation Permit Actions.**

**For Operation Permits associated with Construction Permits identified in Item 20.A:**

Leave Item 21 blank. Item 20.C should be completed instead.

**For Operation Permits associated with Construction Permit Exemptions identified in Item 20.B:**

If Item 20.B is completed and the whole facility is exempt from an Operation Permit, then either 21.D or 21.E should be completed and the rest of Item 21 should be left blank.

If Item 20.B is completed and the whole facility IS NOT exempt from an Operation Permit, then leave Item 21 blank. Item 20.C should be completed instead.

**For Operation Permits not associated with a Construction Action:**

If this is an application for an Operation Permit that does not have an associated Construction Action, then Item 21 should be completed for the Operation Permit Action being requested.

**Section A.** For all Operation Permit Actions, indicate the type of Operation Permit requested based on the source classification of the whole facility.

- New facilities must indicate the requested type for the facility.
- Existing facilities should reflect either the continued facility classification or a change in classification with the attached application.

For further information on how to determine an appropriate Operation Permit type, see the following instructions: <https://dnr.wi.gov/files/PDF/pubs/am/AM300.pdf>.

**Section B.** If this is an application for the Renewal of an existing Operation Permit, check Section B, otherwise leave Section B blank.

- All renewal applications must be submitted at least six months, but no more than 18 months, prior to the expiration of a facility's existing Operation Permit.
- For additional information on submitting an Operation Permit Renewal application, review this webpage: <https://dnr.wi.gov/topic/AirPermits/Renew.html>.

**Section C.** If this is an application for the Revision of an existing Operation Permit, identify the type of Revision being requested, otherwise leave Section C blank. **Please note that most Operation Permit Revision requests meet the definition of a significant revision.**

- Administrative permit revision requests are those that meet the criteria specified in [s. NR 407.11, Wis. Adm. Code](#).
- Minor revision requests are those that meet the criteria specified in [s. NR 407.12, Wis. Adm. Code](#).
- An Operation Permit Revision that cannot be accomplished under either ss. NR 407.11 or 407.12, Wis. Adm. Code is considered to be a significant revision (see [s. NR 407.13, Wis. Adm. Code](#)).

**Section D.** Indicate which Operation Permit Exemption (for the whole facility) is being requested (if applicable), otherwise leave Section D blank. These Operation Permit Exemptions require revocation of any existing Operation and Construction Permits. Certain Construction Permit conditions cannot be revoked. If the facility has one or more permit condition with a ch. NR 405, Wis. Adm. Code citation, ch. NR 408, Wis. Adm. Code citation, or a case-by-case determination then it would be prudent to discuss Operation Permit Exemption approvability with the department. Additional information regarding exemptions may be found here: <https://dnr.wi.gov/topic/smallbusiness/exemptions.html>.

**Section E.** Indicate whether a General or Specific Operation Permit Exemption is being requested (if applicable), otherwise leave Section E blank.

**Item 22. For All Permit Actions.** Indicate if additional information is attached. Complete Item 23 and follow the submittal instructions that are contained in Item 22.

**Air permit applications and any required application fees must be submitted according to these instructions to be officially received and entered into the department's central processing system. Deviating from submittal instructions (e.g. submitting directly to an individual permit writer or manager) will cause unnecessary processing delays.**

**Item 23. Signature of Responsible Official.** Review the statements in the signature block. Part 70 (major) source applications should indicate a response to the Certification of Facility Compliance Status. The Responsible Official should print his/her name and title, and sign and date the document. The original signed copy must be submitted to the department along with the application and any application fee, if applicable.

### **Form 4530-101 - Facility Plot Plan**

Every permit application must include this form. It is suggested that Form 4530-102 – Source and Site Description be completed before Form 4530-101. If a plot plan was not previously submitted to the department or the plot plan that was previously submitted is out of date, then an up-to-date plot plan must be included with the permit application.

When preparing the plot plan, ensure that all emissions points (stacks or fugitive emissions) are clearly marked and crosscheck against Form 4530-102 to ensure that nothing is missed. A plot plan consists of a scaled drawing, preferably a blueprint, of a plan view (from above) of the entire facility, including all buildings, fence lines, and property lines. Indicate the direction of true north on the plot plan and include the scale of the drawing, such as 1 inch:10 feet or 1 cm = 1 m. Label each building tier with its heights, both peak and eave. If possible, please provide descriptions of other on-property areas such as employee or guest parking lots, tractor-trailer storage, and any piles of material, whether enclosed by fences or not.

Label each stack with the same identification number that was used on Form 4530-102. If there are several stacks connected to one process, label each stack with the process name and stack identification number. The plot plan is the only place where duplicates of a stack identification number are allowed.

**Item 1.** For Air Pollution Control Operation Permit renewal applications, indicate if any changes have affected the facility's plot plan, and if so, provide an updated plot plan.

The information on this form is important for air pollutant dispersion modeling. This modeling is used to determine whether the facility's emissions will meet the National Ambient Air Quality Standards (NAAQS). Be as accurate as possible when completing this form.

### **Form 4530-102 - Source and Site Description**

**Every permit application must include this form except for an Operation Permit Renewal application with a cover letter, signed by the Responsible Official, stating either:**

- **“No emissions unit changes have been made since the last operation permit issuance date.”**
- OR**
- **“The details of all emissions unit changes since the last Operation Permit issuance date have been communicated in permit application(s) on file with the department.”**

This form has three parts: 102, 102A, and 102B. Refer to this form when filling out the rest of the permit application to ensure that the numbering scheme is consistent and that nothing is left out.

It is required that all emissions units, operations, and activities be identified in the permit application. Insignificant emissions units, operations and activities need only be listed on Form 4530-102B. It is not necessary to provide any other information in the application or fill out any other forms for insignificant units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or 408, Wis. Adm. Code, or if requested by the department.

**4530-102 Item 1. Source Description.** Provide a general, but comprehensive, description of the air pollution sources at the plant. This description should list the individual emissions units (e.g., one wood-fired boiler, one wood furniture paint booth, and two sawing operations) and any stacks or roof vents associated with them.

**Example:** Acme Manufacturing produces hardwood veneer paneling. The mill runs a veneer cutting operation, a veneer gluing operation, and a panel trim operation, as well as finish sanding and varnishing lines. Three wood-fired boilers provide the mill with steam for process and general heating needs. Sawdust and sander dust from the production lines are collected by a cyclone and conveyed to the two smaller boilers. The cyclone collector has its own stack, and the gluing and varnishing lines each have their own stacks.

Acme operates two identical 500 horsepower boilers that fire a mixture of sawdust and sander dust. The emissions from these two boilers are not controlled and go to a common stack. The third boiler fires hog fuel from the sawmill and debarking operation. This boiler has its own stack, and the emissions are controlled by a multiple-cyclone collector.

**4530-102 Item 2. Site Description.** Give a general description of the area surrounding the plant. This description should include the location of the plant relative to major highways and other landmarks. Indicate whether the plant is near a residential area, in an industrial park, in a rural area, etc. If the plant is located in one or more "nonattainment" areas, these should be identified (see <https://dnr.wi.gov/topic/AirPermits/Nonattainment.html>). In addition, topographical features of the surrounding area, such as hills, bluffs, and river valleys, should be described.

**4530-102A Item 1. Significant Emissions Units.** Describe all significant emissions units. Include equipment specifications for each emissions unit in the description, such as manufacturer and model number, maximum operating capacity of the equipment, and fuels that may be used.

Existing, permitted, emissions units will already have emissions unit, control device, and stack numbers assigned. Refer to the "Stack and Process Index" in the facility's Air Pollution Control Operation Permit to find the already assigned numbers.

**Assigning Identification Numbers.** For new emissions units, the format for identifying all stacks, processes, boilers, control devices, etc., is typically a single letter followed by two numbers. The letter identifies what the unit is: S = stack, P = process, B = boiler or furnace, C = control device, I = incinerator, F = fugitive, and T = tank. The two numbers should range from 01 to 99 (a zero needs to be in front of single digit values, 1-9). The numbering does not have to start at 01. The department's system can accommodate alpha-numeric identification numbers up to ten characters. Using identifiers currently in use by the department for existing equipment is recommended and will reduce confusion.

Emissions units that might be thought of as indoor "fugitive" emissions (e.g., a degreaser or paint touch-up area) should be assigned a stack or vent that exhausts outside the building (e.g. F##). Often "F##" is used for both the stack and process number, without a different stack number.

Storage tanks should not be assigned a stack.

**Do not duplicate numbers for emissions units at the same facility (i.e., there should never be two P01s, two S01s, two T01s, etc.).**

Examples of identification format:

- 1) Two emissions units exhausting through one control device and out one stack could be identified as S01, C01, P01, P02.
- 2) If the same facility also has three tanks, the identification could be as follows: T10, T20, T99.
- 3) If the same facility also has another single emissions unit exhausting through two control devices and out one stack, the identification could be as follows: S02, P03, C02, C03.
- 4) A source of fugitive emissions, such as a sand storage pile, could be identified as F99.

**Example:**

**A. Boiler B23, S13, C23 - 32 MMBTU/hr Hog Fuel Boiler**

Manufacturer & Model:	XYZ Model Q-45
Boiler Type:	Air-swept stoker
Max. Continuous Heat Input Rate:	32.0 MMBTU/hr
Fuel Moisture:	35 percent
Installation Date:	April 1990
Air Pollution Control:	Multiple Cyclone

**B. Boilers B21 and B22, S12 - 500 HP Fines Boilers**

Manufacturer & Model:	Kewaunee AQ-45
Boiler Type:	Horiz. Return Tube
Max. Continuous Heat Input Rate:	23.9 MMBTU/hr each
Fuel Moisture:	15 percent
Installation Date:	1921
Air Pollution Control:	none

**C. Process P30, S20 - Veneer Cutting Operation**

Process Throughput:	1.1 tons/hr
Air Pollution Control:	none

**D. Process P31, S21 - Veneer Gluing Operation**

Process Throughput:	1.1 tons/hr
Glue Type:	Phenolic Resin
Air Pollution Control:	none

**E. Process P32, S22 - Panel Trim Operation**

Process Throughput:	1.1 tons/hr
Air Pollution Control:	none

**F. Process P33, S23 - Finish Sanding Operation**

Process Throughput:	1.1 tons/hr
Air Pollution Control:	none

G. Process P34, S24 - Topcoating Process

Process Throughput:	7.2 gal/hr
Coatings Used:	TopKlr 107 (water-base) Mighty Kleer (oil-base)
Air Pollution Control:	none

**4530-102B Item 1. Insignificant Emissions Units.** Form 4530-102B contains a checklist of several insignificant emissions units, operations, and activities. Check those that are applicable and list all additional insignificant emissions units, operations, and activities at the facility on this form (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)).

