GORE® Filtration Products

Metals Industry

Case History 13

Primary Lead Sinter Production

Optimization Potential

Old shaker-style baghouses utilized a woven acrylic filter media. The sinter furnace is working with galena, a lead/sulfur compound, which releases significant amounts of SOx during the sinter process. Most of this goes to an acid plant, but significant amounts leak into the baghouse system, creating a chemically aggressive environment. Various compounds in the feed stocks to the sinter furnace create lead salts and other sticky particulate that would hang up in the bags. The filter bags suffered from short bag life due to the combination of heavy dust loads and acid attack.

Damaged bags and particulate bleed through contributed to unacceptable stack emissions in an environmentally sensitive area. Lack of adequate draft at the sinter furnace also created uncomfortable and dirty working conditions within the facility.

Solution

Replaced the existing acrylic bags with GORE® membrane filter bags with a 100% ePTFE woven fabric backing material and optimized system settings.

PTFE is chemically inert and operates continuously up to 260 °C. It has a very long flex life, and with the membrane filter surface captures even sub-micron particulate, which is then release very easily.

Result

The bag life improved, while baghouse down-time, maintenance costs, and stack emissions have all been drastically reduced. Bags have survived several acid upsets which would have completely destroyed the previous bags. Improved strength and flexibility of the GORE® filter bags allows the plant to more vigorously clean the bags when they are collecting very sticky, wet particulate. Baghouse emission rates are lower than required regulatory limits.

Application: Sinter Furnace

Baghouse: Shaker Cleaning
1,105,205 Am^3/h (650,000 acfm)

Number of bags: 4,608

Filter area: 18,757.3 m^2 (201,798 ft^2)

Temperature: 170°C (340°F) average

Filter material: GORE® ePTFE membrane with 288 g/m^2 (8.5 $oz./yd^2$) ePTFE woven fabric backing

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