

**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 supplements the [Wisconsin Air Pollution Control Operation Permit Application Instructions publication \(AM-300\)](#) and the instructions found on the back of each permit application form and includes 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 to into the department's central processing system. Deviating from submittal instructions may 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 does not apply, write "Not Applicable" or "na" or leave the item blank.

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. Use the space provided at the top of each form to indicate if supplemental information is attached by entering "y" (yes) or "n" (no). ("Information attached? \_\_\_ (y/n)")

In lieu of forms 4530-102A, 4530-103, 4530-126 through 4530-129, 4530-130 and 4530-132, the department accepts 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 pollution control permit applications and exemption determination requests. It provides identifying information for the facility and specific information about the type of permit being requested. 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.** If NOT applying for a construction permit, construction permit revision or construction permit exemption determination, skip to Item 21.

If applying for a construction permit, construction permit revision or construction permit exemption determination, complete Item 20. Indicate the Construction Permit Action(s) and Associated Operation Permit type being requested. Check one box in either Section A or Section B. Each construction permit action has a specific fee listed in parentheses following the item. These fees must be submitted with the application. The department will not act on an application until the applicable fees have been received.

**Section A.** If applying for either a New Construction/Modification or Construction Permit Revision, check the appropriate box. If the project covered by the application will involve construction on over 10,000 square feet of undisturbed ground, check the indicated box.

For New Construction/Modification:

- If requesting an expedited review of a construction permit application, check the indicated box. The expedited review fee will be included in the final permit invoice if the deadline was met.
- If requesting a waiver to commence construction under s. NR 406.03(2), Wis. Adm. Code, check the indicated box and include an additional \$300 fee with the construction permit initial application fee of \$7500. The department will not act on the waiver request until the \$300 fee is received.

For construction permit revisions list the construction permits to be revised.

**Section B.** If applying for a construction permit exemption determination, indicate the type of exemption determination being requested. For the Specific Exemption option, identify the appropriate citation from s. NR 406.04(1), Wis. Adm. Code. Sources can make exemption determinations themselves and are not required to obtain an exemption approval from the department. Only check a box in Section B., if requesting a formal construction permit exemption from the department. Submit the appropriate fee indicated in parentheses after the selected option with the application.

**Item 21. Operation Permit Actions.**

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

If applying for a construction permit under Item 20A., select the appropriate operation permit action in either Item 21.A. or Item 21.C, but not both. EITHER check the appropriate operation permit type (original, renewal, or revision) in Item 21.A. OR check the appropriate operation permit exemption type in Item 21.C. if the entire facility is exempt from an operation permit. Additional information on exemptions may be found here:  
<https://dnr.wi.gov/topic/SmallBusiness/Exemptions.html>

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

If applying for a construction permit exemption determination under Item 20.B and the whole facility is exempt from an Operation Permit, then Item 21.C should be completed and the rest of Item 21 should be left blank.

If applying for a construction permit exemption determination under Item 20.B and the whole facility IS NOT exempt from an Operation Permit, then select the appropriate type of operation permit in Item 21.A. If the construction permit is for a greenfield facility or a facility that has never had an operation permit before, select “Original Operation Permit”. If the facility has an operation permit and is requesting the current operation permit be renewed, select “renewal”. This option can only be used if there are 18 months or less before the current operation permit expires. If the facility has an operation permit and a renewal application is not being requested, select “Revision” so that the current operation permit will be revised to incorporate the proposed project. See the instructions for Form 4350-100 for additional information about operation permit revisions.

**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 (i.e. nothing in Item 20 is completed), then Item 21 should be completed for the Operation Permit Action being requested.

**Section A.** If applying for an operation permit, indicate whether an initial operation permit, operation permit renewal or operation permit revision is being requested. For operation permit exemptions, leave Section A. blank and see Section C.,

For Renewals:

- 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. The department's objective is to issue the renewed operation permit prior to the expiration of the facility's current operation permit. Therefore, early applications are encouraged.
- For additional information on submitting an Operation Permit Renewal application, review this webpage: <https://dnr.wi.gov/topic/AirPermits/Renew.html>.

