

### Applications:

- Geology
- Metallurgy
- Environment
- Gemology
- Forensics



## CALIBSO

### All-in-one LIBS System

CALIBSO is a laboratory measurement solution based on laser-induced breakdown spectroscopy (LIBS). The technology allows qualitative and quantitative multielement analysis. By means of a high-quality sample imaging, pre-selected measurement positions are analysed contact free and with high spatial and spectral resolution. The easy-to-use software Sophi nXt ensures the reliable control of all components and forms the central interface between operator and technology. The robust housing with its integrated interlocking circuit ensures safe handling and a long-term protection of the implemented cutting-edge components.



High-quality sample imaging with micrometer sized resolution, single spot measurement or area scans



Durable diode pumped laser with a spot size of ~70µm on sample surface for high spatial resolution



High-resolution echelle spectrometer with spectral resolving power in the pm-range and a large simultaneous wavelength range



Material identification, classification and quantification of bulk materials or surfaces with univariate or multivariate data analysis

CALIBSO



Fig. 1: Sample image - steel plate

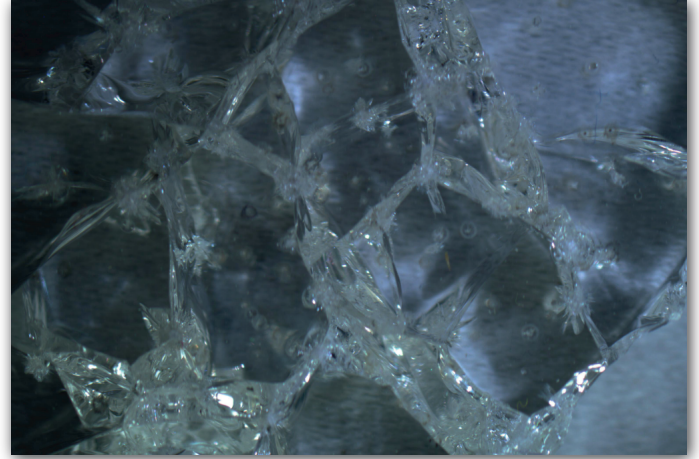


Fig. 2: Sample image - shattering glass

**Specifications**

Measuring technique	Laser-induced breakdown spectroscopy (LIBS)	Qualitative and quantitative multi-element analysis
	Imaging	High quality imaging on a coaxial beam path with a high spatial resolution better than 50 μm
Samples formats	Solid	Bulk samples, any shape Sample size up to 50x50x50 mm <sup>3</sup>
	Liquid	In sample vessel (cuvette, Petri dish, multiwell plate, etc.)
LIBS	Wavelength laser	1064 nm
	Excitation	Diode pumped
	Laser repetition rate	40 Hz
	Pulse energy on sample	1 - 26 mJ, stepless adjustable
	Wavelength range	210 nm - 850 nm
XYZ stage	Spectral resolution	28 pm - 113 pm
	Travel range	X = 145 mm , Y = 95 mm , Z = 50 mm
	Resolution	10 μm
Sample Imaging	Repeatability	10 μm
	CMOS camera	6 Mpixel
General properties	Image field	~ 17 x 25 mm
	Dimensions	810 mm x 1100 mm x 590 mm
	Weight	< 200 kg
	Safety	Laser class 1
Software	Temperature range (in operation)	15 - 30 °C
	Relative air humidity	15 - 80 %, non-condensing
	Measuring methods	Single measurement
		Continuous single measurement
	Analysis	Multipoint measurement
Mapping		
Depth profile combined with single, multi-point measurements, mapping		
Measurement "On the fly"		
Elemental analysis (NIST database emission lines)		
Accessories	Material classification (PCA or PLS-DA)	
	Material quantification univariate	
	Material quantification multivariate (PLS, Lasso)	
Standard samples	Reference materials for LIBS integrated in sample table	