



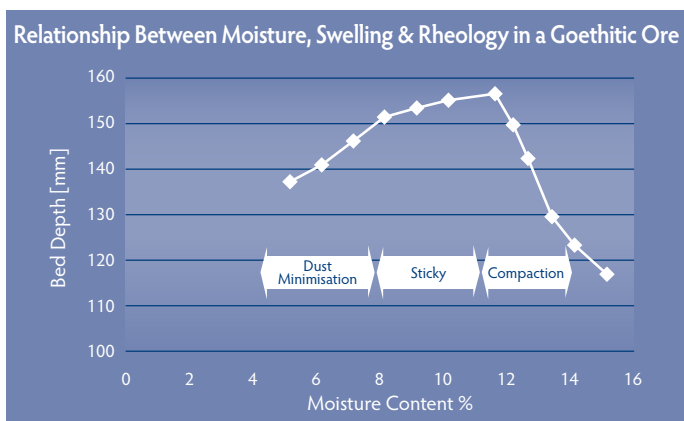
# APPLICATIONS

## LFM<sup>3</sup> Pilbara Moisture Analyser for Iron Ore

Intalysis' LFM<sup>3</sup> Pilbara Moisture Analyser provides continuous, accurate measurement of moisture in the most demanding conveyor handling environments.

### Controlling ore moisture content

The physical properties of some ores can present bulk handling challenges requiring precise moisture measurement and careful adjustment. If insufficient water is added, excessive dust is generated; if too much water is added, the ore becomes sticky, clogging chutes and blinding screens. Work carried out by Intalysis has identified where the problems occur and can identify potentially serious compaction issues by the radio frequency signature.



Test work carried out by Intalysis has identified the relationship between moisture, swelling, rheology and radio frequency response. As well as measuring the moisture the LFM<sup>3</sup> can give an alarm when serious compaction is likely.

The LFM<sup>3</sup> Pilbara is based on the CSIRO-developed Low Frequency Microwave (LFM) Moisture Analyser and has been used extensively by mine and port operators for accurate rheology control through on-line measurement of ore moisture content. This allows for precise addition of water from mine to port, helping operators to control dust extinction while keeping moisture below maximum shipping limits.

The LFM<sup>3</sup> Moisture Analyser also allows for improved stock control and resource extension via enhanced knowledge of blend ratios.

### How the technology works

The LFM<sup>3</sup> Moisture Analyser technology is based on a microwave transmission measurement system, where microwaves are transmitted through the material from above and received below the belt. When microwaves interact with water molecules in the material they slow down (change phase) and weaken (attenuate) as the energy is transferred to the material. The system measures the phase shift and attenuation to determine the moisture content of the material on the belt.

The standard LFM<sup>3</sup> system requires an output from a belt weigher to correct for variations in belt loading.

### Key Features

- TPX digital circuitry ensures effective operation in conditions where microwave attenuation is high
- Large dynamic range for measurement of high moisture content, thick beds or highly attenuating materials
- True continuous moisture measurement
- Rugged, light-weight, low-profile microwave antennae for easy installation
- High-performance, low-frequency microwave electronics provide exceptional accuracy in demanding climatic conditions
- Inexpensive field maintenance due to easily replaceable electronic modules
- Flexible and user-friendly interface for calibration, operation and diagnosis
- Direct output to plant with industry standard 4-20mA, MODbus serial and Ethernet interfaces
- Diagnostics
- LFM<sup>3</sup> radio modem communications for remote system diagnostics and operation
- Very low microwave power emitted < 20 nano-watts makes the LFM EMC compliant in all countries.



Image at top shows the LFM Pilbara Moisture Analyser at BHP Billiton Iron Ore mine at Yandi Mine, Western Australia.