

GO WITH THE FLOW

What's the story?

Powder Engineering Ltd is one of the UK's leading providers of solutions for operational solids flow mechanisms. One of Powder Engineering's key products is the Easyflow hopper, a non-mechanical system that provides reliable mass flow of powders with the benefit of accurate flow rate control.

Traditional 'loss-in-weight' feeders operate by using a mechanical agitator to disturb powders in order to promote powder flow and prevent the formation of blockages. However, the agitator can be heavy and therefore limit the accuracy of the weighing system.

The Easyflow Hopper combats this problem by adding a small amount of air (or gas) to the powder which satisfies the natural dilation of powders that is required for flow. The effects of friction are reduced enabling gravity alone to ensure a reliable, continuous powder flow without the need for weighty mechanics.

It has long been suspected that the benefits of the Easyflow system could be enhanced to create an even more effective loss-in-weight feeder system. Thanks to funding from the SPARK Award scheme, an investigation into this potential was made possible.

What went on?

Tests were carried out by Ajax Equipment Ltd, industry expert in bulk solids handling equipment since 1975. Using various powders, including Carbomer, Corn starch, Clay, Gypsum and Solder powder, the firm assessed the various flow characteristics when such powders were run through the Easyflow hopper system.

The outcome was positive, revealing that the Easyflow system removes the effects of cohesion to virtually eliminate the strength of the powders in shear planes and removes the effects of friction along the main sliding surface in the hopper.

What happened?

The test results were extremely encouraging. The potential of the Easyflow system to act as the basis for an improved loss-in-weight feeder design has been known for some time but have never been proved. Now, thanks to the research made possible by the

Spark Award, the appropriate tests have provided the results necessary for Powder Engineering to approach potential industrial partners with development plans based on solid evidence.

Once an appropriate partner is found, the system can be tested in an industrial setting which will highlight any further improvements required, i.e. to make the system more user-friendly, robust, accurate etc.

The tests have also demonstrated excellent potential for handling coarser grain materials, making the project an excellent example of how funding from the Spark Award scheme can help Powdermatrix member companies with proof-of-concept, general problem solving, technology demonstration and other development activities.

For more information, contact:

Stuart Maclachlan
PowdermatrixX
email: powdermatrix@ceram.com
www.powdermatrix.org

David Stuart Dick
Powder Engineering
email: dave@powderengineering.com
www.powderengineering.com

Lyn Bates
Ajax Equipment Ltd
email: lynflow@btinternet.com
www.ajax.co.uk