

ACID GAS & HALOGENATED THERMAL OXIDIZER

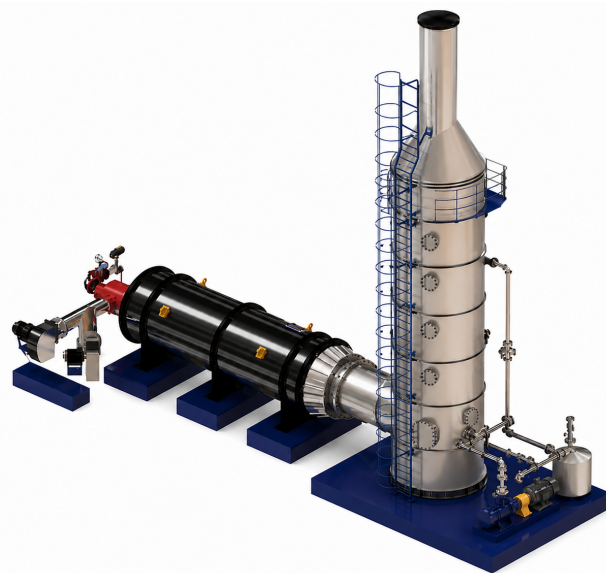


ENGINEERED FOR THE HARSHEST ACID AND HALOGENATED GAS STREAMS

Chlorine-, fluorine-, bromine-, and sulphur-bearing waste streams destroy conventional refractory and duct materials on contact, and combustion itself creates a second hazard: dioxins and furans that can re-form as the flue gas cools through a specific temperature band.

CRA's Acid Gas & Halogenated Thermal Oxidizer combusts waste gas above 1,000°C, with residence time and turbulence engineered to destroy the regulated halogenated compounds in the stream. Temperature stays above the dioxin formation window throughout combustion and during cooling, preventing dioxin and furan formation before it can occur, a control point that matters because de novo synthesis is most favourable in the roughly 200-450°C band as flue gas cools¹. Hot flue gas discharges into an integrated quench system that rapidly cools it through that band, then a wet scrubber downstream removes HCl, HF, and SO_x before the gas reaches atmosphere, delivering destruction efficiency exceeding 99% and reaching 99.99% to 99.9999% for complex halogenated and hazardous emissions.

CRA combines its scrubbing and combustion expertise, purpose-built for corrosive, chlorine-, fluorine-, and sulphur-bearing compounds, engineered to meet global compliance standards under the same ISO 9001 quality system that governs every CRA skid.



CRA ADVANTAGE

+ Extreme Destruction Efficiency (Achieves >99.9% destruction of halogenated VOCs, acid gases, and complex chemical waste mixtures)	+ Optimal Design & Performance + Accomodate Special Requirements
+ Minimized Toxic Byproducts (Optimized temperature, residence time, and turbulence suppress dioxin and furan formation)	+ On-Time Delivery + Responsive & Organized Team
+ Integrated Scrubber Options (Offers quench and scrubbing systems for acid gas removal, including HCl, HF, and SO _x)	+ Stringent Quality Management + Fast Turnaround
+ Pre And Post Combustion Scrubbing (Advanced pre- and post-combustion scrubbing technology to meet the specific needs of each application)	+ Cost Effective Maintenance Packages + Long-Term CRA Support

APPLICATIONS

Supplied for destruction of corrosive, halogenated, and acid gas waste streams across chemical, petrochemical, biogas, and landfill/wastewater duty

- + Chlorinated VOCs
- + Brominated And Fluorinated VOCs
- + Acid Gases
- + Halogenated Hydrocarbons
- + Mixed Hazardous Gases
- + Off-Gas From Chlorine-Based Process Reactions

CRA
7, Sector 140A
Noida, UP, 201304

Learn more at www.cra.energy

✉ contact@cra.energy

☎ 0120 415 6787 • +91 85060 09433



©Combustion Research Associates

WORKING & PERFORMANCE



QUENCH AND SCRUBBING STAGES GUARD AGAINST ACID GAS AND DIOXIN REFORMATION

WORKING

- + Waste gas combusts at temperatures above 1,000°C, with residence time and turbulence engineered to destroy the regulated halogenated compounds in the stream
- + Temperature stays above the dioxin formation window throughout combustion and during cooling, preventing dioxin and furan formation before it can occur
- + Hot flue gas discharges into an integrated quench system that rapidly cools it, passing quickly through the roughly 200-450°C range where dioxins could otherwise reform^L
- + A wet scrubber downstream of the quench removes HCl, HF, and SO_x from the cooled flue gas before it reaches atmosphere
- + Stack continuous emissions monitoring and safety interlocks confirm the system stays within the parameters that keep destruction efficiency and corrosion control on target

ACID GAS CONTROL POINTS

- + DRE: >99.9%, Up To 99.9999%
- + Combustion Temp: >1,000°C
- + Downstream Control: Quench + Scrubber
- + Target Compounds: Cl, F, Br, S Species
- + Dioxin Reformation Window: Roughly 200-450°C, Peak 250-350°C^L

Acid-resistant refractory lining and quench/scrubber integration are sized together, since the same corrosive compounds that require destruction also drive material selection downstream.

TYPICAL DESIGN & PERFORMANCE PARAMETERS

Destruction efficiency	>99.9%, reaching 99.99% to 99.9999% for complex halogenated/hazardous streams
Combustion temperature	>1,000°C
Downstream control	Integrated quench + wet scrubber (HCl, HF, SO _x removal)
Target compounds	Chlorine, fluorine, bromine, and sulphur-bearing species
Dioxin/furan reformation window	Roughly 200-450°C, peak formation 250-350°C, avoided via rapid quench ^L
Construction	Acid-resistant refractory lining
Applicable standard	NFPA 86, burner management; acid gas emissions per site-specific/regional limits ^L

Figures per CRA published product data; items marked with a superscript L are drawn from published industry literature.

CRA
7, Sector 140A
Noida, UP, 201304

Learn more at www.cra.energy

✉ contact@cra.energy

☎ 0120 415 6787 • +91 85060 09433



©Combustion Research Associates