CATALYTIC COMBUSTION
EMISSION TECHNOLOGIES

Power Emissions Group

Sulfur Resistant CO Catalyst for California Cogeneration Plant

Client | Fortune 25 energy company

Location | San Joaquin Valley of California

Customer's Challenge

The customer's facility has a dual-fuel combustion turbine with heat-recovery steam generators with both CO and NOx emissions control technologies installed. Various power production loads, especially during the summer months, produced a wide exhaust temperature range across the CO catalyst layer. Traditional CO catalyst has a large operating window from 450° - 1250°F and it performs best at the higher end of this temperature range.

Natural gas fuel quality seems to be increasingly susceptible to variations in composition due, in part, to how it is extracted. With turbine operation practices being optimized to capture as much heat as possible the exhaust temperatures to the catalyst are heading towards the lower end of the catalyst's temperature range.

When paired with the variations in fuel composition this can lead to the likelihood of sulfur poisoning of the catalyst which can shorten the operational lifespan or lead to a sudden loss of CO conversion effectiveness.

This customer's goal was to improve their operation by installing a high-performance CO catalyst that could operate at low exhaust temperatures. This was to keep both the tons per year of CO emissions down while preventing any potential sulfur contamination that may come as a result of the variability in the natural gas fuel. The customer had not experienced sulfur contamination on the CO catalyst layer but wanted to take preventive steps to eliminate the catalyst poisoning threat.

Catalytic Combustion Corporation has successfully installed more than 1000 CO oxidation catalyst units used in natural gas fueled engines and other combustion equipment across North America.

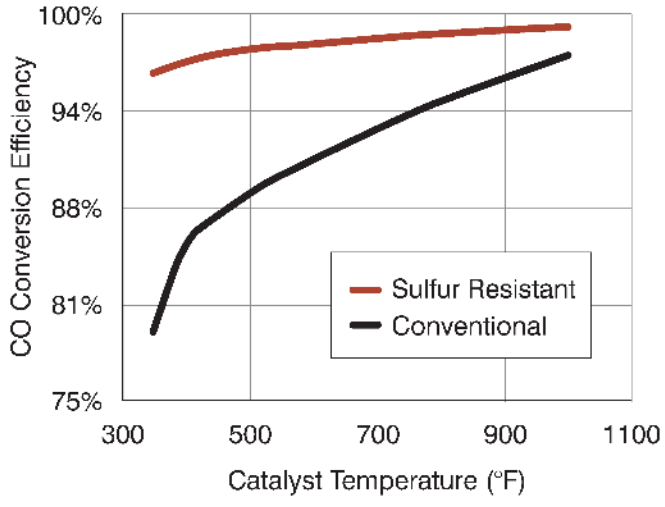
Our Solution

Catalytic Combustion Corporation (CCC) has been proactive in developing a new technology to respond to the sulfur contamination issue faced by operators of CO catalyst for gas turbine heat recovery steam generators (HRSG). Drawing on our years of know-how we were able to adapt a proven, existing technology to meet the challenge. The result is a Sulfur-Resistant CO Catalyst that has demonstrated excellent activity retention when exposed to turbine exhausts at temperatures below 700°F.

Catalyst module with removable sample coupons.

The Sulfur-Resistant™ CO Catalyst is available in many different combinations of cell densities and precious metal loadings to meet the most stringent emission regulations.

Temperature Sweep Comparison of CCC SR™ Catalyst and Conventional Catalyst after Low Temperature GT Operation



CCC Makes Your Process Possible

CCC is an emission control technology company developing and manufacturing products that help remove harmful substances and noise from process exhaust. Our products range from systems to control emissions from significant power generating operations to small catalysts that control emissions from household appliances and most every application in-between. CCC makes your process possible.

We are a development and manufacturing company providing solutions working with our customers to build specific housing, catalyst formulation, access, control unit, or other accessories to take a proven piece of equipment and create a solution with a custom feel. Our solutions are backed by a full-time field service department to provide consulting, maintenance, parts, and service when needed.

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