For Revisions:

If this is an application for the revision of an existing operation permit, identify the type of Revision being requested based on the criteria in ss. NR 407.11 through NR 407.13, Wis. Adm. Code. The majority of changes to operation permits must be processed as Significant Revisions, pursuant to s. NR 407.13, Wis. Adm. Code. Only the changes identified in [s. NR 407.11, Wis. Adm. Code](#) qualify for an Administrative Revision. Few changes qualify for Minor Revisions as identified in [s. NR 407.12, Wis. Adm. Code](#). An application for a Minor Revision must contain all the information identified in s. NR 407.12(3), Wis. Adm. Code. If uncertain, leave the revision type blank and the department will process the revision application according to the appropriate type.

**Section B.** For all Operation Permit Actions selected in Item 21.A., 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 associated with the information in the application.

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

**Section C.** Operation permit exemptions apply to all operations at an entire facility. If requesting an Operation Permit Exemption for the whole facility, identify the type from those listed in this section, otherwise leave Section C blank. Actual Emission Based and Natural Minor Source exemptions require revocation of existing operation permits. If requesting a Specific Category of Operation Permit Exemption, identify the appropriate citation from s. NR 407.03(1), Wis. Adm. Code for the specific exemption being requested. Additional information regarding exemptions may be found here: <https://dnr.wi.gov/topic/smallbusiness/exemptions.html>.

**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.

**Submit air pollution control permit applications and any required application fees to the department's central processing system according to these instructions to avoid unnecessary processing delays.**

**Item 23. Signature of Responsible Official.** Review the statements in the signature block. All operation permit, operation permit renewal and significant operation permit revisions applications require a Certification of Facility Compliance Status, except for initial non-part 70 source operation permit applications and initial applications for new or modified sources for which no construction permit is required. If this is an application for a construction or operation permit exemption, an application for an administrative or minor operation permit revision, or an application for a non-Part 70 operation permit for a source that does not currently have an operation permit, this certification is not required. Check the

appropriate box to indicate whether the facility is in compliance with all applicable requirements or to identify requirements with which the facility is not in compliance. This should include determining compliance status with all applicable requirements in any current operation permit, any construction permits issued to the facility, and any additional, new or updated applicable requirements. See the definition of “applicable requirement” in s. NR 400.02(26), Wis. Adm. Code. If there are applicable requirements with which the facility is not in compliance, complete Forms 4530-130 through 4530-133 to identify those requirements and submit a compliance plan and schedule. For sources that are in compliance with all applicable requirements, complete Item 5 on Form 4530-131 and Item 3 on Form 4530-133

After reviewing and completing the statements, 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 and a facility plot plan. The plot plan should be to scale, have the scale graphically depicted on the plan, and include:

- A layout (blueprint, plan view, annotated aerial photograph, or graphic submitted for land use zoning approvals) identifying all buildings and structures occupied by or located on the site of the facility.
- The maximum height and eave height of each building and solid structure (excluding stack height) located on the site.
- The location and numerical designation of each stack, corresponding to the designations listed on other forms in the permit application and/or used in current permits issued to the facility.
- The location of fenced property lines (if any).
- Identification of “North” on all submittals.

When preparing the plot plan, ensure that all emissions points (stacks or fugitive emissions) are shown. Use the list of emissions units and stacks on Form 4530-102 to ensure all stacks are included. A plot plan should be a scaled drawing, blueprint, plan view (from above), annotated aerial photograph or other graphic submitted for land use zoning approvals, of the entire facility, that includes 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, 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 exhausting one process, label each stack with the process name and stack identification number.

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

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

This form is required for all air permit applications. 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 all emissions units are included.

All emissions units, operations, and activities must be identified in the permit application. For operation permit applications insignificant emissions units, operations and activities need only be listed on Form 4530-102B. For construction permits including permits issued under chs. NR 405 or 408, Wis. Adm. Code, application information is required for all emissions units included in the project. See <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>.

**4530-102 Item 1. Source Description.** Provide a general, comprehensive, description of the air pollution sources at the facility. This description should list the individual emissions units (e.g., one woodfired 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.

**For OP Renewal Applications:** Complete Items 2 through 4. List any emissions units at the facility that were permanently removed from operation since the last operation permit issuance date. Include the date each unit was removed. Identify whether any new emissions units have been installed or whether any existing emissions units have been modified since the last operation permit issuance date in Item 3. If there are any new or modified units include the information required in the table in Item 4.

