

VOC CONTROL

Regenerative Thermal Oxidizer & Regenerative Catalytic Oxidizer



ISO9001&14001



OHSAS18001



S E M I S 2

ACTIVE

www.ATEI8.com

The spirits of "Innovation", "Integrity & Credit" and "Service" are our team members' focus on providing our customers professional services in environmental projects. We pursue the respect of natural environment, and execute effectively the energy economization & waste reduction operation, in order to reduce the pollution and impact to the environment.

REGENERATIVE THERMAL OXIDIZER

ACTIVE Regenerative Thermal Oxidizer (RTO) destroys volatile organic compounds or odors through thermal oxidation while minimizing operating costs. RTO converts harmful air pollutants to carbon dioxide and water at temperature ranging from 800 to 900°C. RTO have a multi-chamber configuration operating and utilize ceramic media to recover the heat energy. In an alternating inlet/outlet mode while the off-line chamber is being purged of trapped contaminants. The purge assures that all contaminants are in the regenerative bed and retention areas are purged with clean air after each inlet cycle. It is through this purging process and the patented switch valve that VOCs destruction removal efficiency (DRE) above 99% is possible.

REGENERATIVE CATALYTIC OXIDIZER

ACTIVE Regenerative Catalytic Oxidizer (RCO) destroys volatile organic compounds or odors through catalytic thermal oxidation while much minimizing operating costs. RCO converts harmful air pollutants to carbon dioxide and water at temperature ranging from 350 to 400°C. RCO have a multi-chamber configuration operating and utilize ceramic media to recover the heat energy and catalyst to lower combustion temp. In an alternating inlet/outlet mode while the off-line chamber is being purged of trapped contaminants. The purge assures that all contaminants are in the regenerative bed and retention areas are purged with clean air after each inlet cycle. It is through this purging process and the patented switch valve that destruction of 99%+ of VOCs is possible. ACTIVE Regenerative Catalytic Oxidizer is designed to have the advantage of economic operation cost

PATENT

- ❑ Temperature-controlled fuel supply device of burner, patent NO.M350608
- ❑ Air-tight structure for inlet and outlet air stream, patent NO.M348203

ACTIVE REGENERATIVE THERMAL OXIDIZER & REGENERATIVE CATALYTIC OXIDIZER

❑ **REGENERATIVE AND COMBUSTION CHAMBER**

RTO and RCO have two or three chambers configuration operating and utilize ceramic media with an alternating inlet/outlet mode to recover the heat energy. The airstream passes upward through a bed of hot ceramic media, raising it to near the oxidation temperature. The contaminated air enter the combustion chamber and then the VOCs are oxidized. The air stream exits the oxidation chamber through another bed of cooler ceramic media to heat the ceramic media.

The regenerative and combustion chamber is manufactured of a heavy gauge steel. The internal components are fully welded and insulated using ceramic fiber block. The combustion chamber is provided with access door, allowing easy maintenance for the chamber

❑ **PATENTED INLET/OUTLET SWITCH DAMPER**

ACTIVE RTO and RCO utilize inlet/outlet switch dampers to reach the heat recovery purpose. ACTIVE PATENTED AIR SEALING of the inlet/outlet dampers to prevent the leakage when damper switch to guarantee the destruction removal efficiency.

❑ **CERAMIC HEAT SINK MATRIX**

The ceramic heat sink will be installed several meters deep to attain 90%+ thermal efficiency, the thermal efficiency has an optimum design point between pressure drop of combustion system and depth of ceramic media.

❑ **CATALYST**

ACTIVE catalyst has been used commercially for air pollution control. It is active and stable under industrial conditions. The precious metals are deposited on monolith substrate. To notice some contaminants are catalyst deactivators and contribute to shortened catalyst life, ex. phosphorous, silicones, lead, iron, mercury, nickel, arsenic, chrome, antimony, copper, zinc, tin...etc. It can tolerate trace amounts of impurities under 0.3% by weight such as sulfur without activity decline. Please check details with our engineers.

