

Mineral LIBS

- Inline multi-element-analysis
- Volume flow control
- Fast. Precise. Robust.



Highly sophisticated industrial inline measurement technique for quantitative analysis of mineral material streams

- Crude materials
- Industrial products
- Commodities

Key benefits *Mineral LIBS*

- Fast. (results <1s, 100 measurement points/s)
- Precise. (quantitative <0,1wt%, typical error <5% rel. @ 3m/s)
- Robust. (IP67 for harsh environments, sealed-in clean room)
- Purge air management for dust protection of the optics
- All elements including lightweight
- Non-contact-measuring plus auto-focus
- Gauging continuously and in motion
- Low maintenance and service costs
- Fully integrated real time analysis
- Consistent quality „Made In Germany“
- SEC-Viewer / SEC-Analyser
- Efficient and cost saving flotation control
- No harmful x-rays



blast furnace equipped with *Mineral LIBS*

Applications

- Identification of different material classes by multi-element classification, e.g. identification of moving bulk material on feeding conveyors of **blast furnaces** (lump ore, pellets, sinter, scrap iron, slag, coal, lime rock, dolomite, gravel, ilmenite, olivine, bauxite)
- Identification of high valuable subclasses by quantification of the content of defined elements e.g. online monitoring of the element content for subsequent selective **logistics in mining** (Ca in lime rock, Fe, Al, Si in lump ore, Al in bauxite, C, ash in lignite and hard coal, Al / K / Fe in silica sand)
- Process control by quantification of the content of defined elements, e.g. quality rating of coal on feeding conveyors in **power plants** e.g. quality rating in the mineral recoditioning and processing (content of fluorite, barite, Mg / As / Pb) e.g. quality evaluation of material flows in the manufacturing of ceramic products

Technical Specifications *Mineral LIBS*

Working Principle	Laser Induced Breakdown Spectroscopy (LIBS)
Laser Source	Class 4, wavelength: 1064 nm
Spectrometer	Spectral range: 230 - 930 nm, adaptable to the application
Analysis frequency	Evaluation rate (results/s): typically 1 result/s, depending on application
Dynamic Focusing	Measuring distance typically 800 mm, Auto focus range: 150 mm, Tracking speed: 7.0 mm/ms
Environmental conditions	T: -10 to +40 °C, harsher exposure upon request
Electrical Supply	U: 110/ 230 VAC; P: 1.2 kW
Dimensions	Height x Width x Length: 790 x 300 x 1510 mm, Weight 150 kg