

# Air Program Fact Sheet

## Wisconsin Air Toxics Rule (NR 445)

Revised September 2012

The State of Wisconsin regulates air toxics, also known as hazardous air pollutants (HAPs), to protect people from air emissions that are known or suspected to cause cancer or other serious health problems. These problems include asthma, respiratory damage, kidney failure, heart failure, infertility, and birth defects. Wisconsin's air toxics rule (NR 445) sets emission standards for about 550 HAPs and applies to facilities with air emissions in Wisconsin. Facilities must identify air toxics, quantify emissions, and reduce or control emissions where necessary.

The air toxics rule was first promulgated in 1988 and revised in 2004. The chapter was republished in August 2008 and is available from the [Wisconsin Legislative Documents website](#).

This fact sheet provides a brief overview of NR 445. Additional fact sheets provide detailed information about requirements for [incidental emitters](#) and [compression ignition engines](#) (CI or stationary diesel engines).

### What Facilities are Regulated by NR 445?

NR 445 applies to stationary sources that are not regulated by a federal Maximum Achievable Control Technology (MACT) standard under Section 112 of the Clean Air Act (for more information, refer to the rule language: [NR445.01\(1\)\(b\)](#)). Examples of facilities or emissions that are regulated by NR 445 include:

- Facilities that are not in an industry source category covered by a MACT standard.
- Facilities in a MACT source category that are not major sources and therefore are not regulated by the MACT standard. This includes facilities taking operational limits to avoid major source status.
- Emissions units, operations, or activities at a facility subject to a MACT standard, but not regulated by the MACT standard.

### What Pollutants are Regulated by NR 445?

The pollutants regulated by NR 445 are listed alphabetically in one of three tables in the rule ([NR445.07](#), Tables A, B, and C). The tables include pollutants' Chemical Abstracts Service (CAS) numbers, emission thresholds and standards, and compliance schedules.

- [Table A](#) applies to all sources of emissions.
- [Table B](#) applies only to facilities that manufacture or treat pesticides or similar substances.
- [Table C](#) applies only to facilities that manufacture or treat pharmaceuticals.

Pollutants may be known by multiple names. Common synonyms are included in the tables and additional synonyms can be identified using resources such as [UW Solid & Hazardous Waste Education Center's HAPs Help](#) or chemical databases such as [ChemSpider](#).

The CAS number of a substance or mixture is a unique identifying code. If two substances have similar names but different CAS numbers, they are different substances. In some instances, one CAS number is used to represent a group of chemicals (e.g. different isomers of xylene and many metals).

Toxicity can vary according to the physical form of an emitted substance (e.g. a fume or mist). For this reason, some CAS numbers are listed multiple times in the NR 445 tables and represent different forms of a pollutant. The form is reflected in the pollutant's regulatory name.



## How Should Facilities Identify Air Toxics Emissions?

Potential sources must exercise “due diligence” ([NR445.02\(5\)](#)) in identifying covered pollutant emissions. NR 445 defines due diligence as a reasonable investigation of likely sources and quantities of air emissions. The following substances should be considered:

- Substances listed on Material Safety Data Sheets (MSDS)
- Substances that are reasonably expected to be created through combustion or manufacturing
- Substances contained in or created through the treatment or disposal of raw materials or waste

Facilities that exercise due diligence and meet the applicable compliance requirements for the identified emissions will not be penalized if it is subsequently discovered that they emit a regulated substance over threshold levels. This is called a “safe harbor” provision ([NR445.06](#)). While facilities are required to promptly inform the DNR of their discovery and to come into compliance in a timely manner, they will not face retroactive penalties.

NR 445’s due diligence and safe harbor provisions reduce regulatory risk for facilities that make a good faith effort to identify air toxics emissions and comply with the applicable rules.

## How Does a Facility Demonstrate Due Diligence?

If a facility does not emit anything into the air, due diligence requirements do not apply. Facilities that produce emissions must investigate likely sources of air toxics.

Potential steps include:

- Gathering and examining MSDS sheets
- Checking purchasing records
- Consulting suppliers about input substances
- Talking with trade association members
- Consulting industry trade journals
- Testing suspect waste streams
- Checking DNR's website, <http://dnr.wi.gov/topic/AirQuality/Toxics.html>, for more information
- Using the [HAPS Help](#) developed by UW Extension's Solid & Hazardous Waste Education Center

### Activities likely to create air toxics emissions include:

- Mixing chemicals
- Creating reactions between chemicals
- Applying heat

Facilities should keep a record of any steps taken to identify air toxics. This includes documenting and maintaining a file for all the work done to determine a facility’s status and compliance (even if no air toxics were found). Records should be maintained for at least five years.

