Tri-Mer® CORPORATION

Technology Leader
multi-pollutant control

UltraCat Catalyst Filters Control PM, SO_2 , HCl, NO_X & Dioxins

High NO_X Control Starting at 350°F

UltraCat Meets Boiler MACT, Glass Furnace Requirements

UltraCat catalyst filters are composed of fibrous ceramic materials mixed with nanobits of proprietary catalyst. This new generation of light weight, ductile ceramic filter is very efficient in removing NOx and capturing particulate, including submicron PM, to extremely low levels.

Particulate Control

UltraCat filters typically capture particulate to levels less than 0.001 grains/dscf (2.0 mg/Nm3). For Boiler MACT compliance, levels of less than 0.0011 lbs/MMBtu are guaranteed. The unique structure of the filters keeps the collected particles on surface. On-line cleaning with reverse pulses of air is effective, pressure drop build up is minimal, and the embedded NOx catalyst is protected.

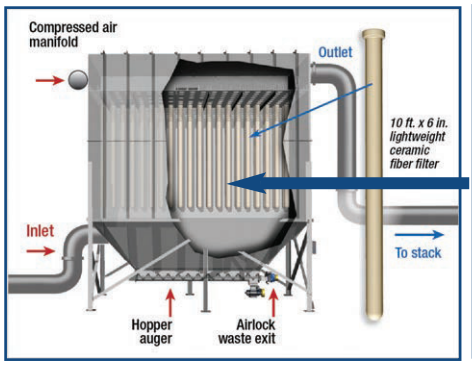
NO_X and Dioxin Control

The UltraCat filter tubes have nanobits of proprietary catalyst embedded throughout the filter walls, which are about 3/4" thick (see illustration opposite.) The UltaCat can achieve excellent NOx removal at temperatures of 350°F and higher. Operating range is approximately 350°F to 700°F. Urea ammonia is injected upstream of the filters, reacting with NOx at the catalyst to form harmless nitrogen gas and water vapor, which then exits the system as gases.

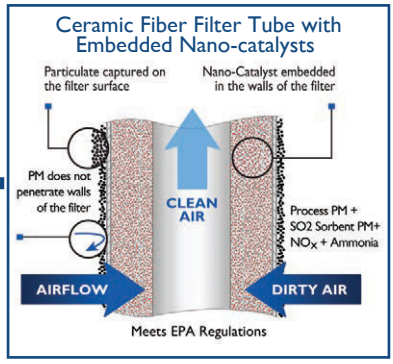
The proprietary catalyst is highly resistant to sulfur poisoning and is protected from particulate contamination because it is embedded inside the filter walls. Typical NOx results up to 95% removal. UltraCat is also very efficient at destroying dioxins, typically at 97-99%.

CO in the Boiler MACT

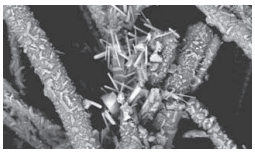
The proposed Boiler MACT regulates production of CO. If CO is managed by combustion conditions, then NOx production increases. The best strategy for Boiler MACT compliance is to control the CO in the boiler and allow the UltraCat to remove the NOx in the flue gas.



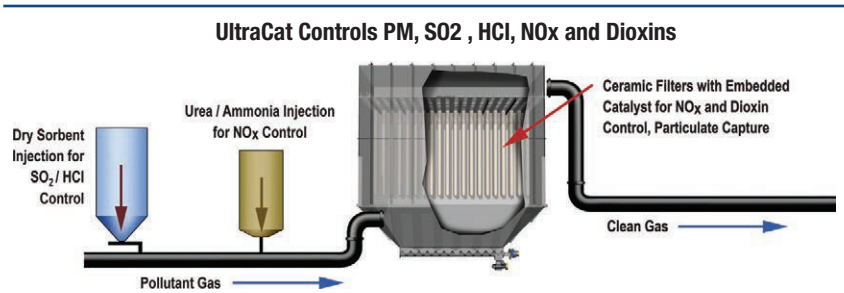
Ceramic filter configuration typical of the 400+ filter applications worldwide.



NOx and ammonia react with catalyst to destroy NOx



Micrograph of nano-catalysts embedded in ceramic-coated fibers



SO_2, HCl, Acid Gas Control

The UltraCat system can incorporate dry sorbent injection of sodium bicarbonate, trona, or lime for efficient dry scrubbing of SO_2, HCl, and other acid gases. Typical SO_2 and HCl results show 90-98% removal.