**4530-102 Item 5. Site Description.** Provide 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. Use additional copies of form 4530-102A as needed. The department accepts the required information in an alternate format submitted as supplemental information to the application. If submitting the required information in an alternate format, use the space provided at the top of the form to indicate that supplemental information is attached by entering "y" (yes). ("Information attached? \_\_\_ (y/n)")

Item 1a. List the process and stack identification number for each existing emissions unit at the facility or for each emissions unit included in the proposed project for construction permit applications.

- Item 1b. Include a description of each emissions unit. Include equipment specifications such as manufacturer and model number, as appropriate.
- Item 1c. Identify the maximum capacity of the emissions unit (e.g. maximum heat input rating for a boiler, maximum coating usage rate for a spray booth, maximum paper production rate for a paper machine.)
- Item 1d. Identify any control device(s) associated with each emissions unit using. If there are no control devices associated with a particular unit enter “na”.
- Item 1e. Include a description of each control device(s).
- Item 1f. Identify the date that the emissions unit was installed or last modified, whichever is later.
- Item 1g. Identify the most recent construction permit (e.g. 19-ABC-123) or construction permit exemption determination (e.g. 20-DEF-456-EXM) issued by the department that applies to the unit. If the emissions unit is not included in a construction permit or does not have a construction permit exemption determination enter “na”.

**For OP Renewal Applications:**

- Item 1h. For emissions units that are new or have been modified since the current operation permit was issued to the facility, check the box in this column.
- Item 1i. For emissions units that are new or have been modified since the current operation permit was issued either list the date that the applicable applications forms 4530-103 through 4530-133 were submitted to the department, OR if forms for the new/modified units have not yet been submitted to the department, complete the appropriate forms 4530-103 through 4530-133, check the box indicating the forms are attached, and include the completed forms with the renewal application. Note: Forms 4530-118 through 4530-125 are required for Part 70 sources only.

Existing, permitted, emissions units, stacks and control devices 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 Preamble 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 numbers. The letter identifies what the device is: S = stack, P = process, B = boiler or furnace, C = control device, I = incinerator, F = fugitive, and T = tank. 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.

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 number 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. Process, Stack	b. Process Description	c. Capacity	d. Control Device(s)	e. Control Device Description(s)	f. Date Installed/Last Modified	g. Construction Permit/exemption	For OP Renewals Applications Only		
							h. New/modified since current OP issued?	i. For new/modified units: Date forms submitted OR Forms attached	
B11, S11	Natural gas and distillate oil fired boiler XYZ Model: Q-XX	99 <del>mmBtu/hr</del>	na	na	Pre-April 30, 1980	none	<input type="checkbox"/>		<input type="checkbox"/>
P20, S20	#2 Paper Coater with 7 <del>mmBtu/hr</del> natural gas oven	2 tons paper per hour	C20	Natural gas thermal oxidizer rated at 6.1 <del>mmBtu/hr</del>	2007	07-ABC-111	<input checked="" type="checkbox"/>	2/23/2007	<input type="checkbox"/>
P01, S01	Spray paint booth, with electric oven	3 gallons coating per hour Max VOC content = 5.7 <del>lbs/gal</del>	C01	Overspray filter system	2011	Exempt per s. NR 406.04(1)(g), Wis. Adm. Code	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

**4530-102B Item 1. Insignificant Emissions Units.** Form 4530-102B contains a list of 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](#) and <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>).

For operation permit applications, it is not necessary to provide any other information in the application or fill out any other forms for insignificant units, unless requested by the department (see [ss. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#) and <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>). For construction permits including permits issued under chs. NR 405 or 408, Wis. Adm. Code, application information is required for all emissions units included in the project.

For operation permit renewal applications, identify whether any listed emissions unit, operation or activity is new or modified since the issuance of the current operation permit by checking the appropriate box.