**It is not necessary to provide any other information in the application or fill out any other forms for insignificant units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or 408, Wis. Adm. Code, or if requested by the department.**

### **Form 4530-103 - Stack Identification**

Complete one Form 4530-103 for each actual exhaust point (stack, roof vent, wall vent, etc. that vents the emissions unit(s) in the permit application) and source of fugitive emissions, as applicable. Storage tanks will not have a stack form associated with them.

**For existing equipment, if a previously submitted Form 4530-103 remains valid, then it does not need to be re-submitted.**

**In lieu of Forms 4530-103 and 4530-126 through 4530-129, the department will accept and encourages submittal of the required information in table format. All requested information must be submitted with the application. Microsoft Excel workbooks may be sent to the permit writer, once assigned.**

**Item 3. Listing Stack Number.** List the identification number of the stack. This should be the same number used for the stack in the plot plan on Form 4530-101 and the source description on Form 4530-102. It should be clear which stack on the plot plan goes with each stack identification form.

**Item 4. Listing Process Numbers.** Select the appropriate emissions unit form for each emissions unit that vents out this stack. The emissions unit forms are:

4530-104	Boiler or furnace operation
4530-106	Incineration
4530-107	Printing operations
4530-108	Painting and coating operations
4530-109	Miscellaneous processes

In the blanks provided, list the emissions unit identification number(s) next to the appropriate form number. For example, enter "B01" in the blank next to "4530-104" for a boiler. It is important that the unit identifications are consistent throughout the application.

**Item 6. Fugitive Emissions.** If there is no actual stack or vent associated with an emissions unit, check the box "this stack serves to identify fugitive emissions." Do not fill out the rest of this form. An example of an emissions unit that has fugitive emissions is a material storage pile located outside. Note that if emissions from a process, emissions unit, etc., escape from the building in some way, then a stack should be assigned to that process, emissions unit, etc. (e.g., a degreaser or paint touch-up area). That stack may have to be a "dummy" stack with parameters that approximate the release point parameters.

Please see the “Determine the facility type” section of this document to learn more about when to include fugitive emissions: <https://dnr.wi.gov/files/PDF/pubs/am/AM300.pdf>.

## **Form 4530-104 - Boiler or Furnace Operation**

Complete one form for each boiler or furnace. Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Note that this form should also be used for engines, as the department does not currently have an engine-specific form.**

**Item 5. Listing Control Equipment.** The first step in completing this item is to determine whether or not the emissions unit is controlled. If the emissions unit is not controlled, select “Uncontrolled” for Item 5. If the emissions unit is controlled, list the control device identification number(s) for this emissions unit in the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. It is important that the unit identifications are consistent throughout the application.

The eight control equipment forms are:

4530-110	Miscellaneous Control Equipment
4530-111	Condensers
4530-112	Adsorbers
4530-113	Catalytic or Thermal Oxidation
4530-114	Cyclone/Settling Chambers
4530-115	Electrostatic Precipitator
4530-116	Wet Collection Systems
4530-117	Baghouses/Fabric Filters

Complete the appropriate control device form (4530-110 through 4530-117). Refer to the section in this document on [Forms 4530-110 through 4530-117 for Control Equipment](#).

**Item 11. Fuels.** Complete the table for all fuels that are used or are capable of being used with this boiler or furnace. Remember to address any Alternate Operating Scenarios and label any alternative fuels as such.

The fuels and fuel data provided in this table will be used to establish any permit conditions necessary to ensure compliance with emission limits and ambient air quality standards. The fuels listed on this form will be the only fuels the facility’s permit will allow, so make sure the list is complete. Fuel data, such as the higher heating value, sulfur content, and ash content, can often be obtained from the fuel supplier. Fuels can also be tested to provide this information.

When providing information about fuels, include the appropriate units, such as BTU (or British thermal unit) per pound (lb) of coal or BTU per gallon of oil. Sulfur and ash content should be provided as weight percent. If the heating value is listed as a range, use the lower number to show a worst-case scenario.

**Example:** Ye Olde Manufacturing operates a multiple fuels boiler built by Combustion Engineering in 1955. This boiler is equipped to burn natural gas and bituminous coal. Ye Olde wants to be permitted to burn any of these fuels at any time to maintain operational flexibility.

To complete Form 4530-104, Ye Olde must describe the fuel characteristics for all the fuels it is capable of burning. For the purposes of this example, the table below lists the characteristics of two

of the fuels Ye Olde Manufacturing wants included in its permit. This information was obtained from the fuel supplier.

<b>Fuel Characteristics</b>	<b>Primary Fuel</b>	<b>Backup Fuel #1</b>
Fuel Name	Bituminous Coal	Natural Gas
Higher Heating Value	10,000 BTU/lb	1000 BTU/ft <sup>3</sup>
Maximum Sulfur Content	2.8% (w/w)	0.00% (w/w)
Maximum Ash Content	9.5% (w/w)	0.00% (w/w)
Excess Combustion Air	15%	10%
Moisture Content	2.5%	0.0%
Maximum Hourly Consumption	3.3 tons	0.07 x 10 <sup>6</sup> ft <sup>3</sup>
Actual Yearly Consumption	15,000 tons	50 x 10 <sup>6</sup> ft <sup>3</sup>

In the table above, the heating value, sulfur and ash contents, and hourly fuel consumption values represent "worst case" assumptions from an air pollution perspective (lowest heating value, highest sulfur and ash contents). Note that the units for heating value vary with the fuel type (e.g., BTU per pound for solid fuel, BTU per cubic foot for gaseous fuel). Similarly, the units for fuel consumption are fuel-dependent.

### **Form 4530-105 - Storage Tanks**

Complete one form for each storage tank. Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Item 4. Listing Control Equipment.** The first step in completing this item is to determine if the emissions unit is controlled. If the emissions unit is uncontrolled, write in "Not Applicable". If the emissions unit is controlled, list the control device identification number(s) for this emissions unit in the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-113" for catalytic or thermal oxidation. It is important that the unit identification numbers are consistent throughout the application.

Complete the appropriate application form for the control equipment (4530-110 through 4530-117). Refer to the section in this document on [Forms 4530-110 through 4530-117 for Control Equipment](#). The eight control equipment forms are:

- 4530-110      Miscellaneous Control Equipment
- 4530-111      Condensers
- 4530-112      Adsorbers
- 4530-113      Catalytic or Thermal Oxidation
- 4530-114      Cyclone/Settling Chambers
- 4530-115      Electrostatic Precipitator
- 4530-116      Wet Collection Systems
- 4530-117      Baghouses/Fabric Filters

**Item 12. Tank Types.** Indicate the type of tank according to these definitions:

Open Top Tanks do not have roofs. The stored liquid is exposed to open air.

Pressurized Tanks are equipped with a pressure/vacuum vent that is set to prevent emissions caused by boiling and breathing losses due to daily temperature or barometric pressure changes. A tank is considered pressurized if the pressure vent is set above 2.5 pounds per square inch gage (psig).

Fixed Roof Storage Tanks may be vertical or horizontal. Typically, fixed roof storage tanks consist of a cylindrical steel shell with a permanently affixed roof, which may vary in design from cone- or dome-shaped to flat. Fixed roof tanks are either freely vented or equipped with a pressure/vacuum vent.

External Floating Roof Storage Tanks consist of an open top cylindrical steel shell equipped with a roof that floats on the surface of the stored liquid.

Internal Floating Roof Tanks have a deck inside the tank that floats on the surface of the liquid and allows for expansion and contraction of the liquid while minimizing evaporation losses. A fixed roof tank with an internal floating roof looks similar to a fixed roof tank from the outside.

Variable Vapor Space Storage Tanks are equipped with expandable vapor reservoirs to accommodate vapor volume fluctuations due to daily temperature and barometric pressure changes.

**Items 13-17.** Note: these questions apply to specific types of storage tanks. Fill out only the questions that apply to the type of tank that this form is for. Use U.S. EPA's AP-42 - Chapter 7.1, Organic Liquid Storage Tanks (<https://www3.epa.gov/ttn/chief/ap42/ch07/index.html>) when calculating emissions from the storage tanks.

While U.S. EPA also has emissions estimation software called TANKS 4.09D (<http://www.epa.gov/ttn/chief/software/tanks/index.html>) available for use, please note that U.S. EPA's website states the following regarding the TANKS 4.09D:

*“The TANKS model was developed using a software that is now outdated. Because of this, the model is not reliably functional on computers using certain operating systems such as Windows Vista or Windows 7. We are anticipating that additional problems will arise as PCs switch to the other operating systems. Therefore, we can no longer provide assistance to users of TANKs 4.09d. The model will remain on the website to be used at your discretion and at your own risk. We will continue to recommend the use of the equations/algorithms specified in AP-42 Chapter 7 for estimating VOC emissions from storage tanks. The equations specified in AP-42 Chapter 7 (<https://www.epa.gov/ttn/chief/ap42/ch07/index.html>) can be employed with many current spreadsheet/software programs.”*

**Item 18. Stored Materials.** Complete the table for all materials that are stored in this tank. Remember to address any Alternate Operating Scenarios and label any alternative liquids as such. Material molecular weight, material vapor pressure, and material liquid density, if not available from the supplier, can be found in chemical handbooks, AP-42 (<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>), or EPA WebFIRE (<https://cfpub.epa.gov/webfire/>).

**Example:** Chem-All's storage tank T21 presently is used to store either ethanol or isobutanol. In the future, the tank might be used exclusively for the storage of allyl alcohol. To fill out the table, Chem-All referred to AP-42 for detailed information on each liquid. Chapter 7 to AP-42 contains a table with liquid densities, molecular weights, and vapor pressures at various temperatures for several organic liquids. By looking at past records, the facility estimated an annual throughput, storage pressure, and an average daily amount stored for each of the liquids.

