

CLEANER AIR THROUGH INNOVATION



**CORMETECH**  
RELIABILITY. DELIVERED.



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CORMETECH Inc. is the leading U.S. based provider of reliable selective catalytic reduction (SCR) catalysts used in stationary and marine applications around the world to reduce nitrogen oxide (NOx) as well as other regulated emissions. CORMETECH also provides a full suite of services including catalyst asset optimization and management strategies, full turnkey replacements, on-site inspection and tuning, as well as laboratory catalyst testing services. CORMETECH's custom engineered catalysts deliver exceptional performance across a wide variety of turbines, boilers and engines with different fuels, flue gas properties, particulate characteristics and temperature ranges. CORMETECH's innovation pipeline has delivered COMET™ for controlling mercury emissions, METEOR™ for achieving simultaneous nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compound (VOC) reductions and ELITE™ providing ultra-low pressure loss performance.

## Leading-Edge Technology

CORMETECH develops and manufactures its ultra-durable titania-base honeycomb catalysts using a proprietary ceramic extrusion technology that ensures long life and high performance over a wide range of fuel types and flue gas properties.

## Our Product Lines: The Right Catalyst for the Right Application

CORMETECH engineers catalyst solutions to meet your specific requirements, whether it's a coal-fired boiler, a light oil marine engine, a natural gas-fired combustion turbine, refinery process, diesel engines, biomass, or other unique applications.

### Coal



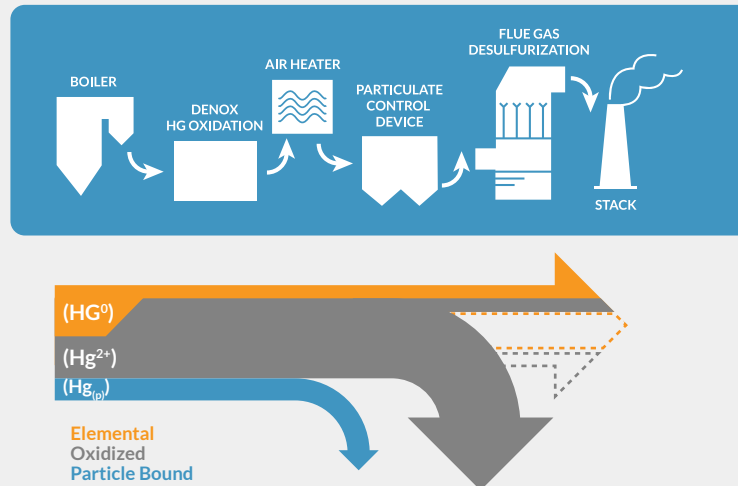
CORMETECH's catalysts for coal-fired applications can be used in both high-dust and low-dust particulate environments. These catalysts are formulated to minimize deactivation caused by poisons such as arsenic and calcium oxide. CORMETECH catalysts also can be tailored to minimize SO<sub>3</sub>, to greatly increase mercury oxidation (COMET™), and to achieve high removal efficiency under low-temperature conditions. All catalyst solutions offer high NOx reduction efficiency with low ammonia (NH<sub>3</sub>) slip.

## Variable Load Flexibility

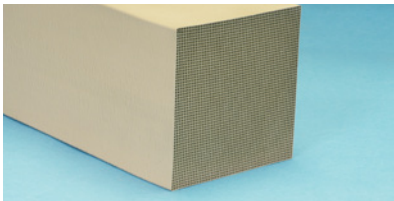
Electricity market conditions are causing many coal-fired and natural gas power plants to operate in cycling and low-load modes that can impose significant challenges on emission control equipment. For coal-fired applications, such conditions can result in temporary or permanent catalyst deactivation due to ammonium salt formation. CORMETECH's unique modeling capability can optimize load range flexibility. For combustion turbines, CORMETECH's METEOR™ technology can be applied to expand operating load flexibility.

## COMET™: Mercury Oxidation for Enhanced Removal

CORMETECH Oxidized Mercury Emissions Technology (COMET™) is a next generation catalyst technology that helps coal-fired power plants meet stringent mercury emission standards associated with the EPA's Mercury and Air Toxics Standards (MATS). COMET™ maximizes the conversion of elemental mercury ( $\text{Hg}^0$ ) to a water-soluble oxidized form ( $\text{Hg}^{2+}$ ) that can be captured in downstream flue gas desulfurization units. COMET™ catalysts are effective in oxidizing  $\text{Hg}^0$  under a broad range of challenging conditions, including high temperatures and/or low halogen concentrations.



