

Application Notes – Emissions Monitoring Chemical 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

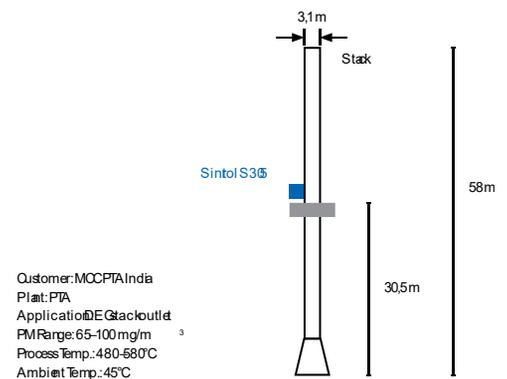
Find an alternative solution for official continuous emissions monitoring to report to authorities.

Problem

A large chemical plant in India had been using opacity meters for continuous emissions monitoring. Oil particles in the process were disturbing the measurement and creating large maintenance costs. Carbon deposits were building up on the lens frequently, forcing maintenance people to tend to the monitor every few days. Additionally, calibrations needed to be redone as a result of the problems. With high process temperatures well above 300°C as well as high ambient temperatures in India, the electronics needed to be protected as well. The end user wanted a more reliable and easier to maintain solution for its dust emissions reporting. Since it was an official measurement, the solution also needed to be TÜV certified.

Solution

Sintrol provided its high temperature TÜV certified S305 monitor, which works in process temperatures up to 700°C, and installed it in the stack where the opacity meter was being used. After installation, the measurement signal became much more reliable and consistent. With our lower principal cost, the solution was not only more reliable, but also less expensive up front. Just as importantly for the end user, the maintenance intervals went from every few days to approximately every month, saving significantly on maintenance costs. This allowed Sintrol to win the bid against two other dust monitor manufacturers for new installations. With the success of this application, several other potential sales have opened up in similar applications that are now being worked on.



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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