



IMPORTANT AWARD FOR AUSTRALIAN TECHNOLOGY

Intalysis awarded 2008 Innovator of the Year in Moisture Analysers



Graeme McGown (left) accepting award for Intalysis

In a well attended award ceremony held in Singapore on Friday night, the 2008 Frost & Sullivan Asia Pacific Industrial Technology Innovation of the Year Award in the field of Moisture Analysers for Bulk Materials was awarded to Australian based company Intalysis. The award is in recognition of Intalysis Low Frequency Microwave (LFM) moisture analyser technology which has greatly enabled the reduction of dust at Australian ports and therefore increased the throughput of bulk materials such as coal and iron ore in the many of Australia's ports. The LFM technology has been able to overcome the challenge of using microwaves to measure moisture in highly attenuating materials such as iron ore or high bed depth coals. This has been achieved through the use of lower transmission frequencies, focused antennas and sophisticated electronics. This

technology can also be used where more precision and reliable moisture measurements are required.

Intalysis emerged from the Minerals Division of Australia's CSIRO (Commonwealth Scientific and Industrial Research Organization) in 2005. Intalysis has created unique solutions in moisture analysis and control in mineral and process applications. Several ports in Australia are located close to urban areas, which makes it all the more critical to minimise dust associated with bulk materials at ports. The impact of the LFM moisture analyser in Australia has been significant as it has promoted the increase in throughput from the major ports without affecting the environment. The system has also been crucial towards the expansion of coal and iron ore production in the country.

S. Sharmishta, Research Analyst - Technical Insights, at Frost and Sullivan says, "Intalysis' LFM moisture analyser technology has played a doubly critical role - it maintains the optimum moisture concentration in bulk materials like coal and iron ore that has led to their increased throughput from Australian ports while reducing dust in the surrounding atmosphere, making the technology attractive for international adoption."

Dust is controlled by increasing the moisture levels in the ore to a level certain limit, known as the dust extinction moisture (DEM). It is also important to keep the moisture close to this limit as excessive moisture could cause the ore to become increasingly sticky, causing a build up of ore in chutes and on screens. If water is allowed to go above maximum moisture shipping levels, the ore can undergo liquefaction during transport which could cause the cargo to shift in rough seas or make unloading difficult.

About Intalysis LFM moisture analyser

Intalysis's analyser consists of a microwave transmission measurement system which emits microwaves which travel through the material from the top of the conveyor belt. The output is received below the conveyor wherein the system measures microwave phase shift and attenuation of the signal to detect the amount of moisture in the material. The system measures moisture irrespective of the size of particles in the material and the speed of the conveyor belt.

Intalysis' LFM analyser is innovative in the way that it uses a lower frequency signal to penetrate through ores which have higher dielectric constants and still produce a significantly high signal power at the receiving antenna. While it is normally difficult to measure phase change in a lower frequency signal, Intalysis' technology has a much better phase resolution capability and also has a focused antenna minimising the leakage of the signal around the conveyor belt. The instrument also has potential in low attenuation applications where the signal loss is relatively low and high precision is required, such as in organic materials like wood chips and bagasse.

The LFM technology is superior to other moisture analysis techniques, such as infrared (IR) technology, for measuring moisture in bulk materials since it can analyse a large sample of the material being carried on the conveyor. IR technology on the other hand is capable of detecting only surface moisture and is subject to errors (colour of the ore, changes in grading, dust and fog or steam) associated with changes in reflectance. IR systems are most effective where the surface moisture reflects the internal moisture content such as in food applications where the materials are highly homogenous. Nuclear technology can also be used for moisture analysis and has valid applications in coke and magnetite where the microwave technology does not work. Nuclear

instruments are substantially more expensive and have greater compliance and occupational hazard issues.

Applications of the LFM technology include sintering or pelletisation of iron ore, combustion efficiency improvement and metallurgical accounting in mining. Intalysis also provides its customers with an array of support services including comprehensive calibration, monitoring and data-backup services. Intalysis holds an exclusive license to the patented LFM technology developed by CSIRO and has received its seed capital from the same organisation. This technology transfer initiative has enabled further development and implementation of the moisture analysis systems to suit dedicated client requirements. Through its continuing research collaboration with CSIRO, Intalysis plans to innovate and expand its product portfolio for applications in international markets.

The LFM moisture analyser has become the standard in the Australian iron ore industry with 95% of the installed instruments. The BHP Billiton project, which worked with CSIRO to develop the LFM, was awarded the BHP Billiton Environmental Excellence award in 2006 for their work at minimising dust emissions at Port Hedland. Dalrymple Bay Coal Terminal (DBCT) in Queensland, Australia, which exports over 56 million tonnes of export coal, has integrated the LFM with their water addition system to ensure correct water addition on their incoming coal.

Award recognition

The importance of the Frost and Sullivan award to Intalysis lies not only in the LFMs obvious features of moisture measurement, but also in its ability to control the addition of water to reach the DEM. The LFM Moisture Analyser actually aids in reducing local opposition to aspects such as excessive dust, leading to a controlled process of expansion at terminals. Frost and Sullivan recognise Intalysis' contribution to the industry,

and also to society, in bestowing the 2008 Industrial Technology Innovation Award in the field of Moisture Analysers for Bulk Materials.

About Best Practices

Frost & Sullivan Best Practices Awards recognize companies in a variety of regional and global markets for demonstrating outstanding achievement and superior performance in areas such as leadership, technological innovation, customer service, and strategic product development. Industry analysts compare market participants and measure performance through in-depth interviews, analysis, and extensive secondary research in order to identify best practices in the industry.

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