## Liquid and Gaseous Fuels



CORMETECH supplies SCR catalysts for a wide range of applications firing solid, liquid, and gaseous fuels. Our experience base includes more than 800 installations on simple and combined cycle units, and more than 200 installations on various applications at petrochemical plants and refineries.

## ELITE™: Ultra-Low Pressure Loss

Our latest evolutionary technology, ELITE™ provides ultra-low pressure loss performance. CORMETECH catalysts achieve greater than 95%  $\text{NO}_x$  removal at near zero ppm  $\text{NH}_3$  slip. The catalyst properties are fine tuned to achieve optimal performance at operating temperatures between 300°F and 1100°F for both horizontal and vertical flow orientations.

## METEOR™: Multi-Pollutant Catalyst

CORMETECH has developed METEOR™ technology, an advanced catalyst that provides multi-pollutant emissions control for combustion turbines and internal combustion engines.

METEOR™ is an all-in-one catalyst that controls  $\text{NO}_x$ ,  $\text{CO}$ ,  $\text{VOC}$  and  $\text{NH}_3$  emissions across a wide temperature range.

Key additional benefits include smaller footprint space within the duct, enhanced efficiency through reduced pressure loss, broader load flexibility, reduced sensitivity to catalyst fouling agents, and lower maintenance costs.

# Marine Engines

CORMETECH catalysts are well-suited for NO<sub>x</sub> reduction in marine applications which utilize high-sulfur fuels. CORMETECH leverages our stationary experience base which includes multiple fuels with various sulfur levels, in units with more than 50,000 operating hours. CORMETECH has significant reactor design and catalyst selection experience with designs for larger marine engines and heavier fuels.

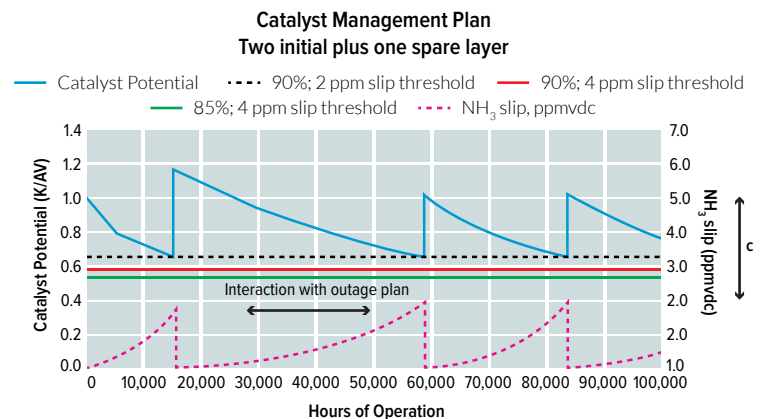
## Comprehensive Services and Customer Support

To support the successful application of our catalyst products, CORMETECH provides a broad range of services:

- **Full Turnkey and Commissioning Services.** CORMETECH's Project Managers will handle everything including but not limited to: catalyst delivery, removal of existing catalyst, disposition of catalyst, installation of new catalyst, startup of the unit and long-term performance monitoring. This "one stop shop" reduces the risk and adds greater cost efficiency.
- **Customized Catalyst Management Strategies.** On-site physical inspections of the catalyst, reactor, and ammonia injection grid system along with laboratory testing are key strategies to extending the life of the catalyst. Custom solutions including detailed modeling, catalyst performance plans, future testing, catalyst cleaning, catalyst restoration and reuse, catalyst replacement, and system optimization strategies are provided.

- **Laboratory Analysis and Catalyst Activity Testing.** CORMETECH's state-of-the-art facilities in Durham, NC, and Cleveland, TN, provide a range of testing capabilities to enhance the catalyst management decision process utilizing multiple apparatus and analytical techniques.

- **Mercury Assurance Testing Reactor System (MATRS),** which enables parametric studies of both fresh and deactivated catalyst to optimize mercury oxidation.



Notes: SA = Surface Area

- Rate of catalyst deactivation depends on fuels and position of layers.
- Level of performance increase depends on needs and methods, i.e., SO<sub>2</sub> conversion, higher SA, higher activity, etc.
- Threshold moves based on performance requirement and system capacity.

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