**[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 Form 4530-103, the department accepts submittal of the required information in table format. All requested information must be submitted with the application.**

**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.

<u>Fuel Characteristics</u>	<u>Primary Fuel</u>	<u>Backup Fuel #1</u>
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 domeshaped 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-42compilation-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, ChemAll 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
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**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:

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

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		gal/yr	W	V	W	V	W		
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 30gallon 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 4530110). 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 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	<u>270 lb/hr</u>
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-emissionsfactors>), 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 is required for each emissions unit. The department accepts submittal of the required emissions information in an alternative table format provided all necessary information is included for each emissions unit. 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). If this is an operation permit application, this form is not required for insignificant emissions units (see *Insignificant Emissions Units* guidance: <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>) . Chapters NR 405, NR 406 and NR 408, Wis. Adm. Code do not include any exceptions that allow sources to exclude emission details from construction permit applications for insignificant emissions units, operations and activities. 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)).

**Maximum Theoretical Emissions.** Calculate the maximum theoretical emissions of each hazardous air contaminant from this emissions unit. Present the information in pounds per hour (lbs/hr) and tons per year (tpy) for each 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 pounds per hour (lbs/hr), pounds per year (lbs/yr) and tons per year (tpy). 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>.

**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. 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 nine compounds and gives the weight percent of each.

To calculate the emissions of each compound that makes up the lacquer, JB Coating multiplies the maximum hourly usage rate of the lacquer by its density and then by the weight percent of each compound. To calculate annual emissions of each compound, JB Coating multiplies each hourly emission rate by 8760 hours per year and divides by 2000 pounds per ton.

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

$$\begin{aligned} \text{Maximum theoretical emissions: } & [5 \text{ gal/hr} * 8.5 \text{ lb/gal} * (0.49)] = 20.8 \text{ lb/hr} \\ & [20.8 \text{ lbs/hr} * 8760 \text{ hr/yr} * 1 \text{ ton}/2000 \text{ lbs}] = 91.1 \text{ tpy} \end{aligned}$$

$$\begin{aligned} \text{Potential to emit: } & [20.8 * (1-0.87)] = 2.7 \text{ lb/hr} \\ & [2.7 \text{ lb/hr} * 8760 \text{ hr/yr}] = 23,687 \text{ lb/yr} \\ & [23,687 \text{ lb/yr} * 1 \text{ ton}/2000 \text{ lb}] = 11.8 \text{ tpy} \end{aligned}$$

This table summarizes the weight percentages of each compound from the SDS.

<b>Compounds</b>	<b>CAS #</b>	<b>% by Wt.</b>
2-Butoxyethanol	111-76-2	49
n-Butyl alcohol	71-36-3	10
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
Methylisobutyl ketone	108-10-1	19
Isobutyl alcohol	78-83-1	4
Benzene	71-43-2	0.01-0.09

\*\*\*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, n-butyl alcohol, Stoddard solvent, methyl isobutyl ketone and isobutyl alcohol on their Form 4530-126. They do not list benzene because it is a trace contaminant and it makes up less than 0.1% of the lacquer. Here is their table:

<b>Pollutant (CAS)</b>	<b>Maximum Theoretical Emissions (MTE)</b>		<b>Potential to Emit (PTE)</b>		
	<b>lb/hr</b>	<b>tpy</b>	<b>lb/hr</b>	<b>lb/yr</b>	<b>tpy</b>
2-Butoxyethanol (111-76-2)	20.8	91.1	2.7	23,687	11.8
n-Butyl alcohol (71-36-3)	4.25	18.6	0.6	5256	2.6

Stoddard solvent (8052-41-3)	2.55	11.2	0.3	2628	1.3
Methyl isobutyl ketone (108-10-1)	8.08	35.4	1.1	9202	4.6
Isobutyl alcohol (78-83-1)	1.7	7.4	0.2	1936	1.0

### [Form 4530-127 - Facility Hazardous Air Pollutant Summary](#)

The information requested on Form 4530-127 is required for the facility. The department accepts submittal of the required emissions information in an alternative table format provided all necessary information is included. If Form 4530-126 was required for any emissions units, then the information requested by Form 4530-127 is also required. The department accepts submittal of the required emissions information in an alternative table format provided all necessary information is included for the facility. Microsoft Excel workbooks may be sent to the permit writer, once assigned.

**Item 4.** For each hazardous air contaminant listed on each Form 4530-126, add up the maximum theoretical emissions from every emissions unit that emits this contaminant. Compare these facility total 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](#)). (See *Insignificant Emissions Units* guidance: <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>)

Complete this form by calculating and listing the total 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 MTEs are greater than five times the threshold in Table 3 of NR 407, of 22.8 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 Form 4530-127.

