

Portfolio of Services (1/2)

		Characteristics / Parameters	Analysis Technique	Material / Reporting Range
More information under	Sample Handling	Sample Preparation	Drying, Milling, Drilling, Cutting, Homogenizing	Solid metals
		Loss on ignition (LOI), Determination of Oil & Moisture	Gravimetry	Powders, Scraps
	Wet Chemistry	Anions (F ⁻ , Cl ⁻ , Br ⁻ , NO ₃ ⁻ , NO ₂ ⁻ , PO ₄ ³⁻ , SO ₄ ²⁻)	Ion chromatography (IC)	Various
	Non-Metallic Elements	Carbon (C), Sulphur (S)	Combustion analysis	Various/ < 10 ppm
		Oxygen (O), Nitrogen (N), Hydrogen (H)	Carrier gas hot extraction	Various/ < 10 ppm
		Total Organic Carbon (TOC)	Combustion analysis	Aqueous solution
		Total Carbon (C _{tot})	Combustion analysis	Carbides/ < 10 ppm
		Free Carbon (C _{free})	Combustion analysis	Carbides/ < 10 ppm
	Trace Elements	Trace Elements	Inductively coupled plasma optical emission spectrometry (ICP-OES)	Various in ppm range
		Trace Elements	Inductively coupled plasma mass spectrometry (ICP-MS)	Various in very low ppm range
		Trace elements excluding (noble) gases	Glow discharge mass spectrometry (GDMS)	Pure Metals/ Oxides with very low reporting limit up to ppb range
		Sodium (Na), Potassium (K), Lithium (Li)	Atomic absorption spectrometry (AAS)	Various in ppm range
		Mercury (Hg)	Atomic fluorescence spectrometry (AFS)	Various
	X-Ray Technology	Semi-Quantitative Analysis	X-ray fluorescence spectroscopy (XRF)	Alloys, Ceramics
		Main Alloy composition	X-ray fluorescence spectroscopy (XRF)	Alloys, Ceramics

We offer further Techniques as Photometry, conductometry, Titrimetry and Gravimetry for different special demands.

Please see exact Scope of Accreditation in our [DAkKS-Certificate](#).

For further information and individual quotes please contact us.

Portfolio of Services (2/2)

		Characteristics / Parameters	Analysis Technique	Standards/Application
More information under	Particle Size Measurements	Particle size distribution	Laser diffraction	MasterSizer 3000, 2000, S μ , Microtrac S3500/ISO 13320, ASTM B 822
		Particle size distribution	Sieving (RoTap, Air Jet, Retsch, JEL,...)	Acc. to different ASTM and DIN/ISO Standards
		Flow behaviour	Vibrational flow	Retsch sieving machine
		Medium particle sizes	Fisher sub sieve sizer	Fisher Scientific Type 95/ASTM B 330
		Filling density, Tap Density, Hall Flow,	Scott/Jolting volumeter, Hall flowmeter	Acc. to different ASTM and DIN/ISO Standards
		Deagglomeration		Tungsten rod mills/ASTM B 859
		Pore volume distribution	From adsorption or desorption isotherms	TriStar 3000, TriStar II Plus 3030/ASTM D 4222, DIN 66134
	Specific surface area	Specific surface area according to BET in m^2/g	TriStar 3000, TriStar II Plus 3030/DIN ISO 9277, ASTM D 3663	
	Microscopy & Materialography	Density	Helium pycnometer	Micromeritics/ASTM B 923
		SE/BE Pictures, high Resolution	Scanning electron microscopy (SEM)	Identification of corrosion/damages, grain size & form
		Qualitative and quantitative analysis	Energy Dispersive X-Ray Spectroscopy (EDX)	Identification of contamination, elementary composition
		Microscopy, metallographic specimen preparation	Metallography	Various
		Calorific value	Calorimetry	IKA
	Gamma Spectroscopy	Dust explosion hazard, Combustion class, burning rate, relative autoignition temperature		Modified Hartmann
		Line profile analysis	X-Ray Diffraction	Exploring atomic structure of new materials, layer thickness/roughness
Natural radioactivity (U-Ra, U-Ac, Th)		Gamma spectroscopy	Ores/concentrates and Waste for further recovery or disposal	

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