

Application Notes – Dumo Metallurgical

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

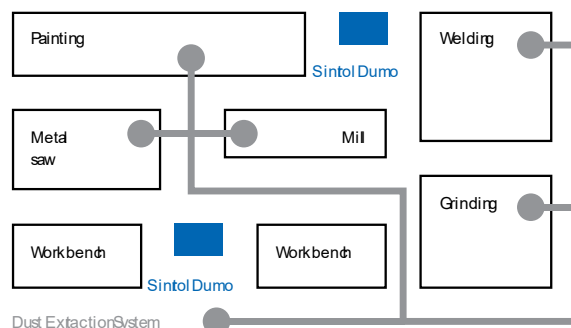
Measure the dust concentration trends in an ambient workshop environment to help monitor the function of extraction systems in the area.

Problem

A global metallurgical company has dozens of workshops in its main European plant. In each of these workshops, there is a dust extraction system installed to remove the dust from these ambient environments in order to maintain a healthy workplace for the employees as well as protect the equipment in the room. Prior to our involvement, the company used an opacity based dust monitoring system in order to measure the dust. The problem was that due to the conditions in the workshops, the monitor would need constant maintenance and did not seem to follow dust trends accurately, creating false positives regularly. Especially due to the location of the monitors, this created a large maintenance problem in the plant, increasing costs without providing the necessary output.

Solution

During a three-month trial period, the company installed two Sintrol Dumo devices next to its existing systems. Using Dumo's auto-setup feature, the monitor was up and running within 30 minutes of installation. When set up, the plant operator set the Dumo's two independent alarm relays at 4x and 10x above normal to provide signals to the control room if dust levels went above those thresholds. Additionally, the Dumo provides a 4–20 mA output signal to continuously monitor the dust concentrations to identify spikes or specific readings during cleaning cycles of the workshop. This provided plant operators a better understanding of the dust concentration trends while production is in process to optimize their cleaning processes and improve workplace conditions. During the trial period, the Dumo did not experience any maintenance problems and did not have to be cleaned or adjusted after initial parameters were programmed. After the trial, a Dumo was installed in each of this plant's workshops and it is in process to roll this out to the company's other global plants with installations already beginning in Asia.



ProDetec Pty. Ltd.

P. +61 (02) 9620 8700

E. info@prodetec.com.au

A. 17/38 Powers Rd, Seven Hills NSW 2147

PO. PO Box 3184,

North Parramatta BC, NSW 1750

www.prodetec.com.au



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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/m³.

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