Here is how Chem-All fills out the table for storage tank T21:

Material Stored	Annual Throughput (gal/yr)	Daily Average Amount Stored (gallons)	Molecular Weight (lb/lb-mol)	Vapor Pressure (psia)	Storage Pressure (psia)	Average Storage Temp (° F)	Liquid Density (lb/gal)
Ethanol	210,000	21,000	46.07	0.406	14.7 " 0.5	50	6.610
Isobutanol	165,000	10,000	74.12	0.097	14.7 " 0.5	50	6.712
ALTERNATIVE SCENARIO: Allyl alcohol	195,000	18,000	58.08	0.193	14.7 " 0.5	50	7.125

**Item 21. Operations Served by this Tank.** This information is necessary to identify regulations that apply to the storage tank, so it is important to complete the entire form with correct information.

### **Form 4530-106 - Incineration**

This form is used for incinerators that burn waste. Complete one form for each incinerator used to burn waste materials. Most of the information for this form can be obtained from the incinerator manufacturer.

**Do not use this form for control equipment.** If the facility has an incinerator that is used to control organic compound emissions from a process, use Form 4530-113.

Refer to previous facility records, the incinerator manufacturer, and trade associations to find the information required by this form.

**Item 5. Listing Control Equipment.** The first step in completing this item is to determine if the emissions unit is controlled. If the emissions unit is not controlled, select "Uncontrolled" for Item 5. If the emissions unit is controlled, list the control device identification number(s) for this emissions unit in the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. It is important that the unit identifications are consistent throughout the application.

Complete the appropriate application form for the control equipment (4530-110 through 4530-117). Refer to the section in this document on [Forms 4530-110 through 4530-117 for Control Equipment](#). The eight control equipment forms are:

- 4530-110      Miscellaneous Control Equipment
- 4530-111      Condensers
- 4530-112      Adsorbers
- 4530-113      Catalytic or Thermal Oxidation
- 4530-114      Cyclone/Settling Chambers
- 4530-115      Electrostatic Precipitator
- 4530-116      Wet Collection Systems
- 4530-117      Baghouses/Fabric Filters

**Item 10. Materials to be Burned.** List all materials that will be burned in the incinerator. Remember to address any Alternate Operating Scenarios and label any alternative materials as such.

**Example:** Central City Memorial Hospital is submitting a permit application for their hospital incineration unit. The incinerator has a rated capacity of 200 pounds per hour, so it will not use add-on emission control equipment. The hospital finds the weight percent of their waste streams by having their incinerator operator record the weight of red bag waste and regular waste that went through the incinerator for 3 days. They then estimate the weight percent of each waste type from

those figures. To find the heating value of each type of waste, the hospital called their incinerator manufacturer who gave them estimates based on a detailed description of their waste stream. The facility fills out the table in Item 10 as follows:

Material	Origin	Weight Percent	Heating Value
Hospital Infectious (red bag) waste and Pathological waste	Central City Hospital	95%	10,000 BTU/lb
Hospital waste	Central City Hospital	5%	4,500 BTU/lb

### **Form 4530-107 - Printing Operations**

Complete one form for each printing operation at the facility. Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Item 5. Listing Control Equipment.** The first step in completing this item is to determine if the emissions unit is controlled. If the emissions unit is not controlled, select “Uncontrolled” for Item 5. If the emissions unit is controlled, list the control device identification number(s) for this emissions unit in the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-113" for catalytic or thermal oxidation. It is important that the unit identifications are consistent throughout the application.

Complete the appropriate application form for the control equipment (4530-110 through 4530-117). Refer to the section in this document on [Forms 4530-110 through 4530-117 for Control Equipment](#). The eight control equipment forms are:

- 4530-110      Miscellaneous Control Equipment
- 4530-111      Condensers
- 4530-112      Adsorbers
- 4530-113      Catalytic or Thermal Oxidation
- 4530-114      Cyclone/Settling Chambers
- 4530-115      Electrostatic Precipitator
- 4530-116      Wet Collection Systems
- 4530-117      Baghouses/Fabric Filters

**Item 10. Description of All Inks’ and Solvents’ Composition (As Applied) That Are Used by the Emissions Unit.** List all inks, fountain solutions, blanket washes (manual or automatic), and clean-up and other solvents used in this operation. Characteristics of these inks may be obtained from test data, the supplier, or on Safety Data Sheets (SDS). If the SDS contains ranges, list the higher value on the form. Documentation of the ink and solvent characteristics must be attached with this form. Remember to address any Alternate Operating Scenarios and label any alternative inks as such. Under clean-up solvents, include blanket wash or any other clean-up solvent used on the same process line. Attach Form 4530-135 for additional information, where necessary. If many inks and solvents are used in the printing operations, the department encourages the submittal of this information as an attachment to this form.

For Item 10e, if the available information gives the percent **volatiles**, then the percent water and exempt solvents must be subtracted out before entering the number in Item 10e for percent **VOC**. The number for percent volatiles includes water and anything else that will evaporate from an ink sample.

- Some SDS's will report the percent volatiles in the ink rather than the percent VOC. If it is unclear if the information shows a percentage that includes water, call the provider of the SDS or test data for clarification.
- Method 24 test data also shows the percent volatiles in the ink.

Item 10g asks for either the density of the **ink** or the density of the **VOC** in the ink. **Specify on the form which number is being provided.** Note that if volume percent for water, solids, and VOC content is provided, then the density of the VOC in the ink must be provided. If weight percent is provided, then ink density must also be provided.

Only screen printing sources must fill out Item 10h. There are several ways to calculate VOC content. Depending on what information is available, use one of the following equations to calculate the pounds VOC per gallon less water. Please supply sample calculations on Form 4530-135. Alternately, the department will accept the required information in table format. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

If ink composition data is available, such as weight percent or volume percent of solids, VOC, and water from an SDS or other source, the following equations can be used:

Ink contains no water or exempt solvents, using weight percent and ink density:

$$\text{Item 10h} = (10e/100) \times \text{Item 10g}$$

Ink contains water and/or exempt solvents, using volume percent and the density of the VOC:

$$\text{Item 10h} = [\text{Item 10e} \times \text{Item 10g}]/[\text{Item 10d} + \text{Item 10e}]$$

If test data is available, such as Method 24 results, then use the following equation. Remember to make sure that the weight percent of VOC in item 10e does not contain water or exempt solvents.

Ink contains water and/or exempt solvents, using weight percent and ink density:

$$\text{Item 10h} = [\text{Item 10e} \times \text{Item 10g}]/[100\% - (\text{Item 10f} \times (\text{Item 10g}/8.34))]$$

**Example:** ABC Printing has a heatset web-offset line at their printing facility. They operate 24 hr/day, 6 days/week, 300 days/year. According to their press manufacturer, the maximum material throughput is:

Paper:	7200 lb/hr
Ink:	250 lb/hr
Fountain Solution:	400 lb/hr
Blanket wash:	9 lb/hr
TOTAL:	7859 lb/hr

ABC has SDS's on file for all the inks they use. The SDS's provide the weight percent of solids, VOC, and water in the ink, as well as the density of the ink. For Item 10h, they use the following equation:

$$[48 \times 6.66]/[100\% - (6.0 \times (6.66/8.34))] = 3.36 \text{ pounds VOC/gal less H}_2\text{O}$$

ABC fills out Item 10 this way:

Name of ink a.	Maximum usage b.		Normal usage c.	Solids % d.		VOC % e.		Water % f.		Coating or VOC Density g.	Pounds VOC/gal less H <sub>2</sub> O h.
	gal/hr	gal/yr		gal/yr	W	V	W	V	W		
Heatset ink	30	160,000	100,000	46		48		6		6.66	3.36
Total inks	30	160,000	100,000								
Clean-up solvents (Blanket wash)	1.3	11,500	9600	0		100		0		6.74	----

### **Form 4530-108 - Painting and Coating Operations**

Complete one form for each significant painting or coating operation at the facility. Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)) except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Item 5. Listing Control Equipment.** The first step in completing this item is to determine if the emissions unit is controlled. If the emissions unit is not controlled, then select “Uncontrolled” for Item 5. If the emissions unit is controlled, list the control device identification number(s) for this emissions unit in the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-113" for catalytic or thermal oxidation. It is important that the unit identifications are consistent throughout the application.

Complete the appropriate application form for the control equipment (4530-110 through 4530-117). Refer to the section in this document on [Forms 4530-110 through 4530-117 for Control Equipment](#). The eight control equipment forms are:

- 4530-110      Miscellaneous Control Equipment
- 4530-111      Condensers
- 4530-112      Adsorbers
- 4530-113      Catalytic or Thermal Oxidation
- 4530-114      Cyclone/Settling Chambers
- 4530-115      Electrostatic Precipitator
- 4530-116      Wet Collection Systems
- 4530-117      Baghouses/Fabric Filters

**Item 6. Transfer Efficiency.** Transfer efficiency is the percentage of coating solids that adhere to the surface of the material being coated during the application process. Transfer efficiency is, generally, a function of the coating technique and the size and shape of the item being coated. Refer to manufacturer's literature, accepted industry standards, or test data to estimate the transfer efficiency. Assume the lowest applicable transfer efficiency. Supply a copy of manufacturer's literature with this form, if available, for each coating applicator used in the process.

**Item 10. Description of Coatings.** List all paints, coatings, and clean-up and other solvents used in this operation. Refer to test data and Safety Data Sheets (SDS) or contact the supplier to obtain the information required by this form. If the SDS contains ranges, list the high values. Documentation of the characteristics

of each coating must be attached. Remember to address any Alternate Operating Scenarios and label any alternative coatings as such. Attach Form 4530-135 for additional information. If many paints, coatings, and solvents are used in the painting or coating operations, the department encourages the submittal of this information as an attachment to this form.

For Item 10g, if the available information gives the percent **volatiles**, then percent water and exempt solvents must be subtracted out before entering the number in Item 10e for percent **VOC**. The number for percent volatiles includes water and anything else that will evaporate from an ink sample.

- Some SDS's will report the percent volatiles in the ink rather than the percent VOC. If it is unclear if the information shows a percentage that includes water, call the provider of the SDS or test data for clarification.
- Method 24 test data also shows the percent volatiles in the ink.