### A facility may emit air toxics if:

- It uses a lot of solvents
- It has a drying oven
- It has strong odors on site
- Employees need to wear respiratory protection
- Exhaust fans are used to vent fumes, heat, or dust
- OSHA and/or NIOSH safety regulations are in place to protect against inhalation effects

### Specific processes likely to create toxic air emissions include:

- Fiberglass manufacturing
- Urethane foam production
- Plastics manufacturing
- Conventional surface coating operations
- Welding
- Metal fabrication
- Processes that create dust

Note: Lists are not intended to be exhaustive.

**Incidental Emitters.** Facilities that are likely to emit minimal air toxics, if any, fall into a source category called “incidental emitters” (see [NR445.11](#)). This category includes most non-manufacturers and those manufacturers that emit less than 3 tons per year of volatile organic compounds and less than 5 tons per year of particulate matter. These facilities may limit their search and inquiry to certain processes (e.g. chrome electroplating) and a shorter list of chemicals of concern ([Table E](#) in NR 445). Incidental emitters must meet all regulatory requirements, but only for those chemicals and processes identified during their limited search and inquiry.

For more information about incidental emitters, see the NR 445 [Incidental Emitters fact sheet](#).

### **When are Air Toxics Emissions Controlled?**

Sources must control emissions for pollutants listed in NR 445 when non-exempt potential emissions exceed their **emission thresholds**. Potential emissions refer to the emissions a source has the capacity to produce rather than the emissions actually produced. Thresholds differ depending on the pollutant and the height of the stack. Exempt emissions are listed in [NR445.07\(5\)](#).

### **What are the Control Requirements for Air Toxics Emissions?**

Air toxics emissions exceeding their thresholds must meet the standards or use the control technologies specified for each pollutant. Ambient air standards are established for pollutants with non-cancer health effects. These standards are concentrations that cannot be surpassed in a specified period of time (e.g. one hour, 24-hours, or a year). Technology-based control requirements are used to limit carcinogenic air toxics. These requirements are established as Best Available Control Technology (BACT) for suspected carcinogens and Lowest Achievable Emission Rate (LAER) for known carcinogens.

### **Alternative Compliance Options**

Additional compliance options include alternative compliance strategies and modeling “off-ramps.”

**Alternatives to Control Requirements for Sources of Carcinogens.** As an alternative to the technology-based control requirements, facilities may choose to manage their carcinogenic substances so that their emissions do not exceed a particular level of risk ([NR445.08\(3\)](#)). Facilities can do any of the following:

- Use product substitution or operational controls to limit emissions below thresholds.
- Show through air dispersion modeling that the off-property risk is less than 1-in-1,000,000 for each carcinogen.
- Show through air dispersion modeling that the cumulative off-property risk is less than 1-in-100,000 for all carcinogens, including any exempt emissions.

**Modeling “off-ramps”.** Facilities may use an air dispersion computer model to demonstrate that the emissions at their sites do not exceed the ambient air concentration standards for non-carcinogenic substances, or the risk levels for carcinogenic substances ([NR 445.08\(5\)\(d\)](#)). The computer model helps facilities evaluate which changes (stack height increases or operational limitations) will bring them into compliance with the emission standards.

### **Source-Specific Control Requirements**

NR 445 includes specific provisions for compression ignition engines and sources that handle or store coal.

**Compression Ignition Internal Combustion Engines (CI or stationary diesel engines; [NR 445.09](#)).** CI engines of 100 horsepower or more must use fuel oil with sulfur content no greater than that allowed for on-road use. CI engines at a single location for 12 months and burning 10,000 gallons of fuel oil must control their particulate emissions.

For more information about requirements for these engines, see the [NR 445 Compression Ignition Engines fact sheet](#).

**Sources that Handle or Store Coal ([NR 445.10](#)).** Facilities that handle or store more than 1,000 tons of coal a year must:

- Control non-fugitive coal dust emissions.
- Develop and implement a management plan for controlling outdoor fugitive coal dust emissions. The plan must describe control measures that will be taken during routine and non-routine operations.

## How does NR 445 Affect Permitting?

Facilities may **self-certify** compliance with NR 445 requirements rather than revise their current operation permits or obtain construction permits, except for situations where a source needs to comply with control requirements for carcinogens. In those situations, facilities will need to work closely with DNR air permit staff to ensure they are meeting all requirements. Most new compliance requirements are written into the operation permit during the normal permit renewal or issuance cycle. See [NR445.08\(7\)](#) for more information.

## FOR MORE INFORMATION

For more information about Wisconsin's Air Toxics Rule see <http://dnr.wi.gov/topic/AirQuality/Toxics.html>.

This fact sheet can be downloaded at <http://dnr.wi.gov/files/PDF/pubs/am/AM405.pdf>.

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PRINTED ON RECYCLED PAPER • PUB AM-405 2011, Rev. 09/12

