



## Thermal Oxidizer

Purify process waste with high-temperature oxidation

Zenviro Tech has unique and established expertise in providing customized exhaust air pollution treatment systems to process industries around the world. We provide fit-to-purpose air pollution control systems that meet required emission mandates and individual customer specifications in a wide variety of industries all over the world.

Our thermal oxidizers can achieve VOC and HAP destruction efficiencies from 99.9% to as high as 99.9999% for both process gas and liquid waste. With our design philosophy, Zenviro Tech offers cost effective solutions for low NOx, low SOx, low CO, and lower total carbon footprint.

Zenviro Tech's thermal oxidizers are robust in design and extremely reliable for many applications such as Sulfur Recovery Unit (SRU) tail gas, organic & inorganic salt, Purified Terephthalic Acid (PTA), and halogenated systems.

- **Trusted and Proven**

40+ years of experience and know-how to provide unique, custom design packages to meet our customer's needs and the most stringent environmental emission requirements.

- **Optional designs with Specific Advantages**

Waste heat recovery boiler, hot oil heater for heat recovery, wet & dry scrubber, particulate matter removal, and NOx reduction

- **Minimized CAPEX with Single Solution for Multiple Process Streams**

Thermal Oxidizers are capable of treating liquid and gas waste streams in a single unit

- **Fit-To-Purpose Solution**

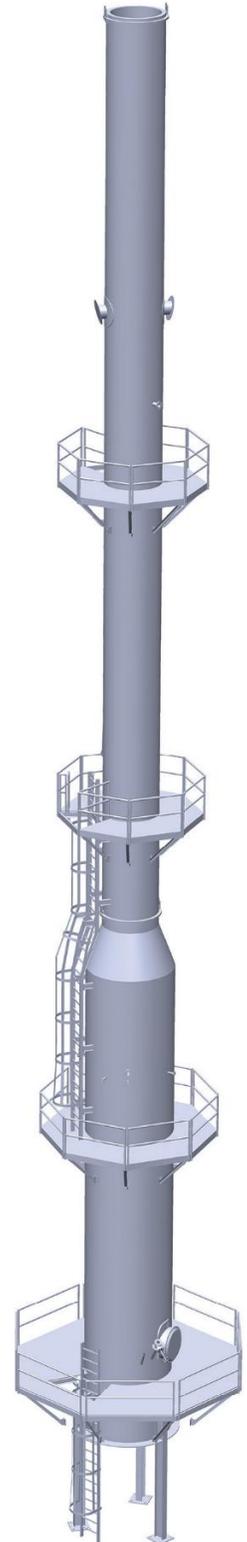
Custom system designed to meet a given destruction efficiency and emissions requirement

- **Application Specific Burner Design**

Custom designed Low NOx burner solutions for size, firing rate, process stream, and mounting location to meet project needs

- **24/7/365 Technical Response Service**

Emergency Line: +1 (888) 711-6660



# Thermal Oxidizer Design Considerations

## Waste Characterization

Process types such as liquid, gaseous, low/high BTU, halogenated, amine & cyclic waste compounds determine the type of oxidizer

## Burner Selection

Dependent on waste type, special considerations (e.g. low NOx, multiple fuels)

## Combustor Design

Special design for introducing various wastes. Provides required residence time, temperature, capability, and mixing.

## Control System Design

Critical to maintain operation at design conditions. Waste can dictate requirements.

## Heat Recovery

Can improve economics/efficiency by generating steam or reducing fuel consumption. Can also improve emissions.

## Flue Gas Treatment

Added to meet required emissions levels if particulate or acid gasses are present in flue gas. Type used dependent on pollutant and required emission level.

## Comparison:

# Which Thermal Oxidizer Best Suits Your Needs?

### Up-Fired Vertical Thermal Oxidizer

#### Typical Applications:

- SRU Tail Gas and Fume/VOC Combustors

#### Design Advantages:

- Simplest and most economical solution for high destruction efficiency
- Burner accessible from ground level
- Prefabricated designs available for quick installation

#### Features:

- Unique burner design using baffle plates
- Integral stack

### Down-Fired Vertical Thermal Oxidizer

#### Typical Applications:

- Organic & Inorganic Salt, PTA, HCl & HF

#### Design Advantages:

- Best for highly complex applications on a reduced footprint
- Can be used with wet or dry process
- Easy particulate removal during continuous operation without system shutdown

#### Features:

- Flue gas quenching
- Can be combined with Particulate Matter removal solution such as scrubber, baghouse, or WESP
- Extended refractory life

### Horizontal Thermal Oxidizer

#### Typical Applications:

- Halogenated Liquid and Process Waste Gas, HCl & HF

#### Design Advantages:

- Low NOx design
- Burner accessible from ground level
- Quickest turnaround for scheduled maintenance

#### Features:

- Waste heat recovery available for high energy efficiency, low fuel consumption, and steam generation
- Choke ring for maximum turbulence
- Steam atomization for liquid waste



USA | China | India

+1 (815) 676-3176  
ZenviroTech.com | 

sales@zenvirotech.com  
service@zenvirotech.com