Item 10i asks for either the density of the **coating** or the density of the **VOC** in the coating. **Specify on the form which number is being provided.** Note that if volume percent for water, solids, and VOC content is provided, then the density of the VOC in the coating must be provided. If weight percent is provided, then the density of the coating itself must also be provided.

There are several ways to calculate the **VOC** content required in Item 10j. Depending on the information available, use one of the following equations to calculate the pounds VOC per gallon less water. **Please supply sample calculations on Form 4530-135.** The department will accept the required information in table format. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

If coating composition data is available, such as weight or volume percent of solids, VOC, and water from an SDS or other source, the following equations can be used:

Coating contains no water or exempt solvents, using weight percent and coating density:

$$\text{Item 10j} = (10\text{g}/100) \times \text{Item 10i}$$

Coating contains water and/or exempt solvents, using volume percent and the density of the VOC:

$$\text{Item 10j} = [\text{Item 10g} \times \text{Item 10i}] / [\text{Item 10f} + \text{Item 10g}]$$

If test data is available, such as Method 24 results, then use the following equation. Remember to make sure that the weight percent of VOC in item 10g does not contain water or exempt solvents.

Coating contains water and/or exempt solvents, using weight percent and coating density:

$$\text{Item 10j} = [\text{Item 10g} \times \text{Item 10i}] / [100\% - (\text{Item 10h} \times (\text{Item 10i}/8.34))]$$

**Example:** JB Coating, Inc. manufactures and coats wood jewelry boxes with a clear lacquer and then stamps the names of local tourist attractions on the boxes. Petroleum naphtha is used as a cleaner for the stamping portion of the process line. All lacquer is oven-cured. The VOC emissions are controlled by 87% overall. JB Coating operates 16 hours/day, 5 days/week, 200 days/year.

JB Coating gets the weight percent of solids, VOCs, and water, and the coating density from the SDS sheets on hand for all their coatings. Note that they circle the word "coating" in Item 10i to indicate which density they have provided. If they had been using the electronic forms, they would have generated a Form 4530-135 to describe which density they were providing and to show sample calculations, etc.

For Item 10j, they use the following equation:

$$[65.8 \times 8.5]/[100\% - (34.2 \times (8.5/8.34))] = 8.59 \text{ pounds VOC/gal less H}_2\text{O}$$

JB Coating fills out Item 10 this way:

Identify coatings a.	ct cg b.	T c.	Maximum usage d.		Normal usage e.	Solids % f.		VOC % g.		Water % h.		Coating or VOC Density i.	Pounds VOC/gal less H <sub>2</sub> O j.
			gal/hr	gal/yr		W	V	W	V	W	V		
Lacquer	3	250	5	43,800	12,000	0		65.8		34.2		8.5	8.59
Total coatings			5	43,800	12,000								
Clean-up solvents (Petroleum naphtha)			1.0	8760	2200	0		100		0		6.7	6.7

W = percent by weight

V = percent by volume

## **Form 4530-109 - Miscellaneous Processes**

This form should be used for any processes not listed on the other emissions unit identification forms.

Complete one form for each miscellaneous process at the facility. Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)) except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Item 5. Listing Control Equipment.** The first step in completing this item is to determine if the emissions unit is controlled. If the emissions unit is not controlled, select "Uncontrolled" for Item 5. If the emissions unit is controlled, list the control device identification number(s) for this emissions unit in the blank next to the appropriate form number. For example, enter "C01" in the blank next to "4530-117" for a baghouse. It is important that the unit identifications are consistent throughout the application.

Complete the appropriate application form for the control equipment (4530-110 through 4530-117). Refer to the section in this document on [Forms 4530-110 through 4530-117 for Control Equipment](#). The eight control equipment forms are:

- 4530-110      Miscellaneous Control Equipment
- 4530-111      Condensers
- 4530-112      Adsorbers
- 4530-113      Catalytic or Thermal Oxidation
- 4530-114      Cyclone/Settling Chambers
- 4530-115      Electrostatic Precipitator
- 4530-116      Wet Collection Systems
- 4530-117      Baghouses/Fabric Filters

**Item 9. Process Description.** Describe the process, including the types of operations involved, the finished product, and how the product is used. Attach a flow diagram of the process, identifying major pieces of equipment, pickup points for dusts, fumes, and vapors, control and collection devices, exhaust stacks and vents, where raw materials enter the process, and where finished products exit the process. Attach the flow diagram and any extra information on Form 4530-135.

**Item 10. Raw Materials Table.** List all the raw materials that go into the process and include the average and maximum amounts of those materials. Remember to address any Alternate Operating Scenarios and label any alternative materials as such. Indicate any solvents, additives, cleaners, etc. that are used or may be used with this process. Attach Safety Data Sheets (SDS) or other documentation for each substance, if appropriate.

**Example:** Seesaws, Inc. has a fiberglass spraying operation where they make seats for teeter-totters. They operate 16 hours/day, 5 days/week, 200 days/yr. Seesaws attaches Safety Data Sheets to show the composition of both the fiberglass resin and gel-coat.

This is how Seesaws completes the table:

Material	Storage/material handling process	Average usage	Units	Maximum usage	Units
Spray-up vapor suppressing resin	Stored in 55-gallon drums, spray hose attached to opening in top of drum for use	27,400	lb/yr	75,000	lb/yr
Spray-up vapor suppressing gel coat	Same	2740	lb/yr	7500	lb/yr
Clean-up solvents	Acetone, stored in 30-gallon drums, spray hose in top	5,000	lb/yr	10,000	lb/yr

**Item 11. Finished Products Table.** List all the finished products. The finished products are important for determining which regulations are applicable to the facility. Remember to address any Alternate Operating Scenarios and label any alternative finished products as such.

**Example:** Seesaws, Inc. makes 270 teeter-totter seats per day, each weighing 5 pounds. This is how Seesaws fills out Item 11:

Material	Average amount produced	Units	Maximum amount produced	Units
Seats for teeter-totters	5400	Seats	14,800	Seats

**Item 12. Process Fuel Table.** List all fuels that the process uses or is capable of using. Remember to address any Alternate Operating Scenarios and label any alternative fuels as such.

**Example:** Seesaws, Inc. doesn't have any process fuels, so they leave Item 12 blank.

## **Forms 4530-110 through 4530-117 - Control Equipment**

There are eight different control equipment forms. Fill out one form for each piece of control equipment associated with each emissions unit and attach a diagram. Attach Form 4530-135 for any diagrams or additional information.

In some cases, it will be difficult to use a single form for some control systems. For instance, if a facility has a painting operation that is controlled by adsorbers, condensers, and a catalytic incinerator, it would be difficult for the facility to convey a clear picture of how their control system works using the separate control equipment forms. In this case the facility would use the miscellaneous control equipment form to describe their system and attach diagrams.

The eight control equipment forms are:

[4530-110 - Miscellaneous Control Equipment](#)

[4530-111 - Condensers](#)

[4530-112 - Adsorbers](#)

[4530-113 - Catalytic or Thermal Oxidation](#)

[4530-114 - Cyclone/Settling Chambers](#)

[4530-115 - Electrostatic Precipitator](#)

[4530-116 - Wet Collection Systems](#)

[4530-117 - Baghouses/Fabric Filters](#)

**Example:** Chem-All, a batch chemical manufacturing plant, uses a cryogenic condensation system to control emissions of volatile organic compounds and hazardous air contaminants from its tank farm. Chem-All must fill out one Form 4530-111 for the condenser. They attach a description of the condenser unit explaining how it works, what it looks like, where it is located, how it is hooked up to the tanks, etc. They also attach a diagram of the device to make the explanation clearer.

### **Filling Out a Control Equipment Form**

Control equipment forms are divided into sections A and B (except the miscellaneous Form 4530-110). Fill out section A completely, attaching all required materials. Be sure the unit identifications are consistent throughout the application.

Section B does not need to be completed if, in section A the control efficiency for the equipment is provided along with either a manufacturer's guarantee or stack test results that document the control efficiency. When filling out section B, most of the operating parameters, such as air-to-cloth ratio in a baghouse, can be obtained from the equipment manufacturer. Other parameters will need to have a device installed so that they can be measured. For instance, a flow meter may need to be installed to measure the liquid flow rate through a wet scrubber.

**Item 9. Pollutant Table.** It is very important to fill out this table accurately because some of the emissions calculations for the facility will be based on the control and capture efficiencies listed in this table. Be sure to attach all emissions calculations. The facility's permit may require testing to demonstrate that the assumed control efficiency is being met.

**Pollutant.** List all the pollutants controlled by this device, including criteria pollutants (particulate matter, sulfur dioxide, nitrogen oxides, volatile organic compounds, carbon monoxide, and lead) and any regulated hazardous air contaminants in Table 3 of ch. NR 407, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). Sometimes, a pollutant is considered both a criteria pollutant and a hazardous air pollutant. For example, arsenic is a

hazardous air pollutant that is emitted as particulate matter. In this case, the pollutant is both a hazardous air pollutant and particulate matter.

**Example:** Chem-All's tank farm includes 12 storage tanks containing ethanol, propanol, allyl alcohol, and acrylonitrile. All these substances are considered volatile organic compounds. Allyl alcohol and acrylonitrile are also regulated hazardous air pollutants. A condenser was installed to control allyl alcohol and acrylonitrile. In Item 9, Chem-All lists volatile organic compounds, allyl alcohol, and acrylonitrile. Allyl alcohol and acrylonitrile are listed individually because they are regulated hazardous air pollutants as well as volatile organic compounds.

**Inlet pollutant concentration.** Enter the inlet concentration for each pollutant. Be sure to specify the units. Some commonly used units are grains per actual cubic feet (gr/acf) and parts per million (ppm). Other units may be used, such as pounds per hour (lb/hr) or micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), but be sure the units are specified. If the control device targets a criteria pollutant that is also a hazardous air contaminant, then hazardous air contaminant emissions must be included both in the total criteria pollutant emissions and individually.

**Example:** To enter the inlet concentration for volatile organic compounds, Chem-All calculates the maximum hourly emissions from each of the 12 storage tanks and adds them together because they are all volatile organic compounds. Note that ethanol and propanol, although not listed separately, are also included when adding up the total volatile organic compound emissions from the tank farm. Chem-All then lists the inlet concentrations for allyl alcohol and acrylonitrile separately because they are also hazardous air pollutants.

