Case history

GORE® DeNOx Catalytic Filter Bags – Dramatic reduction in NOx and Particulates in Steel Production Sinter Flue-Gas

Challenge

A leading producer of hot-rolled ribbed steel bars and high-quality high-speed wire rod needed to bring its sintering operations into compliance with new regulations that mandated ultra-low NOx emission.

Application:
Sinter

Temperature:
230 °C

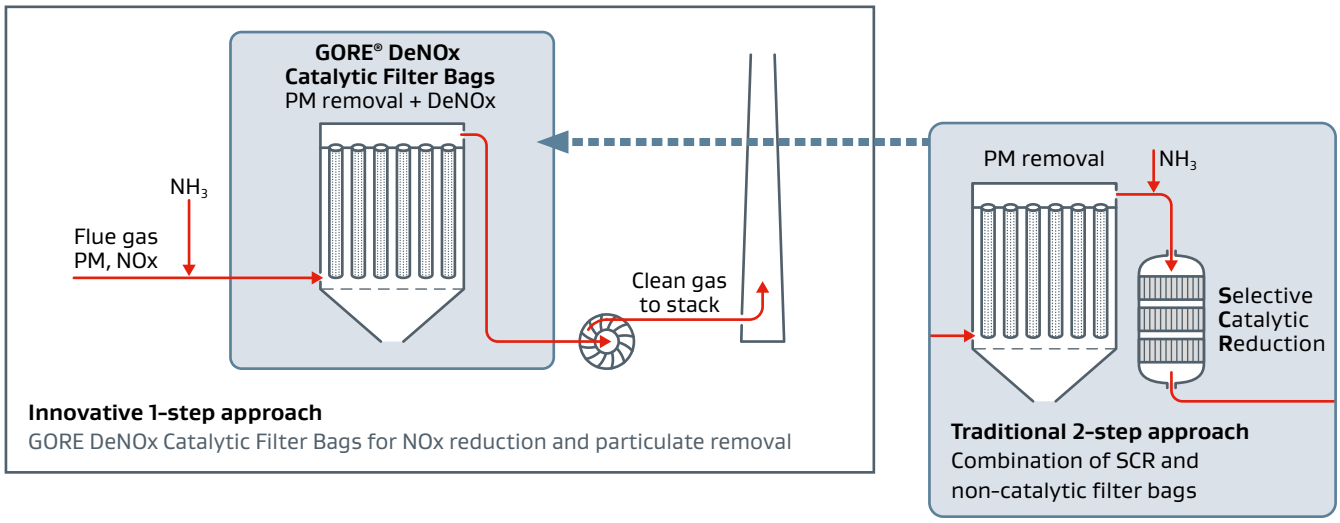
Filtration Volumes:
2.1 million Nm^3/hr

Cleaning:
Pulse Jet

Filter Material:
GORE DeNOx Catalytic Filter Bags

Solution

The customer ran a successful pilot test with GORE DeNOx Catalytic Filter Bags and decided to install these high-efficiency bags in two large flue-gas baghouses. Gore engineers participated in many technical exchange seminars with the customer to fully understand their site-specific process parameters. At Gore's recommendation, the customer also incorporated a sodium bicarbonate desulfurization step into their overall system.



Innovative 1-step approach
GORE DeNOx Catalytic Filter Bags for NOx reduction and particulate removal

Traditional 2-step approach
Combination of SCR and non-catalytic filter bags

Result

The customer carefully monitored their emissions data both pre- and post-installation of the GORE DeNOx bags. The table on the following page compares the emissions data against the regulatory requirements.

Emissions	Regulatory Limits	Inlet Conditions	With Gore Bags	Gore Removal Efficiency
Dust/particulates	10 mg/Nm³	100–200 mg/Nm³	<1 mg/Nm³	> 99%
NOx	50 mg/Nm³	200–250 mg/Nm³	~20 mg/Nm³	92%

More reliable and stable compliance

Smaller footprint

Lower investment and operating cost

Less maintenance

- Gore recommended enhancements to system design that contributed to overall productivity as well as to regulatory compliance.
- The superior filtering performance of the GORE DeNOx Catalytic Filter Bags led to a dramatic reduction in dust emissions. Reducing dust levels in the process environment also protects the catalyst, enabling it to perform more effectively.
- The ultra-low NOx emissions data represent a 92% reduction versus inlet conditions. This exceptional reduction in emissions was possible because the Gore materials enable highly-efficient use of catalyst.

Gore's technical support was an important influence on this decision, and part of the reason this customer is willing to recommend Gore to their colleagues. By integrating dust removal and de-nitration into one unified system, Gore helped to make the customer's overall process more efficient. According to this customer, another important factor was Gore's capacity for sustainable supply of consistent-quality product.

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