❑ **COMBUSTION COMPONENTS**

Burner is used to provide the necessary heat to insure complete oxidation or start-up. Many types of burner can be used, including single/dual fuel, Pre-mix, Low NOx Burner. Maximum burner capacity is used for start-up only before being automatically modulated to a low fire setting to maximize efficiency. The fuel train will meet IRI/FM requirement. ACTIVE provide option energy saving alternatives for patented temperature controlled type fuel supply system.

❑ **AUTOMATIC CONTROL**

ACTIVE electrical engineers design automatic controls to meet virtually any customer requirement, including interface with production processes. The control panel includes the fan motor starter, control relay, burner controller, high temperature safety interlocks, flame safeguard control relays with remote reset, fuses and terminals, etc...

❑ **BYPASS DUCKWORK**

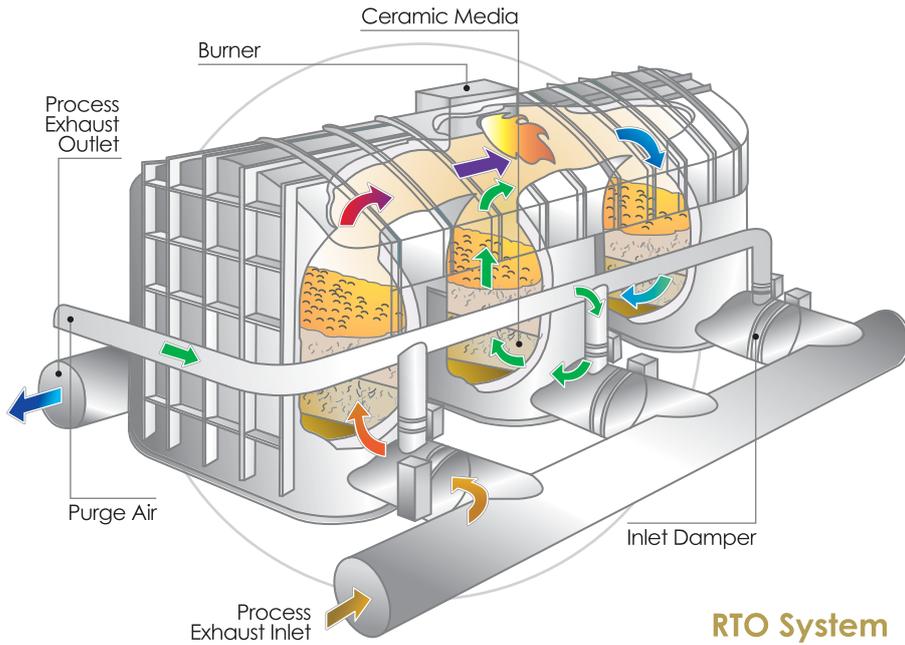
The bypass system will utilize automatic temperature controlled dampers to provide a safe route for the process exhaust air stream in the unlikely event of a solvent overload condition.

❑ **FAN**

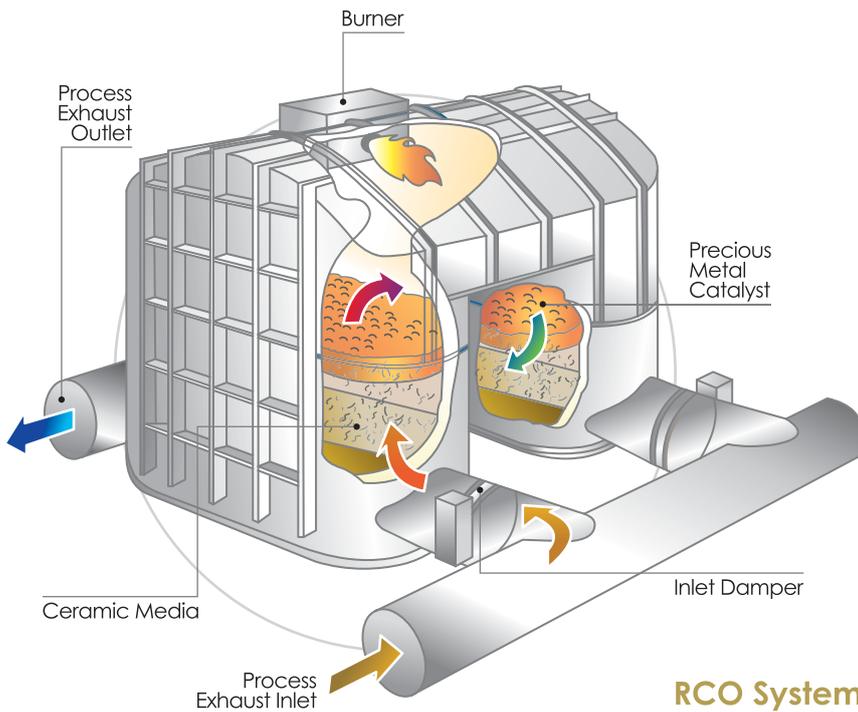
The industrial grade fan is used to convey the exhaust from the process to and through the oxidizer. The air-tight housing will be fabricated of continuously welded, heavy gauge steel with AMCA C spark resistant construction. The fan is mounted on a spring isolated unitary base.

❑ **STACK**

The stack is furnished to discharge the cleaned exhaust at a specified elevation. The stack is fabricated of carbon or stainless steel with outer insulation.



RTO System



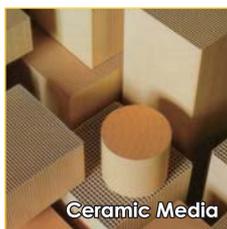
RCO System

CHARACTERISTICS

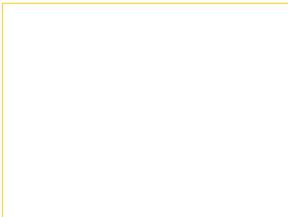
- ❑ Unique Oxidizer system supplier with ISO9001&14001,OHSAS18001 and SEMI-S2 certification.
- ❑ Excellent R&D group have numbers of design patents about oxidizer and energy-saving.
- ❑ Skid-mounted design
- ❑ Up to 8:1 system turn-down ratio for airflow volume.
- ❑ Base & precious metal catalyst available.
- ❑ ACTIVE unique ceramic matrix can endure more particulate loading than general heat recovery media.
- ❑ Highly operating and system integration experience for supply oxidizer ,fan , gas train(FM/UL/ IRI), ductwork, stack and control.
- ❑ Highly-experienced design team provide assessment services of safety(ex. L.E.L), function, system pressure balance, seismic restraints(0.5G), operating cost etc.
- ❑ Standard 6 interlocks for system safety, like oxidizer air pressure, oxidizer and combustion fan& flame status, fuel pressure, high systems temperature.
- ❑ Supply custom-design for different VOC exhaust industry.
- ❑ Automatic system monitoring, easy operation like one-button start. Man-machine interface touch panel could completely monitor important operating parameters
- ❑ Turnkey service for installation, start-up, regulation-compliance test ,operation and maintenance training.

OPTIONS

- ❑ Pre-process fan
- ❑ Customer process pressure control
- ❑ Remote monitoring
- ❑ Human-machine interface
- ❑ UPS for fans and control
- ❑ Continuous emission monitor(THC FID)
- ❑ Vibration isolation(G2.5)
- ❑ Structural support
- ❑ Control room
- ❑ Silencer
- ❑ FM sprinkler
- ❑ Utility hook up



I INDUSTRIAL APPLICATIONS



- Surface Coating
- Wood Finishing
- Semiconductor
- Electronics
- Printing
- Flexible Packaging
- Paint
- Chemical Processing
- Pharmaceutical
- Investment Casting
- Pulp & Paper
- Petrochemical
- Basic Chemistry
- Synthetic Resin & Plastic
- Plastic Leather/Board/Pipe
- Oil and Coal
- Wire and Cable
- Food Processing
- Leather Tanning
- Tire Manufacturing
- Metal Heat-Treatment
- PCB Manufacturing
- Waste Processing
- Waste Water Processing
- Steel Smelting
- Optoelectronics Material & Element
- Automotive
- Aircraft
- Furniture
- Can Making
- Fiberglass Products
- Dry Cleaning

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