<b>Pollutant</b>	<b>Inlet pollutant concentration</b>
Allyl Alcohol	7.2 lb/hr
Acrylonitrile	35.1 lb/hr
Ethanol	325 lb/hr
Propanol	270 lb/hr
Total volatile organic compounds	637.3 lb/hr

**Hood capture efficiency.** This is the portion of polluted air that is emitted from the emissions unit and is directed to the control device. If the facility has ducts that directly connect the emissions unit to the control device with no exhaust escaping, then the capture efficiency is 100 percent. If a hood, or other type of capture system that does not totally enclose the process is used, then the capture efficiency is something less than 100 percent. To document capture efficiency, EPA recommendations or other values approved by the department may be used; be sure any assumptions are clearly stated. Testing may be required to accurately estimate capture efficiency.

**Example:** Chem-All's condenser has a capture efficiency of 100% according to its manufacturer's guarantees. They have included the manufacturer's literature with their application.

**Outlet pollutant concentration.** Enter the concentration of the pollutant at the outlet of the device. Use the same units that were used for the inlet concentration (e.g., gr/acf, ppm, etc.). To calculate pollutant emission rates, stack test results, manufacturer's data, U.S. EPA's AP-42 emission factors (<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>), EPA WebFIRE (<https://cfpub.epa.gov/webfire/>), or other department-approved emission factors may be used. All calculations must be shown, and all emission factor sources must be referenced. Attach copies of Safety Data Sheets and mass balance calculations if these are involved

in the emission estimates. If stack test data is used, then a copy of the stack test report must be attached. If the department already has a copy of the stack test report, then simply indicate the date the stack test was performed and when it was submitted to the department.

**Example:** Chem-All completed stack tests two years ago, which provide outlet concentrations. They list the date the tests were performed and submit stack test results as part of the application.

**Efficiency.** Enter the control device efficiency for each pollutant that this device controls. Data entered in this table **must be documented**, and the documentation must be attached. Acceptable methods of documentation include efficiency guarantees supplied by the control device manufacturer, relevant stack test results, and other means approved by the department. One of the following must be included with the application if stack test results are used:

- 1) an adequate summary of the report, or
- 2) the dates of the test and when the test results were submitted to the department.

**Example:** Through stack testing, Chem-All found its control efficiency to be 99%. They attach a summary of the stack test report including the date the test was performed and the date they submitted it to the department. Here's what their table looks like:

Pollutant	Inlet pollutant concentration		Hood capture efficiency (%)	Outlet pollutant concentration		Efficiency (%)
	gr/acf	ppmv		gr/acf	ppmv	
Volatile organic compounds	648 lb/hr		100%	6.48 lb/hr		99%
Allyl Alcohol	7.2 lb/hr		100%	0.07 lb/hr		99%
Acrylonitrile	35.1 lb/hr		100%	0.35lb/hr		99%

### **Forms 4530-118 through 4530-125 - Compliance Demonstration**

Forms 4530-118 through 4530-125 cover different methods of compliance demonstration. Non-Part 70 sources are **not** required to complete Forms 4530-118 through 4530-125.

For Part 70 sources, Form 4530-118 must be completed for each emissions unit and is described in greater detail in the next section. After completing Form 4530-118 for the emissions unit, fill out one or more of the appropriate compliance demonstration forms. To determine which forms are appropriate, refer to the instructions for each form. The seven forms which may need to be completed are listed below:

[4530-119 - Continuous Emission Monitoring](#)

[4530-120 - Periodic Emission Monitoring using Portable Monitors](#)

[4530-121 - Monitoring Control System Parameters or Operating Parameters](#)

[4530-122 - Monitoring Maintenance Procedures](#)

[4530-123 - Stack Testing](#)

[4530-124 - Fuel Sampling and Analysis](#)

[4530-125 - Recordkeeping](#)

Refer to the existing air pollution control operation permit when completing these forms.

## **Form 4530-118 - Compliance Certification – Monitoring and Reporting Description of Methods Used for Determining Compliance**

**Item 5.** Select the most appropriate method(s) of compliance demonstration for the regulated pollutants emitted by the emissions unit for which the form is being completed. This selection will determine which of the additional compliance demonstration forms need to be completed, as listed above.

**Item 6. Compliance Certification Report Schedule and Monitoring Report Schedule.** These reports must be submitted during the life of the permit. Certification reports should be submitted no less than once per year, and monitoring reports no less than once every six months. Refer to the facility's issued air pollution control operation permit to find the appropriate schedule.

## **Form 4530-126 - Emissions Unit Hazardous Air Pollutant Summary**

The information requested on Form 4530-126 must be completed for each emissions unit; however, the department will accept and encourages submittal of the required information in table format. All requested information must be submitted with the application. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

If several materials are used for a particular emissions unit, the applicant should review all materials and report the worst-case emissions for each hazardous air pollutant (HAP). Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10., Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department. Attach a Safety Data Sheet (SDS) for each material used or a representative SDS for those materials that can be grouped as similar because the composition changes little beyond the pigment used for color.

**Pollutant CAS.** Look up the Chemical Abstract System (CAS) number for each hazardous air contaminant in Table 3 of ch. NR 407, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). Enter the number for each contaminant on the form. The department created a spreadsheet that provides information about regulated hazardous air contaminants, including CAS: <http://dnr.wi.gov/topic/AirQuality/documents/CombinedNR445RevTables.xls>. If the CAS is not available, fill in the pollutant name. There are two cases where a contaminant does not have to be listed. These two cases are described below.

*Case 1:* When relying on information in an approved SDS to determine emissions, including information on trace contaminants is not necessary. There are two kinds of trace contaminants.

First, if a material contains less than 1 percent of a hazardous air contaminant with a standard expressed as an ambient air concentration in column (g) in Tables A, B, or C to ch. NR 445, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/445.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/445.pdf)), it is considered a trace contaminant.

Second, if a hazardous air contaminant has a control requirement in column (i) of Tables A, B, or C to NR 445, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/445.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/445.pdf)) then it is a trace contaminant if it makes up less than 0.1% of the material being used, and, therefore, does not need to be listed.

*Case 2:* Under s. NR 445.07(2), Wis. Adm. Code, facilities that manufacture or process pesticides, rodenticides, insecticides, herbicides, or fungicides need to include emissions of contaminants in Table B to ch. NR 445, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/445.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/445.pdf)).

**Actual Emissions.** Actual emissions can be found on the annual air emissions inventory report for the facility or can be calculated from stack test data, U.S. EPA's AP-42 (<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-Compilation-air-emissions-factors>) or EPA WebFIRE (<https://cfpub.epa.gov/webfire/>) emission factors, actual hours of operation, and actual yearly consumption of raw materials. Present the information in the same units (i.e., lbs/hr or lbs/yr) as the threshold values in Tables A, B, or C to NR 445, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/445.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/445.pdf)), for a given contaminant. Show and attach calculations on Form 4530-135.

**Maximum Theoretical Emissions.** Calculate the maximum theoretical emissions of each hazardous air contaminant from this emissions unit. Present the information in the same units (i.e., lbs/hr or lbs/yr) as the threshold values in Tables A, B, or C to NR 445, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/445.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/445.pdf)), for a given contaminant. The term maximum theoretical emissions (MTE) is defined and explained, and example calculations are given in this document: <https://dnr.wi.gov/files/pdf/pubs/am/am300.pdf>. When calculating maximum theoretical emissions, include any fugitive emissions associated with this process.

For each emissions unit, compare the maximum theoretical emissions of each hazardous air contaminant to the inclusion level in Table 3 of s. NR 407.05, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). List every hazardous air contaminant that is above the corresponding inclusion level and enter its maximum theoretical emissions on the form. If it is found that the maximum theoretical emissions of some contaminants from the emissions unit are less than the corresponding Table 3 inclusion levels, they may be omitted from Form 4530-126 (see [s. NR 407.05\(4\)\(c\)10, Wis. Adm. Code](#)).

**Potential to Emit.** Calculate the potential to emit for each hazardous air contaminant from this emissions unit. Report this information in units of tons per year. Potential to emit is defined and explained, and example calculations are given in this document: <https://dnr.wi.gov/files/pdf/pubs/am/am300.pdf>. When calculating potential to emit, do not include any fugitive emissions associated with this process, unless the facility type is one of the 27 industry categories listed in [s. NR 407.02\(4\)\(b\), Wis. Adm. Code](#).

**Example:** JB Coating, Inc. manufactures and coats wood jewelry boxes with a clear lacquer and then stamps the names of local tourist attractions on the boxes. They typically use 4.5 gallons of lacquer per hour, but are capable of using up to 5.0 gal/hr. Petroleum naphtha is used as a cleaner for the stamping portion of the process line. The VOC emissions are controlled by 87% overall. This limitation is in JB Coating's New Source Review permit 15-XXX-123. The Safety Data Sheet (SDS) for the lacquer lists 8.5 lb/gal as the density. The SDS also shows that the lacquer is made up of eight compounds and gives the weight percent of each.

To find the annual emissions of each compound that makes up the lacquer, JB Coating multiplies the hourly usage rate of the lacquer by its density and then by the weight percent of each compound.

Sample calculation using 2-butoxyethanol (weight % is 49%):

Actual emissions:  $4.5 \text{ gal/hr} * 8.5 \text{ lb/gal} * (0.49) * (1-0.87) = 2.4 \text{ lb/hr}$

Maximum theoretical emissions:  $[5 \text{ gal/hr} * 8.5 \text{ lb/gal} * (0.49)] = 20.82 \text{ lb/hr}$

Potential to emit: 20.82 lb/hr \* 24 hrs/day \* 365 days/yr \* 1 ton/2000 lb \* (1-0.87) = 11.85 TPY

This table summarizes the weight percentages of each compound, and then the actual emissions of these compounds.

<b>Compounds</b>	<b>CAS #</b>	<b>% by Wt.</b>	<b>Actual</b>
2-Butoxyethanol	111-76-2	49	2.4 lbs/hr
n-Butyl alcohol	71-36-3	10	0.5 lbs/hr
Soybean oil***	8001-22-7	2	
Di-n-octyl phthalate***	117-84-0	1	
Castor oil*	8001-79-4	8	
Stoddard solvent (mineral spirits)	8052-41-3	6	0.3 lbs/hr
Methylisobutyl ketone	108-10-1	19	0.94 lbs/hr
Isopropyl alcohol	67-63-0	4	1.6 lbs/hr
Benzene	71-43-2	0.01-0.09	1.72 lbs/yr

\*\*\*These compounds are not hazardous air pollutants, so they do not need to be listed on Form 4530-126.

