

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	Inspectorate International Limited	
	Issue No: 014 Issue date: 20 December 2011	
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Testing performed at the above address only		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
CATALYST MATERIALS	<u>Chemical Tests</u>	<u>Documented In house methods using:</u>
	Palladium, Platinum	Fire Assay, ICP
Alumina Based Catalysts	Total and Acid Soluble Silver	Volumetric titration
Autocatalysts	Platinum, Palladium, Rhodium	ICP-OES
Carbon Based Catalysts	Platinum, Palladium	ICP-OES, Gravimetry
Industrial Based Catalysts	Palladium	Fire Assay, Gravimetry, ICP-OES
	Silver	Volumetric Titration
	Palladium, Gold	Gravimetry, ICP-OES
Petroleum Catalysts	Acid Insolubles	Gravimetry
	Iridium	ICP-OES
	Platinum, Rhenium	UV/VIS Spectrophotometry
	Platinum, Palladium	Gravimetry
	Rhenium, Total and Acid Soluble	UV/VIS Spectrophotometry
CONCENTRATES, ORES AND MINERALS - BASE METAL	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Al, Sb, As, Ba, Be, Bi, B, Cd, Ce, Ca, Cr, Co, Cu, Ga, Ge, Au, In, Fe, Pb, Mg, Ni, K, Se, Ag, Na, Sr, Te, th, Sn, Ti, V, Zn	AAS



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CONCENTRATES, ORES AND MINERALS - BASE METAL (cont'd)	<u>Chemical Tests</u> (cont'd)	<u>Documented In-House Method using:</u>
	Sb, As, Ba, B, Cr, Co, F, Ge, Fe (elemental and oxide), Mg, Mn (including oxide). S, Sn, Ti, Zn (including oxide)	Volumetric titration
	Al, Sb, As, Ba, Cd, Cu, Fe, Pb, Mg, Mn, Hg, Ni, Ag	ICP-OES
	Ba, C, Cl, Cu, Au, Mo, Ni, Si, Ag, S as sulphate	Gravimetry
	Al, Ba, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Mo, P, K, Si, Ti, V, Zn	XRF
	Chlorine	Documented In-House Method using Turbidimetry
	Fluorine, Germanium, