



# Louisville Metro Air Pollution Control District

## Control Device Permit Application Form AP-300L

### Thermal Oxidizer or Afterburner

**Deliver application to:**

701 W. Ormsby Ave. Suite 303  
Louisville, KY 40203

(502) 574-6000  
FAX: (502) 574-5137  
[www.louisvilleky.gov/apcd](http://www.louisvilleky.gov/apcd)  
[airpermits@louisvilleky.gov](mailto:airpermits@louisvilleky.gov)

Plant Name:	Plant ID
Date of construction, modification, installation, or operation:	Process equipment associated with this control equipment:

Equipment Description		Control ID #
Manufacturer:		Model:
Oxidizer Type	<input type="checkbox"/> Catalytic oxidizer <input type="checkbox"/> Thermal Oxidizer <input type="checkbox"/> Other: <input type="checkbox"/> Afterburner <input type="checkbox"/> Regenerative Thermal Oxidizer	
Combustion chamber volume:		Combustion chamber operating temperature: °
Airflow:	Residence time: sec	Draft: <input type="checkbox"/> Forced <input type="checkbox"/> Induced
<i>Attach a copy of the manufacturer's spec sheets for the oxidizer with this application</i>		
<i>List the contaminants in the waste stream that are removed by the reduction system:</i>		
Contaminant	CAS # (if applicable)	Gas stream concentration    Destruction Efficiency
		%
		%
		%
		%
Describe how the destruction efficiency was determined: <i>(If other than Manufacturer's specification, include documentation supporting the claimed efficiency)</i>		

Burner Description	
Manufacturer:	
Model:	
Fuel:	<input type="checkbox"/> Natural Gas <input type="checkbox"/> Propane              Maximum Hourly Fuel Consumption: / hour <input type="checkbox"/> #2 fuel oil <input type="checkbox"/> Other:              Nominal Annual Fuel Consumption: / year
Number of burners:	Design heat input <b>per burner:</b>
<i>Attach a copy of the manufacturer's spec sheets for the burners with this application</i>	

<b>Regenerative Thermal Oxidizer Design Information</b>		<input type="checkbox"/> N/A
<i>Complete the following if this application is for a Regenerative Thermal Oxidizer</i>		
Number of oxidation chambers:		Chamber switching rate:
Describe the process heat recovery system:		

<b>Catalytic Oxidizer Design Information</b>		<input type="checkbox"/> N/A
<i>Complete the following if this application is for a Catalytic Oxidizer</i>		
Catalyst used:		Catalyst bed volume:
Design operating life of bed:	years	
Design pressure drop:	.	Design temperature rise across bed: °
Describe the method of catalyst disposal or regeneration:		

## Instructions for Thermal Oxidizers

### Form AP-300L

A thermal oxidizer operates by thermal (non-catalytic) and catalytic incineration and can oxidize hydrocarbons and some other toxic pollutants. High temperature and residence time must be sufficient to obtain the desired oxidation results.

#### General Information

**Plant Name** Enter the plant name.

**Plant ID #** This is the identification number assigned to the source by the District. If this application is for a new source for which an ID has not been assigned, leave this blank.

#### Equipment Description

**Manufacturer** Enter the name of the company that manufactures the oxidizer equipment.

**Model #** Enter the model number of the equipment to be installed.

**Oxidizer type** Check the box representing the type of oxidizer.

**Chamber volume** Enter the volume (magnitude and units) of the combustion chamber. **If there are more than one chamber, enter the volume of a single chamber.**

**Chamber temperature** Enter the nominal working temperature of the oxidizer. This should be the minimum temperature required to achieve the stated destruction efficiency. Circle F or C to indicate whether this temperature is Fahrenheit or Celsius degrees.

**Airflow** Enter the mean volumetric flow rate of the gas stream through the oxidizer in actual cubic feet per minute, measured at the chamber operating temperature.

**Residence time** Enter the time the exhaust gas is in the oxidizer chamber at the required oxidation temperature.

**Draft** Indicate whether the air flow through the oxidizer is by forced or induced draft.

**Contaminant list** List the pollutants that are in the exhaust stream that are controlled by this system. If a CAS registration number exists for the material, list that as well. List the typical concentration of the contaminant in the exhaust gas stream, and the expected destruction efficiency.

**Efficiency determination** Indicate how the destruction efficiency was determined. (e.g. manufacturer's specification, calculation, stack test, *etc.*) Include appropriate documentation to support destruction efficiency claims.

#### Burner Description

**Manufacturer** Enter the name of the company that manufactures the burners that supply heat to the oxidizer.

**Model #** Enter the model number of the equipment to be installed.

**Fuel** Check the box next to the fuel that is burned by the oxidizer burners.

**Maximum consumption** Enter the maximum amount of fuel that can be burned in a single burner. Include magnitude and units (e.g. 200 ft<sup>3</sup>/hr, 20 gal/hr)

**Nominal consumption** Indicate the amount of additional fuel required per burner to maintain operating temperature during steady-state operation.

**Number of burners** Indicate the total number of burners used by the oxidizer during normal operation.

**Heat input** Enter the design heat input of **each** burner.

**RTO Design Information**

- Number of chambers** Enter the number of separate oxidation chambers.
- Chamber switching rate** How often does the equipment switch the gas stream from one oxidation chamber to the next?
- Heat recovery** Describe the method of recovering heat from the exhaust stream.

**Catalytic Oxidizer Design Information**

- Catalyst used** Describe the catalyst used in the oxidizer.
- Bed volume** Enter the amount of catalyst used to fill the reaction bed.
- Operating life** Enter the expected lifetime of the bed before replacement or regeneration is required, assuming worst-case values of contaminants in the gas stream.
- Pressure Drop** Enter the gas stream pressure drop across the catalyst bed during normal operation.
- Temperature Rise** Enter the temperature rise across the catalyst bed during normal operation. Circle F or C to indicate whether this temperature is Fahrenheit or Celsius degrees.
- Regen/Disposal** Indicate whether an exhausted catalyst bed is regenerated or replaced, and the method of regeneration or disposal of the exhausted bed.