



SCOPE OF ACCREDITATION TO ISO 17034:2016

LGC STANDARDS
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REFERENCE MATERIAL PRODUCER

Valid To: May 31, 2023

Certificate Number: 2848.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this Reference Material Producer for the production of certified reference materials and reference materials of the following types:

I. Certified Reference Materials

Certified Reference Material/ Artifact or Matrix	Properties Characterized/ Concentration Ranges	Approach to Assigning Property Values
High Purity Metals – Spectrochemical Solutions		
Single Element Standards	(0.001 to 50 000) µg/mL	ICP-OES, ICP-MS
Multi Element Standards	(0.001 to 50 000) µg/mL	ICP-OES, ICP-MS
Ion Chromatography Standards (Anions and Cations) –		
Single-Ion Standards	(0.001 to 10 000) µg/mL	IC
Multi-Ion Standards	(0.001 to 10 000) µg/mL	IC

Certified Reference Material/ Artifact or Matrix	Properties Characterized/ Concentration Ranges	Approach to Assigning Property Values
Petroleum Products – Fuel and Lubricants		
Acid Number	(0.1 to 3.0) mg KOH/g	Titrimetry
Base Number	(6 to 70) mg KOH/g	Titrimetry
Chlorine (Cl)	(1 to 50 000) µg/mL	ICP-OES, XRF
FT-IR Standard	(1 to 100) ABS/cm	FT-IR
Lead (Pb)	(0.001 to 5.0) g/gal	ICP-OES, XRF
Moisture (H ₂ O)	0.001 % to 1.0 %	Karl Fischer, Titrimetry
Viscosity	(0.3 to 1000) cSt	Viscometry
Sulfur (S)	(0.010 to 50 000) µg/g	XRF
Single Element Standards	(0.001 to 300 000) µg/g	ICP-OES, XRF
Multi Element Standards	(0.001 to 50 000) µg/g	ICP-OES, XRF
Wear Metals in Oils – Single Element Standards	(0.001 to 300 000) µg/g	ICP-OES
Multi Element Standards in Petroleum Products	(0.001 to 50 000) µg/g	ICP-OES



Certified Reference Material/ Artifact or Matrix	Properties Characterized/ Concentration Ranges	Approach to Assigning Property Values
<p>ARMI Multi-Element in Solid Metal –</p> <p>Steels Carbon Steels Low Alloy Steels High Alloy Steels Cast Steels Specialty Steels Irons White Irons Cast Irons Ductile Irons Gray Iron Nodular Iron</p> <p>Aluminum Alloys Copper Base Alloys Cobalt Base Alloys Magnesium Base Alloys Nickel Base Alloys Titanium Base Alloys Zinc Base Alloys Zirconium Base Alloys</p> <p>Special Alloys: (Solids, Chips, Pins, Powder)</p> <p>Ores and Minerals – Iron Ore Iron Ore Sinter Bauxite</p> <p>Metal Producing Materials & Byproducts – Ferroalloys Silico-calcium Slag Alumina</p>	<p>Elemental Composition: Al to Zr Range: (0.000001 to 100.00000) %</p>	<p>Measurement by one or more qualified laboratories using two or more methods of demonstrable accuracy</p>



II. Reference Materials

Reference Material/ Artifact or Matrix	Properties Characterized/ Concentration Ranges	Approach to Assigning Property Values
Particle Count Reference Materials	(0 to 100 000) particles	Particle counting

Reference Material/ Artifact or Matrix	Properties Characterized/ Concentration Ranges	Approach to Assigning Property Values
<p>Ferrous Metals: (Solids, Chips, Pins, Powder) –</p> <ul style="list-style-type: none"> Steels Carbon steels Low alloy steels High alloy steels Cast steels Specialty steels Irons White irons Cast irons Ductile irons Gray iron Nodular iron 	Elemental Composition	Measurement by RM producer on a representative subset of samples
<p>Nonferrous Metals: (Solids, Chips, Pins, Powder) –</p> <ul style="list-style-type: none"> Aluminum Alloys Copper Base Alloys Cobalt Base Alloys Magnesium Base Alloys Nickel Base Alloys Titanium Base Alloys Zinc Base Alloys Zirconium Base Alloys 	Elemental Composition	Measurement by RM producer on a representative subset of samples
<p>Special Alloys: (Solids, Chips, Pins, Powder)</p>	Elemental Composition	Measurement by RM producer on a representative subset of samples



Reference Material/ Artifact or Matrix	Properties Characterized/ Concentration Ranges	Approach to Assigning Property Values
<p>Ores and Minerals –</p> <p>Iron ore Iron ore sinter Bauxite</p>	<p>Elemental Composition</p>	<p>Measurement by RM producer on a representative subset of samples</p>
<p>Metal Producing Materials & Byproducts –</p> <p>Ferrous alloys Silico-calcium Slag Alumina</p>	<p>Elemental Composition</p>	<p>Measurement by RM producer on a representative subset of samples</p>





Accredited Reference Material Producer

A2LA has accredited

LGC STANDARDS

Manchester, NH

This accreditation covers the specific materials listed on the agreed upon Scope of Accreditation.

This producer meets the requirements of ISO 17034:2016 *General Requirements for the Competence of Reference Material Producers*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.



Presented this 17th day of January 2022.

A blue ink signature of a person, written in a cursive style, positioned above a horizontal line.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2848.02
Valid to May 31, 2023

For reference materials to which this accreditation applies, please refer to the reference material producer's Scope of Accreditation.