Case Study

GORE® LOW DRAG Filter Bags – Lowered Emissions in Carbon Black

Challenge

Carbon black producers are subject to strict particle emission (PM2.5) standards. Efficient filtering has other benefits: it lowers emissions, which could foul downstream heat exchangers if not controlled. These are critical components for recovering energy from tail gas, which is converted for the production of steam and/or electricity.

A carbon black manufacturer faced a need to maintain filtration emissions to the lowest level possible to ensure regulation compliance and increase energy production efficiency.

Solution

The customer replaced its traditional membrane filter bags with GORE LOW DRAG Filter Bags (acid-resistant fiber-glass 339 gsm). The figure below shows the quantified emissions as a function of time over an approximate 12-month duration. The data prior to the arrow was collected with traditional membrane bags installed. The GORE LOW DRAG Filter Bags were installed at the time denoted by the arrow.

Application	Carbon black main unit filter (MUF)
Temperature	250 °C
Flow rate	136,000 Am³/hr
Filtration Area	2,850 m²
Baghouse Type	Reverse air
Filter material	GORE LOW DRAG Filter Bags (Acid Resistant 339 gsm Fiberglass Fabric)

Results

As a result of the implementation of GORE LOW DRAG Filter Bags, the electronically measured particulate emissions were lowered considerably on average from the measured values prior to installation. In addition, over the first four months of service, the particulate emissions remained very low and stable relative to the traditional membrane bag, which typically showed a gradual increase in average emissions over this same duration.

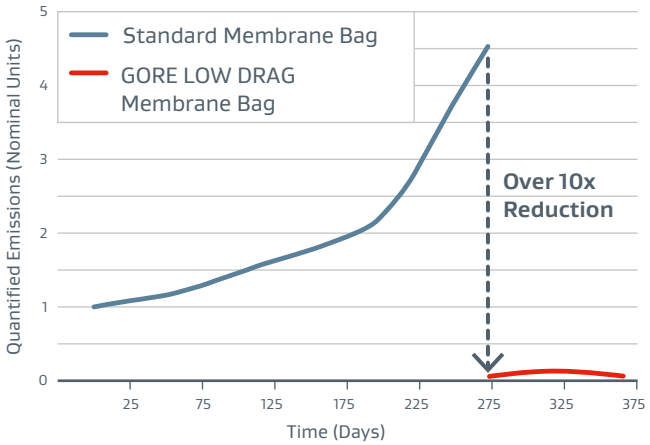

Illustration based on data collected in field demonstration

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