

## QUADRANT NRV THERMAL OXIDIZER



Faced with meeting the needs of their Pharma Industry MACT Standards, one Fortune 100 Pharmaceutical Manufacturer called on Catalytic Products International, Inc. The challenge for Catalytic Products International was to design a system that was able to process the ultra-high LEL (high concentration of VOC's) and deal with corrosive acids produced in the process off gas and the post-combustion gases. Adding to the challenge, there were many more sources that use halogenated VOC's in the process. A halogenated VOC is an organic hydrocarbon that contains chlorine (Cl). The post combustion gases will contain Hydrochloric Acid. In order to meet the needs of local regulations and the industry MACT, the HCl also has to be removed from the exhaust stream prior to atmospheric release.

Catalytic Products International, Inc developed the QUADRANT NRV-Thermal Oxidizer for low volume – high concentration off gases. This system is unique from other traditional Thermal Oxidizer's because it processes the high BTU off gases directly through our proprietary NRV Burner System. Because we treat the vent stream as a fuel gas we can process higher LEL concentrations without having to use excess dilution air or costly instrumentation. The QUADRANT NRV allows the +99% VOC destruction with very little supplemental fuel use.

For this particular application, Catalytic Products International, Inc. engineered the QUADRANT NRV with a host of special alloys. The range of alloys used had to address corrosive resistance, structural stability, and high temperatures. A unique combination of alloys had to be used to meet the needs of the variety of VOC's processed in the Oxidizer.

Next, the issue of scrubbing the acid gases out of the exhaust stream had to be evaluated. In order to meet the high VOC removal rates for halogenated VOC's, the QUADRANT-NRV Thermal Oxidizer will operate at 1,500° F. A scrubber can not directly accept air temperatures greater than 300° F. Therefore a quencher is used to cool the gases after the combustion chamber and before being introduced to the scrubber.

The combination of the QUADRANT-NRV Thermal Oxidizer with the Quencher and Scrubber allows over 99.9% removal of all VOC's and HAP's entering the system with a +99.9% removal of HCl gases. The system incorporates a sophisticated control system that precisely monitors and controls the entire operations for safety, economy, and regulatory verification.

***Thermal Oxidizers, Regenerative Thermal Oxidizer's, Catalytic Oxidizer's, Heat Recovery System's, Energy Conservation, Repair and Retrofit Services, Maintenance Services, Engineering***