

## Application Notes – Sintrol Dust

### Bag Filter Management - Wood Dust

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 dust concentrations after filter units to quickly identify broken bags. Plant must be ensured that the air recycled back into the workshop does not have excess dust.

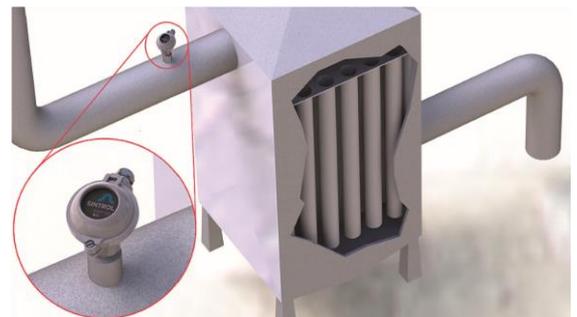
#### Problem

A German filter manufacturer that specializes in bag house filtration systems for wood processing plants was seeking the most reliable and affordable solution to measure dust concentrations in its outlet duct. Since the air from these filters is recycled back into the workshop, the dust concentrations need to be low, otherwise the equipment would be at risk of corrosion and employee health would be compromised. According to DIN EN 12779, wood dust extraction systems must have a dust content  $< 0.1 \text{ mg/m}^3$  and be continuously monitored if the system  $> 10,000 \text{ m}^3/\text{h}$ . Additionally, if dust concentrations go above  $0.3 \text{ mg/m}^3$ , there must be a switch that releases the dust out rather than back into the factory. Due to the sensitive nature of the application, the solution needed to identify the exact bag house compartment with a bag breakage in order to limit the amount of excess dust that is returned to the process. Previously, the company had only used a differential pressure gauge to provide notice of breaches in the filters

#### Solution

For each baghouse compartment sold by this company, a Sintrol Snifter is now installed on the outlet duct of the baghouse. This was initially tested on three plants to see the results. After successful trials, the company soon increased that to 30 plants fitted with the Sintrol solution.

The easy auto setup feature for the Snifter allows the plant operator to get the monitor up and running within 10 minutes of installation as the monitor identifies the normal dust concentrations in the process. Once auto setup is completed, the switches were adjusted using our Dust Tool software to provide the first alarm at  $0.3 \text{ mg/m}^3$  in order to meet the regulatory norm. Using these features, the end user is provided a fast, reliable notification that there is a broken bag in a compartment allowing maintenance to address the issue immediately.



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Measure . Prevent . Protect . Control

## 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/m<sup>3</sup>.

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