Here is their table:

Pollutant (CAS)	Federal HAP (f), State Hap (s)	Maximum Theoretical Emissions (MTE)	Potential to Emit (PTE)
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	(f, s)	lb/hr	tpy	lb/hr	lb/yr	tpy
Benzene (71-43-2)	f, s	0.03	0.11	0.03	230	0.11
2-Butoxyethanol (111-76-2)	s	20.8	91.1	2.7	23,687	11.8
n-Butyl alcohol (71-36-3)	s	4.25	18.6	0.6	5256	2.6
Formaldehyde	f, s	0.15	0.64	0.15	1284	0.64
Stoddard solvent (8052-41-3)	s	2.55	11.2	0.3	2628	1.3
Methyl isobutyl ketone (108-10-1)	f, s	8.08	35.4	1.1	9202	4.6
Isobutyl alcohol (78-83-1)	s	1.7	7.4	0.2	1936	1.0

**Item 4.** Current permits may contain conditions that limit facility total PTE for a pollutant(s), or a source is electing facility wide production or operational limits that restrict facility wide PTE. When this is the case attach the following:

- A description of the restrictions that limit the facility wide PTE, identifying their origin (e.g. condition I.ZZZ.1.a.(1) of construction permit 12-ABC-123, permittee electing limit be included in permit).
- Calculations showing how the facility wide PTE is calculated for each pollutant.

Note: Facility total PTE is used to determine whether a facility is a major source of HAPs under Part 70.

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

The information requested on Form 4530-128 is required for each emissions unit. The department accepts submittal of the required emission information in an alternative table format. Microsoft Excel workbooks may be sent to the permit writer, once assigned. For operation permits, this form is not required for insignificant emissions units (see [s. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)). (See *Insignificant Emissions Units* guidance: <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>)

**Air Pollutant.** Provide MTE and PTE emission rates for each of the listed pollutants emitted by the emissions unit in pounds per hour and tons per year.

**Maximum Theoretical Emissions (MTE).** 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 appropriate units in the space 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 4530-128. See *Insignificant Emissions Units* guidance: <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>.

**Potential to Emit (PTE).** 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.

**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 operates a thermal incinerator that controls VOC emissions by 87% overall to meet this regulation. The requirement to operate the thermal incinerator to control VOC emissions by 87% is a condition of their current construction permit for the process.

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, the source calculates the following, which they attach on Form 4530-135:

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

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

The source estimates 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, the source calculates the following, which they attach on Form 4530-135:

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

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

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	Maximum theoretical emissions (MTE)		Potential to emit (PTE)	
	lbs/hr	tpy	lbs/hr	tpy
Volatile organic compounds	34.66	151.83	4.51	19.73

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

The information requested on Form 4530-129, summarizing the facility's total emissions, is required. The department accepts submittal of the required emissions information in an alternative table format provided all the necessary information is included. 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 the pollutant.

Compare the 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. If it is found that some pollutant emissions are less than 5 times the ch. NR 407, Wis. Adm. Code Table 3 value, they do not need to be included on Form 4530-128. See *Insignificant Emissions Units* guidance: <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>.

Complete Form 4530-129 by adding up and listing the total maximum theoretical emissions and potential to emit for each pollutant from each emissions unit.

**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.

The VOC MTE from B01 and B02 are each 1 ton per year. The VOC MTE from P01 are 151.83 tons per year. Because each emissions unit's VOC MTE are greater 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 the potential to emit totals. They follow these same steps for the particulate matter and nitrogen oxides.

Here is their table:

Air Pollutant	Maximum theoretical emissions (MTE)	Potential to emit (PTE)
	tpy	tpy
Particulate matter emissions	2.2	2.2
Volatile organic compounds	153.83	21.73

Nitrogen oxides	26	26
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## **Form 4530-130 - Current Emissions Requirements and Status of Unit**

Fill out one form for each emissions unit at the facility. For operation permits, this form is not required for insignificant emissions units (see [s. NR 407.05\(4\)\(c\)9 and 10, Wis. Adm. Code](#)). (See *Insignificant Emissions Units* guidance: <https://dnr.wi.gov/news/input/documents/guidance/final/20200713/AM-20-0085-C.pdf>) The department accepts submittal of the required information in an alternative format provided all necessary information is included for each emissions unit. Examples of alternative formats for identifying applicable requirements include, but are not limited to:

- A redline/strike-out version of a current permit
- A highlighted version of a [federal standard](#) showing which portions of the standard apply to the facility.

