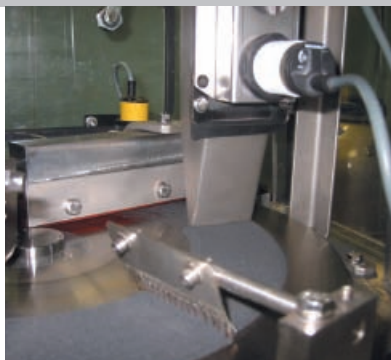


The DSA-200 provides online, accurate elemental analysis of dry streams in pyrometallurgical applications. The continuous analysis allows plant operators to follow and respond to process trends in real time. This enables improvements in process efficiency, reduces costs (fuel, fluxes) and improves profitability.

DSA-200

Continuous, Online Dry Stream Elemental Analyzer for Pyrometallurgical Applications



Features

The DSA-200 measures and reports:

- Up to 20 elements (Al and higher) simultaneously, with an update time of one minute
- Modern detector and electronics design with digital signal processing, giving superior accuracies and improved remote diagnostics
- Accurate calibration and check sampling
- Direct interface to any plant process control system (e.g., Modbus or OPC)

Benefits

- Better dosage and blending of feed materials
- Reduced fuel consumption from direct measurement of sulfur
- Optimized slag chemistry by controlled flux additions
- Improved stability of off-gas dew-point
- Reduced analytical costs for process control

The DSA-200 is a robust analyzer intended for installation close to the primary flow in the process environment. It provides simultaneous analysis of up to 20 elements. Elements in the periodic table from Al and higher can be measured using the X-Ray Fluorescence (XRF) technique. Thermo Fisher Scientific can design and provide materials handling systems for sampling, preparation and return. Correct sampling and analysis facilitates manual or automatic process adjustments.

The DSA-200 incorporates full digital signal processing. It can process much higher count rates thus significantly improving measurement accuracies. Critical detector performance and spectrum configuration can now be made from the central computer. This allows Thermo Fisher Scientific to provide remote diagnostics, superior accuracy, availability and faster investment pay-back.

DSA-200

Analyzer Performance

Sample Characters	Feed flow in range 10 to 100 kilograms per hour (22-220 lb/h); free-flowing, fine powder (<1% moisture and p80 <150 micron); sample temperature <+90°C (<+210°F)		
Analysis Update Time	Typically 1 minute		
Detection System	Energy dispersive: Si(Li) or H.P. Ge, solid state detector with electronic reset; LN ₂ -cooled; Typical resolution 140-160 eV (@ Mn Kα)		
Measurement Capabilities	All elements with atomic number >12 (aluminium and higher in periodic table)		
Ambient Temperature	0°C to +50°C (+32°F to +122°F).		

Accuracy

Element	Assay range (% element by Wt.)	Relative Error ¹ (%)
Sulphur to Uranium	>5	1-2
	0.1-5	2-6
	<0.1	6-10
Silica, Alumina	>10	2-4
	5-10	4-7
	0.1-5	5-10

¹Use as guide only. Dependent on particle size, mineralogy and matrix variations.

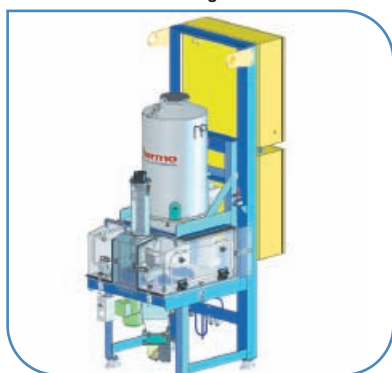
Utilities Required

Electrical Power	Factory selectable 380/415/440/460 Volts AC ±10%, 3-phase, 48-62 Hz ±2 Hz (3 wire plus earth)			
Temperature Control Option	115/230 Volts AC ±10%, 3-phase, 48-62 Hz ±2 Hz (3 wire plus earth)			
Power Consumption	Maximum 400 W			
Air	Instrument-quality air: Clean and dry to 0.1 microns with dew point <+2°C (<+36°F). Pressure nominally 600 kPa (87psi), ranging from 450 kPa to 800 kPa. Secondary air filter built in. Consumption: Intermittent, <5 litres per day at working pressure.			
Radioisotope Sources	X-ray Source	Typical GBq	Activity (millicuries)	RWL (Recommended Working Life in years) ²
	Cm-244	1.1-7	30-190	10
	Pu-238	1.1-7	30-190	10
	Am-241	0.11-0.8	3-20	15
	Cd-109	0.4-0.8	10-20	5
	Fe-55	1.1-3	30-80	5
² Can be used for longer times if tested in accordance with local radiation safety rules.				
Communications Links	Internal: TCP. Options available. External: OPC (TCP/IP or serial); Modbus (TCP/IP) or Modbus serial (EIA RS-232, RS-422, RS-485); 4-20 mA current loops			
Off-Site Modem	One data-quality phone line or VPN internet link			
Standards	Radiation shielding designed to IAEA safety standards. Electrical cabinet: IP66. Quality assurance: ISO 9001			

Dimensions and Weights

	Length	Width	Height	Weight
	1010 mm (40 in)	600 mm (24 in)	1846 mm (73 in)	300 mm (661 lb)
Primary Sampler (Optional)	Primary samplers can be specified and supplied by Thermo Fisher Scientific. In some circumstances existing sampling system may be used.			

DSA-200 Technical Diagram



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