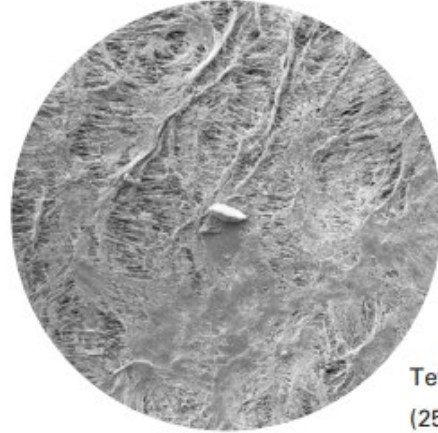


Tetratex® Filter Bags Solve Problems from Sticky & Muddy Lignite Dust



Tetratex
(250x)

The Dalamatic Insertable is a dust collector designed to fit into existing ducts and silos to collect dust at the point of generation.

Industry: Lignite 'Brown Coal' Dust

Problem: High-water-content coal dust turned to mud and plugged up filters, ducts, and valves.

Solution: A ductless collector, the Donaldson® Torit® Dalamatic® Insertable, and bag filters made of Donaldson Tetratex® PTFE media. Now, no more plugging, no more mud, and low operating ΔP across the filters.

A power plant providing electricity via lignite to central Mississippi used a central dust collection system to control the dust from their clinker conveying systems and storage silos. Lignite, also called 'brown coal' for its brownish-black color, is known to have a high moisture content (sometimes as high as 45%) and a high ash content.

The power plant engineer reported that the plant had continuous problems with the collector, the filters, the ductwork, the screw conveyors and the valves plugging up with the wet dust. "We had lots of horizontal duct runs to the central collector," he explained. "The humidity from weather and the naturally high moisture content of the lignite caused a muddy, sticky mess inside the ducts."

On his own, the plant engineer searched for another solution through an engineering consultant. The consultant recommended a new, larger centralized dust collector and insulated screw conveyors. The price was high, and there wasn't much to suggest it would work any better.

A dealer of Donaldson® Torit® dust collection equipment and the Donaldson Torit District Manager, listened to the plants challenging situation and presented a new idea that would cost less than half of the consultant's plan: a de-centralized collection system without ductwork and Tetratex® PTFE

(polytetrafluoroethylene) bag filters. Tetratex® filter media lets air flow through while keeping moisture out. The plant engineer was skeptical, but the Donaldson Torit team was so sure this would work, they sent the plant a test unit.

The unit was a Donaldson® Torit® Dalamatic® Insertable (DLMV) dust collector with Tetratex® bag filters. The Dalamatic® is a compact unit without a housing—it can be inserted into existing hoods hung directly over a conveying system at the dust-generating point. The DLMV can operate in any orientation, so it can fit into places that are small or oddly shaped. Because the Dalamatic® can be located at point-of-use, ductwork and valves are typically not needed.

At this power plant, the Donaldson® Torit® Dalamatic® was installed on the top of a silo. After operating it for several months, the power plant team didn't see any rise in ΔP across the filters. They immediately assumed the lignite was drier than normal and that something was wrong with the collector or bags—they were going to send the test system back. Then the plant engineer decided to run a simple test, just to make sure: "I climbed up and sprayed water directly on the filters, just to see how fast they would plug," he smiles. "The water ran right off the bags."

The filters didn't plug. There was no increase in ΔP over time. The plant engineer found that the Donaldson Tetratex filters really work well on high-moisture lignite dust.

The plant engineer has since ordered another nine Donaldson® Torit® Dalamatic® collectors for the other silos and key conveying points. No more high ΔP —no more muddy sticky ducts to clean—and fewer filter changeouts because of the longer filter life.

Lignite, also known as 'brown coal' is softer than black coal and is often used as fuel in power generation plants.

Project Statistics

Dust Lignite particles of various sizes. Naturally high in moisture content. Sticky when wet.

Application Powerplant - Lignite Dust

Dust Collector Donaldson Torit Dalamatic Insertable (DLMV)

Filter Media Donaldson Tetratex PTFE