

EVOQUA 50 MMBTU/HR MOBILE THERMAL OXIDIZERS

EFFICIENT HIGH-ENERGY VAPOR CONTROL

VOLUME AND COMBUSTION

Speed and efficiency are essential

Evoqua designed the 50MBtu TO to remove VOCs, hazardous air pollutants (HAPs), smoke, and odors from process vapors. These pollutants are typically hydrocarbon-based. When held long enough at a high enough temperature, the molecules are torn apart to form carbon dioxide (CO₂) and water (H₂O) which are exhausted to the atmosphere. Normally a 1-sec. retention in the combustion chamber at 1,400°F ensures proper destruction and removal efficiency (DRE). The TO burner raises the temperature to the operating setpoint and maintains the chamber above the minimum operating temperature. The process vapors enter the chamber where they are heated and retained for complete combustion.

A FOCUS ON SAFETY

Class 1 Division 2 Electrical Compliance

A pressurized control panel allows for safe operation within a Class 1 Division 2 area. Loss of panel pressure alerts the operator to

make the necessary corrective action. All electrical components are specified for safe operation in a classified environment.

UNITED STATES COAST GUARD SAFETY COMPLIANT

Each TO50M includes Dual US Coast Guard-certified Group D detonation arrestors, with an additional Group D anti-flashback burner nozzle for low flow applications. The detonation arrestor and anti-flashback device isolate the combustion reaction within the combustion chamber, preventing any flame from traveling through the process stream. The second detonation arrestor is included at skid edge to isolate the facility from all process electrical components on the TO50M.

The detonation arrestor included on each TO50M is equipped with pre-filters and sized to minimize pressure drop across the unit, maintaining effective vacuum capabilities and preventing any flame from propagating to upstream equipment by effectively absorbing and dissipating heat that reaches the arrestor unit itself.

Buildup of static electricity must be prevented, therefore



AT A GLANCE

INDUSTRY

Oil & Gas

Chemical

BUSINESS CHALLENGE

Process large volumes of vapor with speed and efficiency

KEYS TO SUCCESS

Mobile solutions

United States Environmental Protection Agency (EPA) Best Available Technology

United States Coast Guard Safety Compliant



the TO50M includes a ground continuity verification system designed to ensure connection to ground is continuous and able to dissipate static charges, avoiding the buildup of excess energy within the treatment system.

Each valve used for fuel supply includes shut-off conditions designed specifically to safely stop operation without allowing flammable compounds to enter the surrounding area. Each valve will respond automatically if the unit shuts down.

During the combustion process, each TO50M operates at a minimum temperature of 1,400 °F and minimum retention time of 1 second. Greater than 99 percent of VOC's are destroyed under these conditions, ensuring no hazardous gasses exit into atmosphere and removing all flammable compounds from the treated stream.

EASE OF OPERATION

Automation included within each TO50M monitors and controls unit flow rates, temperatures, and pressures in order to ensure complete and efficient combustion. Specific operational modes can be chosen to maintain either a set vacuum or set flow rate on a system if desired.

Controls and monitoring equipment are centralized on a single interface and controller. From these screens, operators can quickly view operations conditions monitored throughout the unit, adjust process setpoints to adjust required flow or operational mode, and view recorded logs of equipment runtime conditions.

Apart from the two influent valves, all process valving, blowers, and burners are controlled based on live operating conditions and target setpoints.

SAFETY NOTE

Treated streams include flammable and / or explosive gasses. All hose connected to a thermal oxidizer must be properly grounded prior to operation. Avoid the presence of other open flames during the operation of a thermal oxidizer unit.

CAUTION

The combustion chamber of a thermal oxidizer will reach an elevated temperature. Contact with the combustion chamber should not take place until the thermal oxidizer is no longer in operation and internal temperatures reach ambient levels.

210 Sixth Avenue, Suite 3300, Pittsburgh PA 15222 USA

(877) 686-8936

EnvironmentalSolutions@evoqua.com

evoqua.com



All information presented herein is believed reliable and in accordance with accepted engineering practices. Evoqua makes no warranties as to the completeness of this information. Users are responsible for evaluating individual product suitability for specific applications. Evoqua assumes no liability whatsoever for any special, indirect or consequential damages arising from the sale, resale or misuse of its products.