JB Coatings lists only 2-butoxyethanol, mineral spirits, 1-methoxy-2-acetoxypropane, and isopropyl alcohol on their Form 4530-126. They do not list benzene because it is a trace contaminant - although it is a confirmed human carcinogen, it makes up less than 0.1% of the lacquer. Here is their table:

<b>Pollutant CAS</b>	<b>Actual</b>		<b>Maximum Theoretical Emissions</b>		<b>Potential to Emit</b>	
		<b>Units</b>		<b>Units</b>		<b>Units</b>
111-76-2	18.7	lb/hr	20.8	lbs/hr	11.85	TPY
80-30-6	2.5	lb/hr	5.2	lbs/hr	2.96	TPY
10215-33-5	7.1	lb/hr	9.4	lbs/hr	5.35	TPY
67-63-0	1.6	lb/hr	4.3	lbs/hr	2.45	TPY

### **Form 4530-127 - Facility Hazardous Air Pollutant Summary**

If Form 4530-126 was required, then this form is also required. However, the department will accept and encourages submittal of the required information in table format. All requested information must be submitted with the application. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

**Item 3.** For each hazardous air contaminant listed on each Form 4530-126, add up the maximum theoretical emissions from every process and emissions unit that emits this contaminant.

Compare these facility-wide maximum theoretical emissions of each hazardous air contaminant to five times the inclusion level in Table 3 of ch. NR 407, Wis. Adm. Code

([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). List every hazardous air contaminant that is above five times the corresponding inclusion level and enter its total maximum theoretical emissions on the form. If it is found that the maximum theoretical emissions of some contaminants are less than five

times the corresponding Table 3 inclusion levels, they may be omitted from Form 4530-127 and deleted from Form 4530-126 (see [s. NR 407.05\(4\)\(c\)10, Wis. Adm. Code](#)).

Complete this form by adding up and listing the total actual emissions, maximum theoretical emissions, and potential to emit for each contaminant from each emissions unit.

**Example:** JB Coating, Inc., described in the example for Form 4530-126, has two boilers that burn natural gas (B01 and B02) in addition to the coating process (P01). The boilers emit formaldehyde, POM, and benzene. The coating process emits benzene and other hazardous air contaminants, as listed in the previous example. JB filled out three of Form 4530-126, one for each emissions unit.

The maximum theoretical emissions of benzene for B01 and B02 are 115 pounds per year, each. Coating process P01's benzene emissions are trace contaminants and are therefore not included (see example for Form 4530-126). Because the boilers' benzene emissions are higher than the limits in Table A in NR 445, of 228 lb/yr, JB must list this contaminant on Form 4530-127. JB adds up the benzene maximum theoretical emissions listed on the two 4530-126 forms for the boilers and enters the total on the table. Then they add and list the actual and the potential to emit totals. They follow these same steps for formaldehyde, POM, and the other hazardous air contaminants from the coating process. They find that POM is emitted in amounts less than the inclusion level in Table 3 of NR 407, so they do not include it on Form 4530-126 or on this table.

Here is their table:

Pollutant CAS	Actual		Maximum theoretical emissions		Potential to emit	
		Units		Units		
71-43-2 (Benzene)	64	lb/yr	230	lb/yr	0.07	TPY
10215-33-5 (1-methoxy-2-acetoxypropane)	7.1	lb/hr	9.4	lb/hr	5.35	TPY
8052-30-6 (Mineral Spirits, Stoddard Solvent)	2.5	lb/hr	5.2	lb/hr	2.96	TPY
67-63-0 (Isopropyl Alcohol)	1.6	lb/hr	4.3	lb/hr	2.45	TPY
111-76-2 (2-Butoxyethanol)	18.7	lb/hr	20.82	lb/hr	11.85	TPY
50-00-0 (Formaldehyde)	210	lb/yr	1284	lb/yr	0.642	TPY

## **Form 4530-128 - Emissions Summary by Emissions Unit**

The information requested on Form 4530-128 must be completed for each emissions unit. However, the department will accept and encourages submittal of the required information in table format. All requested information must be submitted with the application. Microsoft Excel workbooks may be sent to the permit writer, once assigned. Do not fill out this form for insignificant emissions units (see [s. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)) except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Air Pollutant.** Provide emission levels for each of the listed pollutants that the facility emits.

**Actual Emissions.** Actual emissions can be found on the annual air emissions inventory report for the facility or can be calculated from stack test data, U.S. EPA's AP-42 (<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>) or EPA WebFIRE (<https://cfpub.epa.gov/webfire/>) emission factors, actual hours of operation, and actual yearly consumption of raw materials. Fill in the actual emissions in the space provided and identify which units are being used by using the code on the bottom of the form. The units used should correspond with any emission limitation that applies to this pollutant. Emissions in tons per year must also be provided.

**Maximum Theoretical Emissions.** Calculate the maximum theoretical emissions of each air pollutant from this emissions unit. The term maximum theoretical emissions is defined and explained, and example calculations are given in this document: <https://dnr.wi.gov/files/pdf/pubs/am/am300.pdf>. When calculating maximum theoretical emissions, include any fugitive emissions associated with this process. Fill in the maximum theoretical emissions in the space provided and identify which units are being used by using the code on the bottom of the form. The units used should correspond with any emission limitation that applies to this pollutant. Emissions in tons per year must also be provided.

For each emissions unit, compare the maximum theoretical emissions of each air pollutant to the corresponding inclusion level in Table 3 of s. NR 407.05, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). List every air pollutant that is above the inclusion level and enter its maximum theoretical emissions on the form. If it is found that the maximum theoretical emissions of some air pollutants from the emissions unit are less than the Table 3 inclusion levels, they may be omitted from Form 4530-129 (see [s. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)).

**Potential to Emit.** Calculate the potential to emit for each air pollutant from this emissions unit. Potential to emit is defined and explained, and example calculations are given in this document: <https://dnr.wi.gov/files/pdf/pubs/am/am300.pdf>. When calculating potential to emit, do not include any fugitive emissions associated with this process, unless the facility type is one of the 27 industry categories listed in [s. NR 407.02\(4\)\(b\), Wis. Adm. Code](#). Potential to emit should be expressed in both pounds per hour and tons per year.

**Maximum Allowable.** Calculate the maximum allowable emissions for each air pollutant from this emissions unit. Allowable emissions are defined in s. 285.01(7), Wis. Stats. Be sure to use the maximum rated capacity of the unit, the most stringent state or federal emission limit that affects the unit, any previous permits or orders that limit the operating rate and/or hours of operation. If there are no applicable state or federal emission limits and no previous permits or orders, the maximum allowable emissions will be equal to the potential to emit. Fill in the maximum allowable emissions in the space provided and identify which units are being used by utilizing the codes on the bottom of the form. Providing the emissions in tons per year is also required.

**Example:** JB Coating, Inc. uses approximately 12,000 gallons per year of clear lacquer to manufacture and coat wood jewelry boxes stamped with the names of local tourist attractions. About 2,200 gallons per year of petroleum naphtha are used as a cleaner for the stamping portion of the process line. Ch. NR 424, Wis. Adm. Code, requires that JB control organic compound emissions from this process by 85%. JB installed a thermal incinerator that controls VOC emissions by 87% overall to meet this regulation. Their normal operating schedule is 16 hours per day, 200 days per year.

JB can spray a maximum of 5.0 gallons per hour of lacquer. The SDS for the lacquer shows the following information:

Weight per gallon: 8.5 lb  
 VOC (% v/v): 75  
 VOC (% w/w): 65.8

With this information, they can complete the following calculations, which they attach on Form 4530-135:

Actual emissions:  $12,000 \text{ gal/yr} * 0.658 * 8.5 \text{ lb/gal} * (1-0.87) = 8725.1 \text{ lb/yr}$   
 $8725.1 \text{ lb/yr} * 1 \text{ yr}/200 \text{ days} * 1 \text{ day}/16 \text{ hrs} = \mathbf{2.73 \text{ lb/hr}}$   
 $8725.1 \text{ lb/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{4.36 \text{ TPY}}$

Maximum theoretical:  $5 \text{ gal/hr} * 0.658 * 8.5 \text{ lb/gal} = \mathbf{27.96 \text{ lb/hr}}$   
 $27.96 \text{ lb/hr} * 24 \text{ hrs/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{122.48 \text{ TPY}}$

Potential:  $27.96 \text{ lb/hr} * (1-0.87) = \mathbf{3.64 \text{ lb/hr}}$   
 $3.64 \text{ lb/hr} * 24 \text{ hrs/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{15.92 \text{ TPY}}$

Maximum allowable:  $27.96 \text{ lb/hr} * (1-0.85) = \mathbf{4.19 \text{ lb/hr}}$   
 $4.19 \text{ lb/hr} * 24 \text{ hrs/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{18.37 \text{ TPY}}$

They estimate a maximum use of 1.0 gallons per hour of petroleum naphtha. The SDS for petroleum naphtha shows:

Weight per gallon: 6.7 lb  
 VOC (% v/v): 100

With this information, they can complete the following calculations, which they attach on Form 4530-135:

Actual emissions:  $2200 \text{ gal/yr} * 1.0 * 6.7 \text{ lb/gal} * (1-0.87) = 1916.2 \text{ lb/yr}$   
 $1916.2 \text{ lb/yr} * 1 \text{ yr}/200 \text{ days} * 1 \text{ day}/16 \text{ hr} = \mathbf{0.60 \text{ lb/hr}}$   
 $1916.2 \text{ lb/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{0.96 \text{ TPY}}$

Maximum theoretical:  $1.0 \text{ gal/hr} * 6.7 \text{ lb/gal} = \mathbf{6.7 \text{ lb/hr}}$   
 $6.7 \text{ lb/hr} * 24 \text{ hrs/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{29.35 \text{ TPY}}$

Potential:  $6.7 \text{ lb/hr} * (1-0.87) = \mathbf{0.87 \text{ lb/hr}}$   
 $0.87 \text{ lb/hr} * 24 \text{ hrs/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{3.81 \text{ TPY}}$

Maximum allowable:  $6.7 \text{ lb/hr} * (1-0.85) = \mathbf{1.01 \text{ lb/hr}}$   
 $1.01 \text{ lb/hr} * 24 \text{ hrs/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lb} = \mathbf{4.42 \text{ TPY}}$

JB adds together the emissions from the lacquer and the petroleum naphtha, because they are both VOCs, and enters them onto Form 4530-128 as follows:

Air Pollutant	Actual			Maximum theoretical emissions			Potential to emit			Maximum allowable		
		U	TPY		U	TPY		U	TPY		U	TPY
Organic compounds	3.33	1	5.32	34.66	1	151.83	4.51	1	19.73	5.20	1	22.76

### **Form 4530-129 - Facility Emissions Summary**

Form 4530-129, summarizing the facility's total emissions, is required. However, the department will accept and encourages submittal of the required information in table format. All requested information must be submitted with the application. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

**Air pollutant.** For each pollutant listed on Form(s) 4530-128, add up the maximum theoretical emissions from every process that emits this pollutant.

