

## ◆ VOC Thermal Oxidizer

### Virtually maintenance-free elimination of Volatile Organic Compounds in exhaust gasses



Despatch's VOC Thermal Oxidizer was designed to eliminate over 99% of Volatile Organic Compounds (VOCs) from gasses exhausted during the drying step of solar cell manufacturing.

The solar cell manufacturing process creates unwanted environmental pollutants which are byproducts of the drying process, and contain the non metallic ingredients found in the paste material such as ethanol, Texanol™ and terpeneol. These pollutants can condense inside facility ductwork and create hazardous conditions. Destroying the VOCs using the Oxidizer eliminates the need to collect and dispose of this waste in a separate process. The exhaust exiting from the VOC Thermal Oxidizer contains only small amounts of CO<sub>2</sub> and water vapor.

In industries that emit VOCs and have established pollution control technology criteria, Thermal Oxidizers satisfy Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER).

#### FEATURES AT A GLANCE

- ◆ Designed for high-speed, high-capacity solar cell manufacturing lines
- ◆ Eliminates VOCs as close to the point of origin as possible
- ◆ Electric (no need for gas or open flame, no NOx generation)
- ◆ Runs off of furnace power (with soft-start software)
- ◆ Best in class (99% or better) destruction of VOCs:
  - Odors – 100% elimination of odor
  - 99%+ destruction of particulate matter and VOCs (Volatile Organic Compounds)
- ◆ Exhaust contains only CO<sub>2</sub> and water vapor
- ◆ Meets legal requirements regarding the capture or destruction of VOCs including TA Luft regulation of Germany
- ◆ Eliminates need for handling and disposal of waste product collected in VOC condensers
- ◆ Fits on top of CDF dryer - no additional footprint required

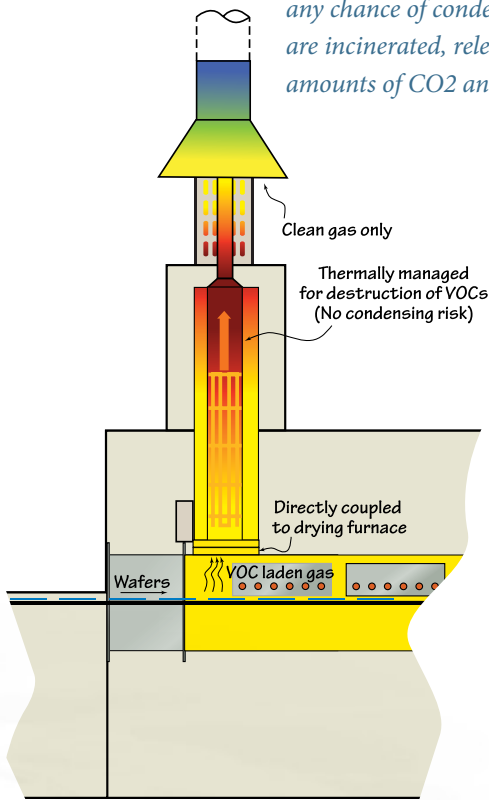
*Patent pending*



*The operation of the VOC Thermal Oxidizer is based on the principle of combustion which is the most commonly used method to control emissions of organic compounds and is used in a variety of industries. Combustion systems are simple and have very high destruction efficiency.*

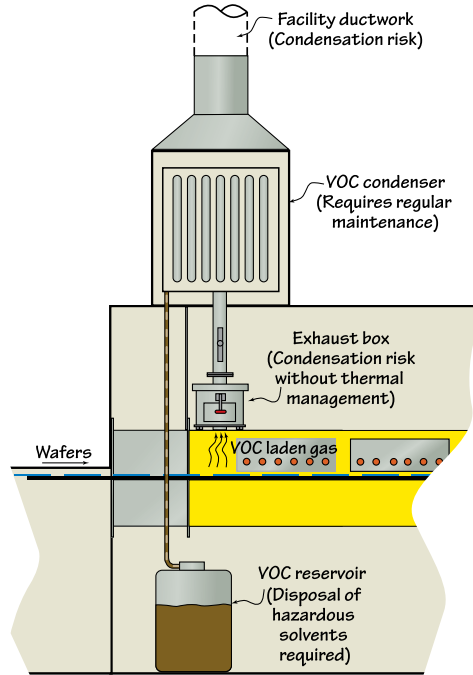
*The VOC Thermal oxidizer maintains a temperature of 760°C (1400°F) to ensure destruction of all VOCs. The oxidation process releases heat and thereby contributes to maintaining the temperature of the oxidizer.*

