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**Combined effect of moisture and electrostatic charges on powder flow** GEOFFROY LUMAY, ANTONELLA RESCAGLIO, JULIEN SCHOCKMEL, NICOLAS VANDEWALLE, University of Liege (Belgium) — It is well known in industrial applications involving powders and granular materials that the relative air humidity and the presence of electrostatic charges influence drastically the material flowing properties. The relative air humidity induces the formation of capillary bridges and modify the grain surface conductivity. The presence of capillary bridges produces cohesive forces. On the other hand, the apparition of electrostatic charges due to the triboelectric effect at the contacts between the grains and at the contacts between the grains and the container produces electrostatic forces. Therefore, in many cases, the powder cohesiveness is the result of the interplay between capillary and electrostatic forces. Unfortunately, the triboelectric effect is still poorly understood, in particular inside a granular material. Moreover, reproducible electrostatic measurements are difficult to perform. We developed an experimental device to measures the ability of a powder to charge electrostatically during a flow in contact with a selected material. Both electrostatic and flow measurements have been performed in different hygrometric conditions. The correlation between the powder electrostatic properties, the hygrometry and the flowing behavior are analyzed.

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