

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p><b>UKAS</b> TESTING</p> <p><b>4028</b></p> <p>Accredited to <b>ISO/IEC 17025:2017</b></p>	<p><b>ALS Inspection UK Limited</b></p> <p>Issue No: 012    Issue date: 30 January 2020</p>	
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<p><b>Testing performed at the above address only</b></p>		

### DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ORES & MINERALS	<u>Chemical Testing</u>	
Copper concentrates	Copper (Cu)	Documented in house method PN049 using Electrogravimetry Documented in house method PN343 using Titration
	Gold (Au), and Silver (Ag)	Documented in house method PN296 using Fire Assay and Gravimetry/ICP-OES
	Silver (Ag)	Documented in house method PN065 using ICP-OES
Copper cathode	Impurities ( Ag, As, Bi, Cd, Co, Cr, Fe, Mn, Ni, P, Pb, Sb, Se, Si, Sn, Te and Zn) up to 0.1% each element. Copper (Cu) by difference	Documented in house method PN241 using ICP-OES
Zinc concentrates	Zinc (Zn) and Iron (Fe)	Documented in house method PN249 using XRF Spectrometry
	Silver (Ag)	Documented in house method PN067 using Fire Assay and Gravimetry
	Silver (Ag)	Documented in house method PN143 using ICP-OES
High grade zinc metal	Impurities (Ag Al As Bi Ca Cd Co Cr Cu Fe Mg Mn Ni P Sb Se Si Sn Te Tl) up to 0.1% each element. Zinc (Zn) by difference	Documented in house method PN356 using ICP-OES
Lead concentrates	Lead (Pb)	Documented in house method PN088 using Titrimetry



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ORES & MINERALS (cont'd)	<u>Chemical Testing (cont'd)</u>	
High grade lead alloy	Impurities (Ag Al As Bi Ca Cd Co Cr Cu Fe Mg Mn Ni P Sb Se Si Sn Te TI and Zn) up to 0.1% each element. <u>Lead (Pb) by difference</u>	Documented in house method PN344 using ICP-OES
Nickel concentrates	Nickel (Ni)  Cobalt (Co) Iron (Fe)	Documented in house method PN024 using XRF Spectrometry
Nickel concentrates	Gold (Au) Platinum (Pt) Palladium (Pd)	Documented in house method PN322 using Fire Assay and ICP-OES
Nickel concentrates	Impurities, specifically: Aluminium (Al) Arsenic (As) Cobalt (Co) Calcium (Ca) Chromium (Cr) Zinc (Zn) Copper (Cu) Magnesium (Mg) Nickel (Ni) Iron (Fe)	Documented in house method PN312 using ICP-OES
High grade nickel metal	Impurities (Ag Al As Bi Ca Cd Co Cr Cu Fe Mg Mn P Sb Se Si Sn Te TI Zn and Pb) up to 0.1% each element. Nickel (Ni) by difference	Documented in house method PN354 using ICP-OES
High grade cobalt metal	Impurities ( Ag Al As Bi Ca Cd Cr Cu Fe Mg Mn Ni P Sb Se Si Sn Te TI Zn and Pb) up to 0.1% each element. Cobalt (Co) by difference	Documented in house method PN353 using ICP-OES
High grade aluminium alloys	Impurities ( Ag, As, Bi, Ca, Cd, Co, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Ti and Zn) up to 0.1% each element. Aluminium (Al) by difference	Documented in house method PN352 using ICP-OES



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ORES & MINERALS (cont'd)	<u>Chemical Testing</u> (cont'd)	
High grade tin metal	Impurities ( Ag Al As Bi Ca Cd Co Cr Cu Fe Mg Mn Ni P Sb Se Si Te TI Zn and Pb) up to 0.1% each element. Tin (Sn) by difference	Documented in house method PN355 using ICP-OES
METAL ORES & MINERALS	Carbon & Sulphur	Documented in house method PN123_04 using Combusion/Infrared Analyser
	Oxygen & Nitrogen	Documented in house method PN258_02 using Combusion/Infrared Analyser
PRECIOUS METALS		
Silver Metal and Bullion	Silver (Ag)	Documented in house method PN230 using titrimetry
ALUMINA BASED COMMODITIES		
Autocatalysts Fresh and spent autocatalysts Refining/Reforming Catalysts	Platinum (Pt) Palladium (Pd) Rhodium (Rh)	Documented in house method PN342 using digestion and ICP-OES

END