

Case Study

GORE® LOW DRAG Filter Bags – Reducing Differential Pressure in Carbon Black

Challenge

One of the most important metrics for a baghouse is differential pressure (dP). A consistently high dP indicates blinding of the filter media and/or poor release of dust cake during cleaning, typically leading to lower airflow (throughput), throttling back of production rates and shorter bag life.

A carbon black manufacturer faced the need to lower dP in the baghouse in order to increase airflow through the reactor — and, as a result, increase production. The manufacturer also wanted to extend the service.

Solution

The customer replaced its traditional membrane filter bags with GORE LOW DRAG Filter Bags. These filters incorporate a proprietary ePTFE advanced membrane whose cleanable surface results in lower baghouse dP and increased airflow. The decreased dP enables the operator to increase gross filtration time and reduce cleaning frequency, which in turn decreases the stress on the filter bags and leads to longer bag life.

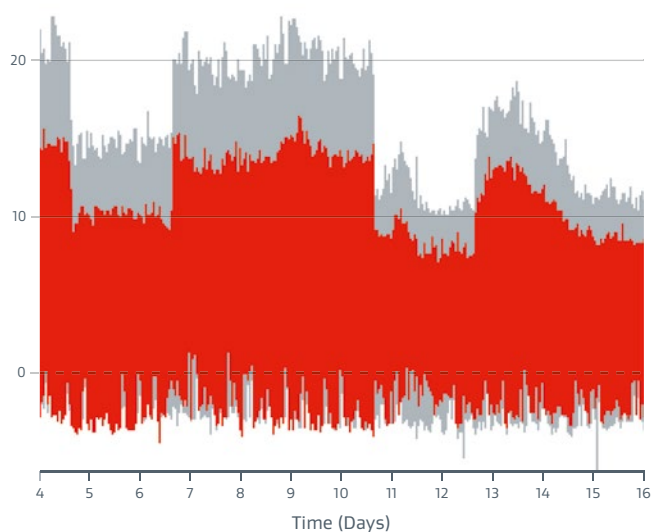
Results

The figures show the measured dP (in Pa) of two compartments in the customer's baghouse, one containing a traditional ePTFE membrane bag (black) and the second containing GORE LOW DRAG Filter Bags (red). The data show that the dP in the baghouse with GORE LOW DRAG Filter Bags is 15–20% lower on average during both filtration and cleaning cycles. This lower dP has persisted even after one year of service, and is consistent across multiple carbon black grades.

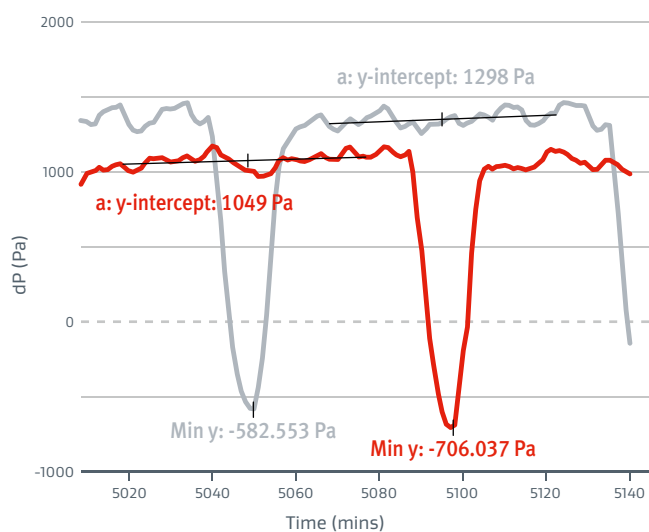


Application	Carbon black (main unit filter/reactor filter)
Temperature	220 °C – 260 °C
Flow rate	35,000 Am ³ /hr
Filtration Area	972 m ²
Baghouse Type	Reverse air
Filter material	GORE LOW DRAG Filter Bags (Acid Resistant 339 gsm Fiberglass Fabric)

Baghouse with GORE LOW DRAG Filter Bags:
dp is 15–20% lower on average during both filtration and cleaning cycles



— Control (Pa)
 — GORE LOW DRAG (Pa)



— Traditional ePTFE membrane
 — GORE LOW DRAG Filter Bags

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