



## FACT SHEET

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### **MACT Standard for Boilers and Process Heaters**

**By: Gary A. Jones**

On September 13, 2004, EPA issued a new air pollution control regulation called a maximum achievable control technology (MACT) standard for hazardous air pollutants emitted from commercial, industrial and institutional boilers and process heaters. This MACT standard can apply to a printing operation that is a “major source” for hazardous air pollutants and uses a boiler to heat the building or to create steam for stripping carbon adsorption beds or make corrugated packaging. This regulation establishes work practice standards and emission limits to control particulate matter, certain metals, mercury, hydrochloric acid, and carbon monoxide emissions.

A major source of hazardous air pollutants (HAPs) is defined as having the potential to emit at least 10 tons per year of any HAP, or 25 tons per year of a combination of HAPs, regardless of location. Emissions from the entire facility, including non-boiler or process heater sources, count toward major source status.

#### **Compliance Dates**

Existing Sources: September 17, 2007

New Sources: Six months from the start-up date

#### **Exemptions**

There are several important exemptions from the rule and they include three common process heaters found in printing operations. These include:

1. Hot water heaters with a capacity not exceeding 120 gallons, pressure not exceeding 160 pounds per square inch gauge, and water temperatures not exceeding 210°F
2. Space heaters
3. Press dryers

It is important to note that press dryers fall under the exemption for direct-fired (contact) combustion units (e.g., direct contact dryers) where the combustion gases come into contact with the process materials.

## **Definitions**

The following definitions are important to understand when assessing the applicability of this regulation to printing facilities and equipment.

*Boiler:* an enclosed device using controlled flame combustion and that primarily recovers thermal energy in the form of steam or hot water.

*Existing Unit:* commenced construction before January 13, 2003

*Firetube boiler:* a boiler in which hot gases of combustion pass through the tubes and water contacts the outside surfaces of the tubes.

*Large Unit:* Any watertube boiler or process heater greater than 10 MMBtu/hr (million Btu/hour)

*Limited use gaseous fuel subcategory:* includes any watertube boiler or process heater that burns gaseous fuels not combined with any liquid or solid fuels, burns liquid fuel only during periods of gas curtailment or gas supply emergencies, has a rated capacity of greater than 10 MMBtu per hour heat input, and has a federally enforceable annual average capacity factor of equal to or less than 10 percent.

*Limited use liquid fuel subcategory:* includes any watertube boiler or process heater that does not burn any solid fuel and burns any liquid fuel either alone or in combination with gaseous fuels, has a rated capacity of greater than 10 MMBtu per hour heat input, and has a federally enforceable annual average capacity factor of equal to or less than 10 percent. Limited use gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply emergencies are not included in this definition.

*Limited use solid fuel subcategory:* includes any watertube boiler or process heater that burns any amount of solid fuel either alone or in combination with liquid or gaseous fuels, has a rated capacity of greater than 10 MMBtu per hour heat input, and has a federally enforceable annual average capacity factor of equal to or less than 10 percent.

*New Unit:* commenced construction or reconstruction on or after January 13, 2003

*Process heater:* an enclosed device using a controlled flame that is primarily used to transfer heat indirectly to a process material.

*Small Unit:* Any firetube boiler (regardless of size) and any other boiler or process heater less than or equal to 10 MMBtu/hr (million Btu/hour)

*Watertube boiler* means a boiler in which water passes through the tubes and hot gases of combustion pass over.

## Requirements

For any boiler or process heater subject to the rule, there are two basic requirements that must be met. The first is to submit an initial notification to the state agency informing the agency that you are subject to the rule. The second is to meet the specific emission limits and demonstrate compliance with the limits.

There are several types of affected units that have no requirements or only require an initial notification. The requirements are as follows:

- No requirements: Existing small units (all fuel types) and new small units (gas fuel) have no emission limits and no requirements: No monitoring, no records and no notifications are required.
- Initial notification: Existing large units (gas and liquid fuel) and new small units (distillate oil only or combined with gas fuel) have no emission limits and are required to submit only an initial notification. There are no other requirements.

Boilers or process heaters constructed or reconstructed after January 13, 2003 must meet the most stringent requirements. The age of the boiler, the size of the boiler (large, small, or limited use), the fuel it burns (solid, liquid, or gas) and any current methods of emission reduction used (wet scrubbers, fabric filters, etc.) determine which requirements are applicable.

The regulation includes emission limits for particulate matter, total selected metals (as a surrogate for metallic HAPs such as arsenic, beryllium, cadmium, chromium, lead, manganese, nickel and selenium), hydrogen chloride (HCl) as surrogate for inorganic HAP, mercury (Hg) and carbon monoxide (CO) as surrogate for organic HAP. The following table identifies the regulated pollutants for each type of boiler or process heater.

FUEL TYPE	EXISTING UNITS	NEW UNITS
Solid	PM or TSM HCl Hg	PM or TSM HCl Hg CO
Liquid	None	PM HCl CO
Gas	None	CO

**Solid:** Burns any amount of solid fuel

**Liquid:** Burns liquid fuel alone or with gas

**Gas:** Burns only gaseous fuel

To demonstrate compliance, regulated units can meet emission limits through a combination of:

- Performance testing (for units that have new or existing control devices),
- Emissions averaging (certain units),

- HCl (measured as HCl and chlorine) and manganese, demonstrate low public risk, or
- HCl, TSM, and Hg limit HAP content of fuel and demonstrate compliance through fuel analysis.

For more details on the specific control requirements, see EPA's web page on the rule at <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>. EPA has also developed Applicability Flow Charts, Example Initial Notification Form and Time Lines and these are available at the rule's website.

*For more information or to contact someone from PNEAC please visit [www.pneac.org](http://www.pneac.org) and post your request using "Ask PNEAC".*

Author:

Gary A. Jones

Manager, Environmental, Health, and Safety Affairs

Printing Industries of America/Graphic Arts Technical Foundation

[garyjgatif@aol.com](mailto:garyjgatif@aol.com)

412-259-1794

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