Notes for Operation Permit Renewal Applications:

- Identify any additional, new and/or updated applicable requirements not included in the current operation permit or construction permits that have been issued to the facility since the current operation permit was issued.
- Some applicable requirements (such as **National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS)**) may have been updated since the facility's current permit was issued. Identify the updated applicable requirements as they apply to the facility. Refer to the [federal standards to determine the date the standard was last updated](#). If the federal standard was last updated after the issuance date of the current operation permit, review the current standard and identify the current applicable requirements.
- **Part 70 sources** using add-on control devices to comply with an emission limitation or standard may have **Compliance Assurance Monitoring (CAM) requirements** under 40 CFR Part 64. These sources must submit a CAM plan with the Title V renewal application. Refer to the [CAM Technical Guidance](#) for information on the rule and how to prepare a CAM plan for submittal with the Title V renewal application.

**Item 6. Pollutant Name.** For each emissions unit, list each pollutant identified on Forms 4530126 and 4530-128 that is regulated on a unit-by-unit basis. List visible emissions and malodorous emissions, if applicable.

### **Item 7. Citation of Applicable Requirements (e.g. Wis. Adm. Code, Wis. Stats., 40 CFR)**

List each state or federal air pollution regulation affecting each pollutant. Refer to the Wisconsin Administrative Code, the Wisconsin Statutes, and the Code of Federal Regulations (40 CFR) 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 lists the 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)** - [40 CFR Part 60](#). These standards apply to different manufacturing classifications. For each emissions unit at the facility, look through the affected source types in [40 CFR Part 60](#) to see if the source is listed. Each subpart of 40 CFR Part 60 will define the applicability criteria, which usually depends on the date of construction or last modification and the capacity of the source. If an emissions unit is subject to an NSPS and it meets the applicability criteria, then carefully read each section of the subpart to see what specific requirements apply to the emissions unit. Note: NSPS requirements are also found in chapter NR 440, Wis. Adm. Code, however, a number are not up to date with the current federal requirements. Reviewing 40 CFR Part 60 rather than ch. NR 440, Wis. Adm. Code, ensures the most recent requirements are identified.

**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.

Some contaminants are subject to ambient air standards which are identified in column (g) of each table. When total facility emissions of a contaminant are over the thresholds for specific stack height categories, a source must utilize one or more of the compliance methods identified in s. NR 445.08(2), Wis. Adm. Code.

Some contaminants are subject to control requirements as identified in column (i) of each table. Column (i) identifies the controls required, which may include best available control technology (BACT) or lowest achievable emission rate (LAER). When total facility emissions of a contaminant are over the thresholds for specific stack height categories, a source must utilize one or more of the compliance methods identified in s. NR 445.08(2), Wis. Adm. Code which includes applying the indicated level of control (BACT or LAER) in accordance with s. NR 445.08(2)(f), Wis. Adm. Code. Although total facility hazardous emissions are used to determine what ch. NR 445, Wis. Adm. Code requirements apply, the application of those regulations may 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.](#)

**National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories** - [40 CFR Part 61 and 40 CFR Part 63](#). These federal standards identify Maximum Achievable Control Technology (MACT) and Generally Achievable Control Technology (GACT) standards promulgated by EPA under section 112 of the Clean Air Act. Note: Chapters NR 460 to NR 469, Wis. Adm. Code incorporate some of the federal NESHAPs into the Wisconsin Administrative Code, however, not all NESHAP have been incorporated into the Wisconsin Administrative Code and most are no longer up to date. Please refer to the federal versions of these standards in [40 CFR Part 61 and 40 CFR Part 63 for the most up-to-date requirements](#).

The NESHAPs and NSPSs are detailed and lengthy. Many may have been updated since the facility's current permit was issued. Refer to the [federal standards to determine the date the standard was last updated](#). If the federal standard was last updated after the issuance date of the current operation permit, review the current standard and identify the current applicable requirements. Methods that can be used to identify the conditions of the standard that apply include:

- Providing a copy of the standard showing the specific applicable requirements using highlighting and/or strikeout.
- Providing a version of the current permit showing the changes in redline/strikeout.

