

UltraCat Catalyst Filters Control PM, SO₂, 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 NO_x 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 the surface. On-line cleaning with reverse pulses of air is effective, pressure drop build up is minimal, and the embedded NO_x catalyst is protected.

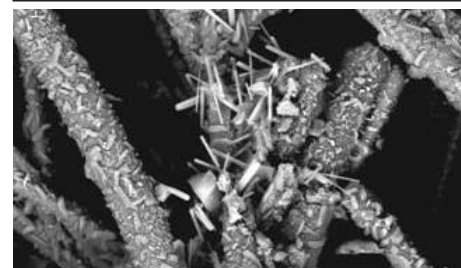
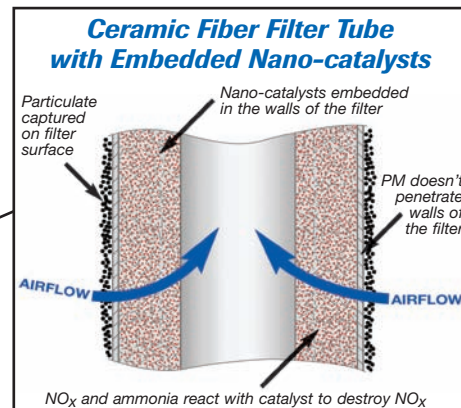
NO_x and Dioxin Control

The UltraCat filter tubes have nanobits of proprietary catalyst embedded throughout the filter walls, which are about 3/4" thick (see illustration opposite). The UltraCat can achieve excellent NO_x 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 NO_x 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 NO_x results – up to 95% removal.**

UltraCat is also very efficient at destroying dioxins, typically at 97 - 99%.

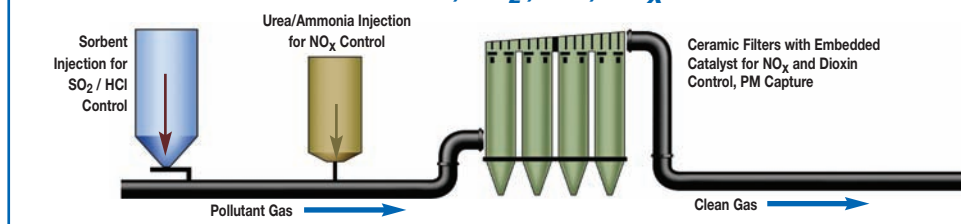


Ceramic filter configuration typical of the 400+ filter applications worldwide.



Micrograph of nano-catalysts embedded in ceramic-coated fibers.

UltraCat Controls PM, SO₂, HCl, NO_x and Dioxins



CO in the Boiler MACT

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

SO₂, HCl, Acid Gas Control

The UltraCat system can incorporate dry sorbent injection of sodium bicarbonate, trona, or lime for efficient dry scrubbing of SO₂, HCl, and other acid gases. **Typical SO₂ 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 project 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.

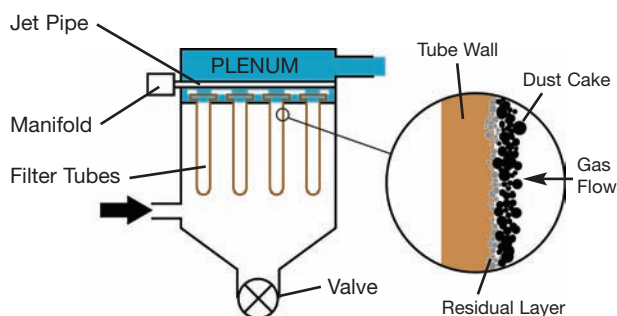
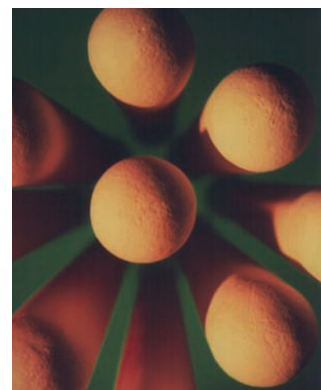
UltraCat is the Low Cost Solution.

Operation and Maintenance

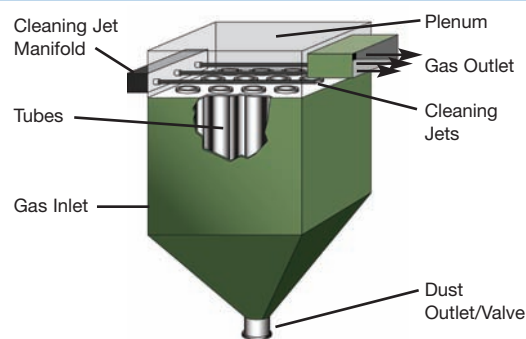
Tri-Mer's UltraCat Hot Gas Filtration System uses a baghouse configuration with a reverse pulse-jet cleaning action. The filters are back-flushed with air, inert gas, syngas, or other appropriate gases. The design has been engineered for easy filter installation and maintenance. Filter tubes are manufactured 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 for Many Applications

Primary Applications

- **Boiler MACT** compliance for coal, biomass, wood
- Glass furnaces
- Waste incineration
- Waste pyrolysis
- Metal smelting, mineral processing
- Chemical production
- Many specialized high temperature applications

AIR POLLUTION CONTROL

- Cement production
- Medical waste
- Soil cleaning
- Foundry processes
- Fluidized beds
- Energy production
- Fire testing

PRODUCT COLLECTION/RECOVERY

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



Tri-Mer Corporation, a technology leader in air pollution control, provides turnkey engineering, manufacturing, installation, and service of the UltraCat system through its Michigan factory headquarters.



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