

Application Note

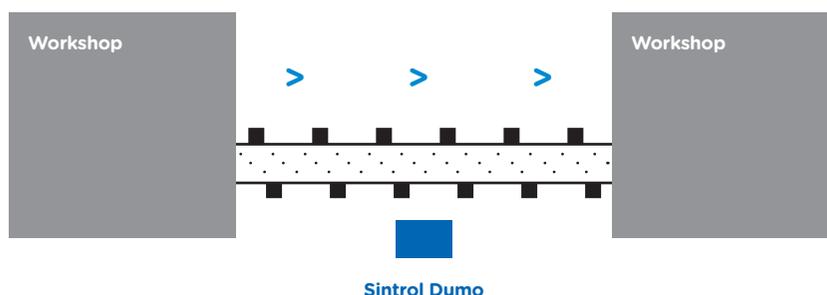
Dumo Sulfur Plant

Ruosilantie 15,
FI-00390 Helsinki, FINLAND
Tel. +358 9 561 7360
e-mail: info@sintrolproducts.com

www.sintrolproducts.com



At Sintrol, we are committed to implementing solutions for our customer's problems. Our products are based on our unique Inductive Electrification technology and developed using a flexible modular based platform that allows us to tailor our products for the customer. While many dust monitoring systems are tailored towards the government regulated emissions limits, there are intermediary measurement points that can be just as critical to the costs and regulatory compliance of the end user. Managing the filtration systems is not only good for emissions, but also a strong indicator to help with maintenance and overall plant costs.



Objective

Measure the ambient dust concentration trends in a sulfur factory to manage explosion risk and improve worker safety.

Problem

A large sulfur manufacturing plant required the measurement of dust in its process when transferring its sulfur from one workshop to another on a conveyor belt. Dust concentrations were quite high at times and needed to be managed. If the dust concentrations went above certain limits, the risk of explosion greatly increased inside the plant. Additionally, the exposure of large amounts of sulfur created a health problem for employees of the plant.

Solution

Since there was no channel where the dust passed by, it was not possible to use a standard dust meter. As a

result, we installed a Sintrol Dumo device in the factory to measure dust in the ambient environment. The monitor was mounted against a wall near the conveyor belt. Using Dumo's auto-setup feature, the monitor was up and running within 30 minutes of installation. Once the monitor was set up under normal conditions, the plant operator set the Dumo's two independent alarm relays to provide alert and alarm level signals to the control room if dust levels went above those thresholds. A special display screen was added to the control room for the Dumo so plant operators could always see the output. Additionally, the Dumo provides a 4–20 mA output signal allowing the plant to continuously monitor the dust concentrations to identify certain spikes in relative dust concentrations in the workshop. This has provided plant operators a better understanding of the dust concentration trends while production is in process to ensure a safe environment.

Principle of Operation:

Sintrol dust monitors are based on a unique Inductive Electrification technology. The measurement is based on particles interacting with an isolated probe mounted into the duct or stack. When moving particles pass nearby or hit the probe a signal is induced. This signal is then processed through a series of Sintrol's advanced algorithms to filter out the noise and provide the most accurate dust measurement output.

Classic triboelectric technology is based on the DC signal, which is caused by particles making contact with the sensor to transfer charges. Compared to DC based measurements, the Inductive Electrification technology is more sensitive and minimizes the influence of sensor contamination, temperature drift and velocity changes. By using the Inductive Electrification technology it is possible to reach dust concentration measurement thresholds as low as 0.01 mg/m³.