

**Michigan Department of Environmental Quality
Air Quality Division**

INFORMATION REQUIRED FOR AN ADMINISTRATIVELY COMPLETE
PERMIT TO INSTALL APPLICATION FOR
CONTROL EQUIPMENT: AFTERBURNER - THERMAL OR CATALYTIC OXIDIZER

This document is designed to clarify the information requirements for an administratively complete application for a Permit to Install a process that includes a **thermal or catalytic oxidizer**. This document supplements and should be used in conjunction with the AQD document entitled ASSEMBLY INSTRUCTIONS AND GENERAL INFORMATION REQUIREMENTS. The information requested in this document should be included in PART 2 - INSTRUCTIONS FOR ADDITIONAL SUPPORTING INFORMATION, Item C - Control Technology Analysis. The information described in this document is not intended to be all inclusive. The requirements for an administratively complete application for a Permit to Install are designed to provide enough information for a permit reviewer to begin a technical review. Additional information beyond that identified may be required to complete the technical review of any individual application.

1. Make and model number of equipment and any available manufacturer's literature.
2. A diagram of internals.
3. The chemical composition of waste gases into the afterburner.
4. The heat content, in actual cubic feet per minute (acfm) and temperature of waste gases, in °F, into the afterburner at a maximum continuous production rate.
5. Auxiliary fuel usage:
 - a) type
 - b) maximum sulfur content
 - c) average heating value
 - d) usage rate at maximum continuous production rate
 - e) maximum ash content for solid fuels
6. If any extra air is let into the afterburner, indicate temperature and flow rate, in acfm.
7. Describe any catalyst used and include available manufacturer's literature.
8. For thermal units: The minimum retention time in seconds, at the minimum combustion chamber outlet temperature.
9. For catalytic units: The maximum space velocity¹ (1/hour) at the minimum combustion chamber outlet temperature.
10. The minimum combustion chamber inlet and outlet temperatures, in °F.
11. Expected destruction efficiency for waste gases fired into the afterburner. Include any available supporting documentation such as stack test reports.
12. Estimated exhaust gas flow rate (acfm) and temperature with supporting combustion calculations based on fuel and waste gas combustion.
13. Describe any proposed monitors (combustion or other) and their location, to ensure proper operation of the afterburner.
14. Describe any heat recovery system, including an estimate of heat recovery efficiency.
15. Describe any exhaust stack insulation, expected temperature loss in the stack, and final temperature in °F, and exhaust flow in acfm, at stack discharge point.

¹ "Space velocity" is a measure of the contact time of the gases to be burned with the catalyst in a catalytic oxidizer. This is different than retention time, which is a measure of the total time the gases to be burned are actually in the combustion zone of a thermal oxidizer.