



Solids Mass Flow Measurement by a Thermal Method

Sector(s): Chemical, Construction and Built Environment, Healthcare and Pharmaceuticals, Materials

About Opportunity

Pneumatic transportation of bulk solids continues to be important in many industrial processes. There is a need for accurate, reliable, on-line, continuous and non-invasive measurement of solids' mass flow rate where mass and energy balances are required in industrial, pharmaceutical and commodity transfer processes in order to achieve efficient utilisation of energy and raw materials.

The Thermal Solids Mass Flow-meter invented and being developed at Glasgow Caledonian University (GCU) can in principle provide direct mass flow measurement of solids-gas two-phase flow irrespective of the flow regime and velocity distribution in the conveying pipeline. The robustness of the measurements to particle properties and flow regimes is still under investigation. Other non-invasive in-line techniques do exist but they rely on indirect measurement methods. Such methods are vulnerable to interfering factors such as moisture content and flow patterns.

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Key Benefits

- In-line measurements made during normal pneumatic transport operations
- Direct Measurement – mass flow rate measurement is not dependent on correlation with another property
- Non-Invasive – there is no disruption to flow
- Real-time – the results are generated in real time and in-situ
- Technology applicable to both dilute and dense phase flows

Applications

Any area where dry powders or granular materials are pneumatically transported e.g.

- Chemical Industries
- Pharmaceuticals
- Coal-Fired Power Generation
- Cement Production

IP Status

The technology is protected by a European patent application. The University welcomes approaches by organisations interested in developing, licensing or exploiting the technology.



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