Compare these facility-wide emissions of each pollutant to Table 3 of ch. NR 407, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). If the maximum theoretical emissions of any pollutant emitted from the entire facility are less than five times the level specified in Table 3, then that pollutant does not need to be listed on this form. At this point, if it is found that some pollutant emissions are not high enough to be included on this form, then go back and delete them from Form 4530-128.

Compare these facility-wide maximum theoretical emissions of each air pollutant to five times the corresponding inclusion level in Table 3 of ch. NR 407, Wis. Adm. Code ([https://docs.legis.wisconsin.gov/code/admin\\_code/nr/400/407.pdf](https://docs.legis.wisconsin.gov/code/admin_code/nr/400/407.pdf)). List every air pollutant that is above five times the corresponding inclusion level and enter its total maximum theoretical emissions on the form. If it is found that the maximum theoretical emissions of some pollutants are less than five times the corresponding Table 3 inclusion levels, they may be omitted from Form 4530-129 and deleted from Form 4530-128 (see [s. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)).

Complete this form by adding up and listing the total actual emissions, potential to emit, and maximum allowable for each pollutant from each process.

**Example:** JB Coating, Inc., described in the example for Form 4530-128, has two boilers in addition to the coating process. The boilers and coating process all emit nitrogen oxides and organic compounds. The two boilers also emit particulate matter. JB filled out three copies of Form 4530-128, one for each emissions unit.

B01's and B02's maximum theoretical emissions are each 1 ton per year, P01's are 151.83 tons per year. Because each emissions unit's organic compound emissions are higher than the inclusion level in Table 3 in NR 407, of 2000 lb/yr, JB must list this pollutant on Form 4530-129. JB adds up the organic compound maximum theoretical emissions listed on all three of the Form 4530-128s and enters the total on the table. Then they add and list the actual, the potential to emit, and the maximum allowable totals. They follow these same steps for the particulate matter and nitrogen oxides.

Here is their table:

<b>Air Pollutant</b>	<b>Actual</b>	<b>Maximum theoretical emissions</b>	<b>Potential to emit</b>	<b>Maximum allowable</b>
	<b>TPY</b>	<b>TPY</b>	<b>TPY</b>	<b>TPY</b>
Particulate Matter	0.2	2.2	2.2	2.2
Organic compounds	5.72	153.83	21.73	24.76
Nitrogen oxides	10.2	26	26	26

### **Form 4530-130 - Current Emissions Requirements and Status of Unit**

Fill out one form for each emissions unit at the facility. Do not fill out this form for insignificant emissions units (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)), except for permits subject to chs. NR 405 or NR 408, Wis. Adm. Code, or if requested by the department.

**Item 5. Pollutant Name.** For each emissions unit, list each pollutant identified on Forms 4530-126 and 4530-128 that is regulated on a unit-by-unit basis. List visible emissions and malodorous emissions, if applicable.

**Item 6. Wis. Adm. Code, Wis. Stats.** Every state or federal air pollution regulation affecting each pollutant must be listed. Refer to the Wisconsin Administrative Code, the Wisconsin Statutes, and the Code of Federal Regulations (Title 40) to determine what regulations apply. Use any previously issued permits as a guide and check the Federal Register for new regulations. The Electronic Code of Federal Regulations will list the most current version of each regulation: [https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab\\_02.tpl](https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl). List all regulations that may apply, including but not limited to the following regulations:

**Prevention of Significant Deterioration (PSD) - [Chapter NR 405, Wis. Adm. Code.](#)** This chapter applies to major sources in attainment areas.

**Nonattainment Area (NAA) Major Source Permits - [Chapter NR 408, Wis. Adm. Code.](#)** This chapter applies to major sources in nonattainment areas.

**Particulate Matter Emissions - [Chapter NR 415, Wis. Adm. Code.](#)** This chapter covers processes and fuel burning equipment that emit particulate matter as well as sources of fugitive dust.

**Sulfur Emissions - Chapters [NR 417](#) and [NR 418](#), Wis. Adm. Code.** Fuel burning is a common source of sulfur dioxide emissions, along with petroleum refineries and paper mills. Chapter NR 417 covers emissions of both sulfur dioxide (SO<sub>2</sub>) and total reduced sulfur. Chapter NR 418 concentrates on reasonably available control technology (RACT) limitations for specific geographic areas in the state. The RACT rules were set up because certain areas were federally designated as SO<sub>2</sub> nonattainment areas.

**Volatile Organic Compound (VOC) Emissions - [Chapters NR 419 through NR 425, Wis. Adm. Code.](#)** There are many sources of organic compound emissions.

- [ch.NR 419, Wis. Adm. Code](#) contains the general limitation on organic compound emissions.
- [ch. NR 420, Wis. Adm. Code](#) covers organic compound emissions from petroleum and gasoline sources.
- [ch. NR 421, Wis. Adm. Code](#) covers manufacturers of chemicals, coatings, and rubber products.
- [ch. NR 422, Wis. Adm. Code](#) covers organic compound emissions from surface coating, printing, and asphalt surfacing. Definitions of what is meant by a certain type of manufacturing process may be found under s. NR 422.02, Wis. Adm. Code.
- [ch. NR 423, Wis. Adm. Code](#) covers organic compound emissions from solvent cleaning operations such as solvent degreasers.
- [ch. NR 424, Wis. Adm. Code](#) covers organic compound emissions from all other process lines, as well as some aerosol can filling and yeast manufacturing.

**Fuel Burning - [Ch. NR 426, Wis. Adm. Code.](#)** Fuel burning is a common source of carbon monoxide emissions. Besides the general limitation, this chapter contains limits for any new cupola requiring incineration of carbon monoxide emissions at 1300° F for 0.3 seconds. In this case, “new” means any cupola that was constructed or modified after April 1, 1972.

**Lead - [Ch. 427, Wis. Adm. Code.](#)**

**Nitrogen Oxide Emissions - [Chapter NR 428, Wis. Adm. Code.](#)** This chapter applies to all air contaminant sources which emit nitrogen compounds and to their owners and operators. A general limitation is under s. NR 428.03, Wis. Adm. Code. Certain new or modified sources located in Kenosha, Milwaukee, Ozaukee, Racine, Washington, or Waukesha county have requirements under s. NR 428.04, Wis. Adm. Code. Certain existing sources located in Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, or Waukesha county have requirements under s. NR 428.05, Wis. Adm. Code. Boilers, lime kilns, reheat, annealing or galvanizing furnaces, glass furnaces, asphalt plants, process heating, simple cycle turbines, combined cycle combustion turbines, and reciprocating engines located at facilities in Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county have NOx limitations in s. NR 428.22, Wis. Adm. Code.

**Malodorous Emissions - [Chapter NR 429, Wis. Adm. Code.](#)** Most facilities are subject to this rule. It is generally applied to a facility as a whole but could be applied on an emissions unit basis.

**Visible Emissions - [Chapter NR 431, Wis. Adm. Code.](#)** Any process that emits particulate matter will have a visible emissions limitation. Limitations on opacity will vary from emissions unit to emissions unit, depending on the date of installation or last modification of the unit.

**Reporting, Recordkeeping, Testing, Inspection and Determining Compliance - [Chapter NR 439, Wis. Adm. Code.](#)** Specific compliance demonstration methods for each emissions unit and the facility as a whole may be found in this chapter.

**New Source Performance Standards (NSPS) - [Chapter NR 440, Wis. Adm. Code.](#)** These standards apply to a few dozen different manufacturing classifications. For each emissions unit at the facility, look through the table of contents at the beginning of chapter NR 440 to see if it is listed. Each section of this chapter will define the applicability criteria, which usually depends on the date of construction or last modification. If it is found that an emissions unit at the facility has an NSPS and it meets the applicability criteria, then carefully read each section to see what special requirements apply to the emissions unit. Please also refer to federal NSPS under [40 CFR 60](#).

**Control of Hazardous Air Pollutants - [Chapter NR 445, Wis. Adm. Code.](#)** This chapter applies to all stationary air contaminant sources which may emit hazardous air contaminants and to their owners and operators. It contains three tables ([A through C](#)) listing hazardous air contaminants and emission rates that trigger specific requirements for the contaminants. Table B lists compounds specific to manufacture or treatment of pesticides, rodenticides, insecticides, herbicides, or fungicides. Table C lists compounds specific to manufacture or treatment of pharmaceuticals.

Column (i) in each of the tables indicates whether the control required must meet either best available control technology (BACT) or lowest achievable emission rate (LAER). When total facility, actual emissions of a contaminant listed are over the threshold value, a facility must apply the indicated level of control (BACT or LAER) to the emissions unit at the plant that emits that contaminant at the highest rate. If controlling emissions from this unit does not bring the facility-wide total of the hazardous contaminant emissions down below the threshold value, then BACT or LAER must be applied to other units until either the emission rate is below that threshold value or until all the units are covered. Therefore, although total facility hazardous emissions are necessary to determine what regulations apply, the application of those regulations will be on a unit-by-unit basis.

