

Blue Cube Dry Analyzer

Process optimization starts with real-time measurements

The Blue Cube Dry Analyzer is used for the in-line measurement of dry free flowing ore streams with grain sizes below 2mm.



IN-LINE MEASUREMENT

Small footprint, easy to integrate
No sample streams, sample pumps, multiplexers



SIMPLE INSTALLATION

Modular design enables simple installation with minimal investment in new infrastructure.



LOW MAINTENANCE

The non-contact measurement approach results in a low maintenance system.



FAST RESPONSE

15-second updates to all parameters, simultaneously



INHERENTLY SAFE

No radioactive sources or high intensity lasers

WHAT IT IS

Draslovka's unique technology provides multiple measurements with a single instrument. These measurements include elemental, mineral, and particle size (site dependent), but can also be used to model other lab analyses such as total heavy minerals. State-of-the-art spectroscopy and mathematical modelling are used to provide these real-time measurements to enable process control.

The Blue Cube Dry Analyzer is used for the in-line measurement of dry free flowing ore streams with grain sizes below 2mm. The analyzer was specifically developed for the mineral sands industry, however it can be adapted to other applications.

HEAVY MINERAL APPLICATIONS

CR_2O_3, Fe_2O_3

Ilmenite,
Leucoxene,
Kyanite

SiO_2, FeO

Rutile, Corundum,
Spinal, Monazite,
Staurolite, Gamet

ZRO_2, TiO_2, MgO

Quartz, Rutile,
Zircon

WHAT IT DOES



MEASURE

The scanner head is designed to receive a free-flowing ore stream vertically downwards.

Mineral grade, elemental grade and particle size are measured in-line and in real-time.

Blue Cube Dry Analyzers are suitable for installation in any plant environment and in process lines of any diameter.



CONTROL

Data made available by an installed Blue Cube Dry Analyzer on a high tension roll (HTR) separator is an example of real-time control in the mineral sands industry.

Through the manipulation of the corona wire high voltage settings, it is possible to control the product grade in real-time.



OPTIMIZE

With the availability of the real-time data, it is possible to track the effect of process changes on the grade without full plant surveys.

Product grade can be optimized and impurities minimized, all in real-time.



HOW IT WORKS

Our state-of-the-art mineral analyzers use advanced mathematical modelling combined with Diffuse Reflectance Spectroscopy (DRS) techniques to provide real-time measurements that enable process control and optimization. DRS uses a broad band of light, from ultraviolet, through visible and into near-infra-red to determine mineral and elemental composition based on the spectra reflected from particles in the slurry.

Our optical technology can be applied to any quantifiable property that affects the spectra in this broad range of light. Compared to XRF, DRS covers a much broader range of electromagnetic frequencies and therefore can measure a much broader range of elements and minerals. It also requires shorter integration periods for detection.

- 1 Light is directed through a sapphire window onto the ore stream as it passes through the pipe and the light reflected by the stream particles captured. The reflected light is digitized and used together with a calibration model to extract spectral features of interest and provide 15-second updates to the measured parameters.
- 2 The Blue Cube Dry Analyzer monitors the process and automatically extracts one calibration sample per day when process conditions are appropriate using the integrated pneumatic sampler.
- 3 The spectra captured while the calibration sample is drawn are recorded and uploaded to an off-site data centre via the cloud. The laboratory assays of the calibration samples (emailed to Draslovka weekly), are used together with the uploaded spectra to monitor performance and fine-tune the calibration model.
- 4 The refined calibration model is automatically downloaded to the instrument to ensure accuracy is maintained through drifts in process conditions and lithology. This process is repeated on an ongoing basis, with new samples used to improve or adjust the model, and to report on the accuracy of the analyzer.

MAINTENANCE REQUIREMENTS

- Light source replacement every 9 months.
- Inspection of scan head every 3-6 months (until actual wear rate is established).