Despatch's Thermal Oxidizer attaches directly to the furnace, removing any chance of condensation. VOCs are incinerated, releasing only small amounts of CO2 and water.

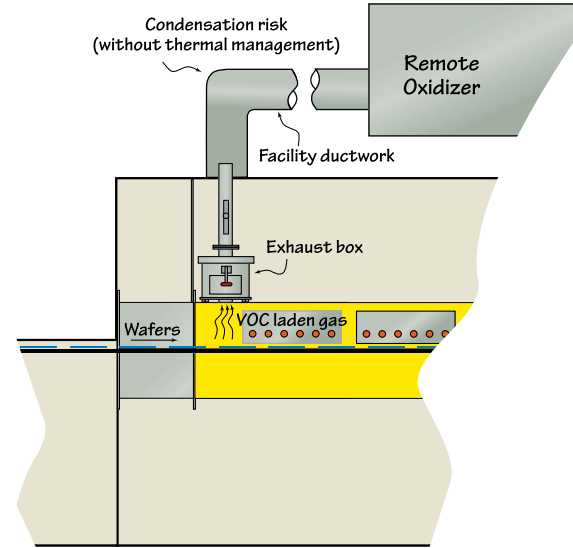


**VOC Thermal Oxidizer  
(Point of origination)**

Other VOC abatement options are ineffective and require extensive maintenance. Condensers require containment and removal of hazardous solvents and regular cleaning. With remote facility abatement systems, solvents condense in the ductwork requiring extensive cleaning and creating a fire hazard.



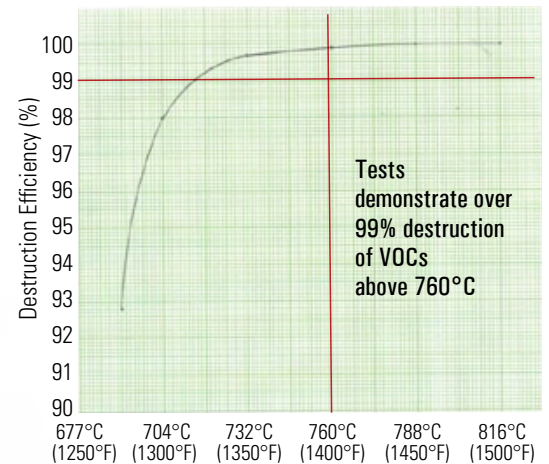
**VOC Condenser  
(Point of origination)**



**Remote Facility  
Condenser or Oxidizer**

VOC THERMAL OXIDIZER	SINGLE LANE	DUAL LANE
Operating temperature	760°C (1400°F)	760°C (1400°F)
Residence time	1.0 seconds	1.0 seconds
Facility exhaust**	250 m3/hr (8500 SCFH)	500 m3/hr (17000 SCFH)
Facility exhaust temperature	100°C (212°F)	100°C (212°F)
Installed heater capacity	15 kW	30 kW
Heat input at nominal rates	11 kW	22.5 kW
Nominal Operating Load*	16 Amps	32 Amps
Height from floor to connection point	308cm	313 cm
Nominal Operating Costs (\$0.09 /kW hr)	\$0.58/hr	\$1.00/hr

\* The 400 volt single phase Oxidizer load is balanced on the furnace 3 phase power. Amperage shown is nominal increase to furnace load. No additional power drop required.  
 \*\* Two facility exhaust connections per dryer. Values shown are for each connection.  
 Notes: Specifications are subject to change without notice.  
 Contact Despatch for most updated specification.



As tested by American Engineering Testing, Inc.  
1/19/2010

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