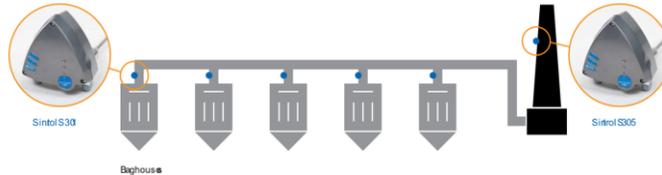


## Application Notes – Dust Control System Smelter Industry

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

Accurately measure the dust concentrations from the stack emissions in order to report figures to the government authorities.

### Problem

A large platinum smelter plant in South Africa is required to properly manage, measure and report the dust concentrations to the government authorities. The Department of Minerals Resources do regular checks to check compliance with the National Environmental Management: Air Quality Act, Act No. 39 of 2004. Under the Air Quality Act, local authorities will be responsible for monitoring air pollution and meeting nationally set ambient air quality limits. In order to manage and maintain air quality to within these limits, such authorities will be required to identify the sources contributing to non-compliance and to develop emission reduction pro-grams for such sources. In addition to the regulatory conditions that need to be met, the process creates temperatures as high as 500°C, which complicates the measurement.

### Solution

Due to the regulations, we had to address both the emissions and process measurement needs of the plant. For each of the 14 baghouse compartments in the plant, a customized high temperature Sintrol S301 was placed on the outlet duct along with an air purge option. Additionally, three Sintrol S305 monitors were placed on each stack for official continuous emissions measurements. This dust control system addressed all aspects of the Air Quality Act as it not only reported the emissions, but it also helped manage the baghouses so that any breaches in the filters could be corrected quickly. Due to Sintrol's low costs and ability to customize to meet the challenging conditions, we were able to secure the order ahead of the other competitors.

### 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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