Mercury Control

The strategy for mercury control depends on the constituents in the flue gas and is analyzed on an individual basis. Levels of mercury control can be achieved through trona injection, activated carbon of various formulations, and other approaches compatible with the UltraCat filter system.

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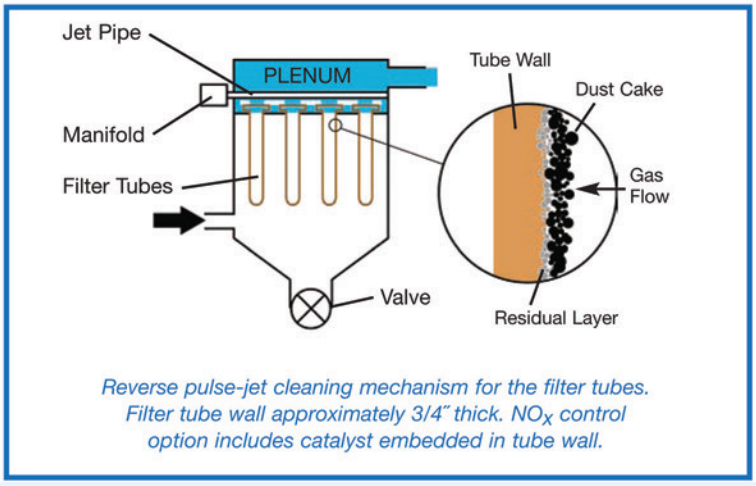
UltraCat Filter Systems

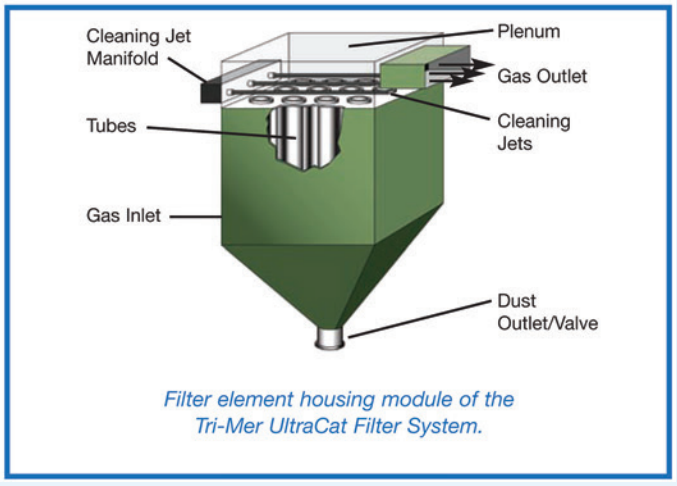
Boiler MACT Solution - Controls PM,SO2 ,HCl, NOx & Dioxins

Operation and Maintenance

Tri-Mer's UltraCat Hot Gas Filtration System uses a baghouse configuration with a reverse pulse-jet cleaning action. The filters are back-flushed with air, inert gas, syngas, or other appropriate gases. The design has been engineered for easy filter installation and maintenance. Filter tubes are manufactured in various sizes, the largest of which is ten feet long and six inches in diameter, including an integral mounting flange. Filter life averages 5 to 10 years on most applications. Initial cost is lower than competing systems, with much better performance and flexibility. Pressure drop is 6 to 8 inches w.g. – lower than the total energy usage of multi-step systems, ESP with multiple fields, or single stage ESP with hopper heaters.



Reverse pulse-jet cleaning mechanism for the filter tubes. Filter tube wall approximately 3/4˝ thick. NO_X control option includes catalyst embedded in tube wall.



Filter element housing module of the Tri-Mer UltraCat Filter System.

UltraCat is the Low Cost Solution

Tri-Mer Corporation, a technology leader in air pollution control, provides turnkey engineering, manufacturing, installation, and service of its UltraCat ceramic catalytic filter systems.

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Primary Applications

- **Boiler MACT** compliance for coal, biomass, wood
- Cement NESHAP Organic HAPs
- Glass furnaces
- CISWI Incinerator MACT
- Stationary diesel for ships at dock
- Metal smelting, mineral processing
- Chemical production

More Applications

Air Pollution Control

- Medical waste
- Soil cleaning
- Foundry processes
- Energy production
- Fire testing
- Many specialized high temp applications

Product Collection/Recovery

- Titanium dioxide production
- Fumed silica production
- Catalyst manufacturing
- Platinum smelting
- Metal powder production
- Activated carbon production

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