**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 64, Compliance Assurance Monitoring (CAM)  
 Part 70, State Operating Permit programs  
 Parts 72-78, Acid rain  
 Parts 96-97, Transport Rules (Cross-State Air Pollution Rules (CSAPR))  
 Part 98, Mandatory Greenhouse Gas Reporting

**Item 8. State Only.** Indicate if each regulation identified in Item 7 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 previously issued permits are federally enforceable unless they are specifically identified as state only in the permit with an asterisk (\*).

**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

6. Pollutant	7. Citation of Applicable Requirements (e.g. Wis. Adm. Code, Wis. Stat. , 40 CFR	8. State Only	9. Limitation/Requirement	10. 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
11. 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 each emissions unit at the facility is required. Fill out Items 1-4. If the emissions unit is in compliance, then fill out Item 5. All operation permit applications except initial applications for existing, non-Part 70 sources and initial applications for new or modified sources for which no construction permit is required must include the two statements shown in Item 5. Mark each box to include each statement in your application and to meet the requirements of s. NR 407.05(4)(h), Wis. Adm. Code. If the unit is not presently in compliance with all applicable requirements, check the box in Item 6 and provide a narrative description of how the source will achieve compliance with the requirement(s) and a schedule identifying a series of measures, including a sequence of actions with milestones, leading to compliance with the applicable requirement(s).

**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 include a compliance schedule for meeting this requirement. They submit a complete renewal application by October 1, 2018.

Here is what their schedule looks like:

Applicable 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. 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 to identify facility-wide emission limitations and other applicable requirements. The department accepts submittal of the required information in an alternative format provided all necessary information is included for the facility. Examples of alternative formats for identifying applicable requirements include, but are not limited to:

- A redline/strike-out version of a current permit
- A highlighted version of a [federal standard](#) showing which portions of the standard apply to the facility.

Notes for Operation Permit Renewal Applications:

- Identify any additional, new and/or updated applicable requirements not included in the current operation permit or construction permits that have been issued to the facility since the current operation permit was issued.

Some applicable requirements (such as **National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS)**) may have been updated since the facility's current permit was issued. Identify the updated applicable requirements as they apply to the facility. Refer to the [federal standards to determine the date the standard was last updated](#). If the federal standard was last updated after the issuance date of the current operation permit, review the current standard and identify the current applicable requirements.

**Item 4. Pollutant Name.** List each pollutant identified on Forms 4530-127 and 4530-129 that is regulated on a facility-wide basis.

**Item 5. Citation of Applicable Requirements (e.g. Wis. Adm. Code, Wis. Stats., 40 CFR)** 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 or total solvent usage. Refer to the facility's current permits, the Wisconsin Administrative Code, the Wisconsin Statutes, and the Code of Federal Regulations (40 CFR). 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 6. State Only.** Indicate if each regulation identified in Item 5 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 previously issued permits are federally enforceable unless they are specifically identified as state only in the permit with an asterisk (\*).

**Item 7. Limitation/Requirement.** identify the applicable limitation or requirement including any threshold values for contaminants listed in Tables A-C of [ch. NR 445, Wis. Adm. Code](#).

**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.

4. Pollutant	5. Wis. Adm. Code Wis. Stat. 40 CFR	6. State Only	7. Limitation/Requirement	8. Compliance Status (in or out)
2-Butoxyethanol	s. NR 445.05(4)	*	41.952 lb/hr (stack >25 ft.)	In (below the threshold value)

9. Other requirements	State Only	Compliance Status (in or out)
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. Fill out Items 1 and 2. If the facility is in compliance, then fill out Items 3. All operation permit applications except initial applications for existing, non-Part 70 sources and initial applications for new or modified sources for which no construction permit is required must include the two statements shown in Item 3. Mark each box to include each statement in your application and to meet the requirements of s. NR 407.05(4)(h), Wis. Adm. Code. If the facility is not presently in compliance with all applicable requirements, check the box in Item 4 and provide a narrative description of how the source will achieve compliance with the requirement(s) and a schedule identifying a series of measures, including a sequence of actions with milestones, leading to compliance with the applicable requirement(s). Fill the schedule out in a manner similar to the example given for Form 4530-131.

### **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.