**Note: If BACT or LAER is listed as a limitation on Form 4530-130 or Form 4530-132, then proposing what comprises BACT or LAER is required. BACT and LAER analyses may be provided on the supplemental information form (Form 4530-135) or as an attachment to the permit application.**

**Mercury Emissions - [Chapter NR 446, Wis. Adm. Code.](#)**

**Asbestos Emissions - [Chapter NR 447, Wis. Adm. Code.](#)**

**Beryllium Emissions - [Chapter NR 448, Wis. Adm. Code.](#)**

**Vinyl Chloride - [Chapter NR 449, Wis. Adm. Code.](#)**

**Emission Standards for Hazardous Air Pollutants for Source Categories - [Chapters NR 460 to NR 469, Wis. Adm. Code.](#)** These chapters are the incorporation of the MACT (Maximum Achievable Control Technology) standards promulgated by EPA under section 112 of the Clean Air Act into the Wisconsin Administrative Code. Please also refer to the federal rules under [40 CFR 61](#) and [40 CFR 63](#).

- [NR 460, Wis. Adm. Code](#) – General provisions applicable to any facility affected by a MACT standard
- [NR 462, Wis. Adm. Code](#) – Industrial, commercial, and institutional boilers and process heaters
- [NR 463, Wis. Adm. Code](#) – Chrome emissions from hard and decorative chromium electroplating and chromium anodizing tanks
- [NR 464, Wis. Adm. Code](#) – Pulp and paper industry
- [NR 465, Wis. Adm. Code](#) – General surface coating processes
- [NR 466, Wis. Adm. Code](#) – Printing and flexible substrate surface coating processes
- [NR 468, Wis. Adm. Code](#) – Emission standards for hazardous air pollutants from miscellaneous processes
  - [s. NR 468.20, Wis. Adm. Code](#) – Perchloroethylene dry cleaning facilities
  - [s. NR 468.30, Wis. Adm. Code](#) – Industrial process cooling towers
- [NR 469, Wis. Adm. Code](#) – Halogenated solvent cleaning operations

**Control of Emissions from Internal Combustion Engines - [Chapter NR 485, Wis. Adm. Code](#).** This rule limits the particulate matter emissions from stationary or semi-stationary gasoline or diesel-powered reciprocating internal combustion engines to 0.50 pounds of particulate matter per million BTU heat input, unless a more restrictive limit applies, either in an applicable NSPS or as established in an air permit. Additionally, there are visible emissions requirements contained in this rule.

**Training and Certification Requirements for Solid Waste Treatment Facility Operators - [Chapter NR 499, Wis. Adm. Code](#).** This rule only affects facilities that operate a solid waste treatment facility that burns solid waste.

**Statutes 285.01 to 285.87, Wis. Stats. (Subchapter III)** - Cite the [ss. 285.01 to 285.87, Wis. Stats.](#) when requesting an emission limit that is more stringent than required, or if an emission limit is being taken to protect the National Ambient Air Quality Standards.

**Code of Federal Regulations (title 40).** The following areas of the federal code may affect the facility.

The Clean Air Act

- Section 112, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)
- Section 111, New Source Performance Standards
- Title I, part C, Prevention of Significant Deterioration
- Title I, part D, Nonattainment areas

Parts 50 to 99

- Part 52, State Implementation Plan requirements
- Part 60, New Source Performance Standards
- Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)
- Part 63, Maximum Achievable Control Technology (MACT) standards
- Part 70, State Operating Permit programs
- Parts 72-78, Acid rain

**Item 7. State Only.** Indicate if the regulation from Item 6 is a state only requirement. Requirements under ch. NR 445, Wis. Adm. Code, are state only. There may be others. Note that all requirements in the facility's federal Operation Permit are federally enforceable unless they are specifically identified as state only in the permit.

**Example:** Home Interiors, Inc. coats natural finish hardwood plywood panels for home interiors. Process P01 is a clear coat spray application line that was last modified in 1984. Home Interiors uses its 1984 permit to help figure out what the applicable limitations are for this line and sees that particulate matter from overspray, visible emissions, and organic compounds are all emitted from this line. A few calculations are performed to ensure that operating conditions have not changed since issuance of the old permit. In 1984, Home Interiors had been exempted from any special organic compound limitations. Now they found that, due to an increase in business in recent years, actual emissions of organic compounds have surpassed the exemption levels in s. NR 422.03, Wis. Adm. Code. This process line is now subject to the reasonably available control technology (RACT) rules found in ch. NR 422.13(2)(b), Wis. Adm. Code.

Home Interiors fills out Form 4530-130 this way:

P01, S01 - clear lacquer spray coating

5. Pollutant	6. Wis. Adm. Code Wis. Stat. 40 CFR	7. State Only	8. Limitation	9. Compliance Status (in or out)
Particulate Matter	ss. NR 415.05(1)(o) and 415.05(2)		The most restrictive of: 1) 0.40 pounds per 1000 pounds of exhaust gas; 2) $E=3.59P^{0.62}$ applies for process weight rates <60000 pounds per hour, $E=17.31P^{0.16}$ applies for process weight rates $\geq 60000$ pounds per hour where E is the allowable emission rate in pounds per hour and P is the process weight rate in tons per hour.	in
Visible Emissions	s. NR 431.05		20% opacity	in
Organic compounds	s. NR 422.13(2)(b)		12lb VOC /1000ft <sup>2</sup> of coated finished product	out
10. Other requirements		State Only	Compliance Status (in or out)	
Malfunction reporting s. NR 439.03		*	in	

### **[Form 4530-131 - Emissions Unit Compliance Plan - Commitments and Schedule](#)**

Certification of compliance for every significant emissions unit at the facility is required. If the emissions unit is in compliance, then only fill out Items 1- 5. If the unit is not presently in compliance, check the box in Item 6 and provide a schedule of how and when the facility will attain compliance. Part 70 sources should understand that filling out the Compliance Schedule does not provide protection from action by the U.S. EPA or citizen suits.

**Example:** Home Interiors, Inc. has an emissions unit that does not meet the requirements of s. NR 422.13, Wis. Adm. Code. The lacquer coating must meet 12 lb VOC/1000 sq. ft of coated finished product. All the rest of their facility is in compliance, but they must come up with a compliance schedule for meeting this requirement. They submit a complete renewal application by October 1, 2018.

Here is what their schedule looks like:

Non-complying requirement	Corrective Actions	Deadline
1. s. NR 422.13(b), Wis. Adm. Code	Work with suppliers of the lacquer and our customers to find a coating that will meet the requirements and still provide a satisfactory product. Otherwise install equivalent control measure.	April 1, 2019
	Receive reformulated coating from supplier and begin sending out new product to customers.	June 1, 2019
	Get an update from customers as to quality of product over time. If necessary, change formulation of coating to improve quality and get customer approval for final product.	October 1, 2019
	If reformulation does not work, install equivalent control for organic compound emissions. Control 40% would be needed to achieve a decrease from 20 lb/1000 sq. ft to 12 lb/1000 sq. ft.	April 1, 2020

Progress Reports: Start Date: October 1, 2018 and every 6 months thereafter.

### **[Form 4530-132 - Current Emissions Requirements and Status of Facility](#)**

This form is required if there are any facility-wide emission limitations.

**Item 3. Pollutant Name.** List each pollutant identified on Forms 4530-127 and 4530-129 that is regulated on a facility-wide basis.

**Item 4. Wis. Adm. Code, Wis. Stats.** List any facility-wide requirements that are applicable to the source. Such requirements include existing permit requirements, such as restrictions on the total number of hours a plant may operate, total solvent usage, and so on. Refer to the Wisconsin Administrative Code, the Wisconsin Statutes, and the Code of Federal Regulations (title 40). Use any current permits as a guide. Check the Federal Register for new regulations. The Electronic Code of Federal Regulations will list the most recent version of each regulation: [https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab\\_02.tpl](https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl). Where a specific requirement is listed in any of the above documents, list all that might apply. See the outline of regulations listed in the instructions for Form 4530-130.

**Item 5. State Only.** Indicate if the regulation from Item 6 is a state only requirement. Requirements under ch. NR 445, Wis. Adm. Code are state only. There may be others. Note that all requirements in a federal operation permit are federally enforceable unless they are specifically identified as state only in the permit. All requirements contained in a previously issued construction permit are federally enforceable.

**Item 6. Threshold Value.** List the threshold value only for contaminants listed in Tables A-C of [ch. NR 445, Wis. Adm. Code](#).

**Item 8. 112(r)(7).** Check the appropriate box. If the facility is or will be subject to section 112(r)(7) of the Clean Air Act, list the pollutants that the facility emits that are regulated by this provision, and describe how the facility will comply with the provisions.

**Example:** Home interiors, Inc., as described in the example for Form 4530-130, must identify emission limits which effect their entire facility. From their Form 4530-127, they find that only 2-butoxyethanol has emissions above the reporting requirements from the table in ch. NR 407, Wis. Adm. Code. The maximum uncontrolled emissions of 2-butoxyethanol = 20.8 lb/hr. (See the example for Form 4530-126 for calculating maximum uncontrolled emissions for a hazardous air pollutant.) The facility will also be subject to malodorous emission limits. The table is completed as shown below.

3. Pollutant	4. Wis. Adm. Code Wis. Stat. 40 CFR	5. State Only	6. Threshold Value	7. Compliance Status (in or out)
2-Butoxyethanol	s. NR 445.05(4)	*	41.952 lb/hr (stack >25 ft.)	In (below the threshold value)
<b>9. Other requirements</b>		<b>State Only</b>	<b>Compliance Status (in or out)</b>	
Malodorous Emissions NR 429.03(1)		*	In	

### **Form 4530-133 - Facility Requirement Compliance Plan Commitments and Schedule**

Certification of compliance with requirements that affect the entire facility is required. If the facility is in compliance, then fill out only Items 1- 3. If the facility is not presently in compliance, check the box in Item 4 and provide a schedule of how and when the facility will attain compliance. Fill the schedule out in a manner similar to the example given for Form 4530-131. Part 70 sources should know that filling out the compliance schedule does not provide protection from action by the U.S. EPA or citizen suits.

### **Form 4530-135 - Supplemental Information**

It is important to label this form properly, so the permit reviewer knows which form it is supplementing. Be sure to enter a form number, as well as an Item number. For instance, use this form if extra room is needed to describe the operations served by storage tank T17. Enter in Item 3, "4530-105" and for emissions unit, "T17." Then enter "Item 21" in the table and supply the extra information.

This form may be used in many different ways. It is designed to provide flexibility. Use this form to provide any additional information that will give the department a clear picture of the operations at the facility.