

9pD-1

September 9th (Tue.), <14:00-15:00>  
Room 3

## Experimental study on influence of air applied to electrostatic field sensor on electrostatic field measurement

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### Abstract:

Electrostatic charges and/or discharges on powders bring about ignition and explosion of powders. Electrostatic problems on the powder must be taken care of in the industry. We have developed an electrostatic field sensor which measures electrostatic hazards. The electrostatic field sensor was supplied with compressed air in order to protect powder particles from getting into the sensor. This paper is related to how the compressed air affects the performance of the electrostatic field sensor. As a result, the performance of the electrostatic field sensor was affected by the compressed air. Namely, the experimental values and theoretical values was not the same. That is because movement of the coppers inside the electrostatic field sensor was disturbed by the compressed air.

## 9pD-2

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### A study on performance of electrostatic field sensor attached to loading pipe of pneumatic powder transport facility

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#### Abstract:

have developed an electrostatic field sensor which measures electrostatic hazards generated from charged powders. This paper is a report on the performance of the electrostatic field sensor using pneumatic powder transport facility and 300 kg of polypropylene powder. An electrostatic field sensor was attached to the end of the loading pipe inside the silo. As the result, the electrostatic field meter generally performed, as expected. The measured values obtained from the electrostatic field meter were similar to those which were transferred from charge-to-mass ratio, obtained from the Faraday cage method. However, some data was affected by modification method of the electrostatic field sensor before use. Several interesting data were also obtained and discussed.

*9pD-3*

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## Charge neutralisation from the side surface of an insulating plate

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Abstract:

This work is a response to a comment, "Is the charge neutralisation from the side surface of a thin insulating object available?", given at the 14th International Conference of Electrostatics in Budapest, 17--19 April 2013. We investigate the phenomena of this charge neutralisation using 2-D electrohydrodynamic simulations. Results of a preliminary simulation with an insulating plate of which both the upper and lower surfaces are initially charged at  $1 \mu\text{C}/\text{m}^2$  are presented in this report

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## Basics properties of grid type charge control device

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### Abstract:

To evaluate the state of paint curing quantitatively, we proposed new paint curing sensor with a grid type charge control device. The device can charge up the painted material to measure the charging up velocity depending on the state of paint curing. After the measurements the static charge of the material should be eliminated immediately. In this study, we propose charging up and charge elimination model of the proposed device. The basic characteristic of this device was also investigated experimentally. It was found that tendency of the experimental results agree with the theory devised from the model.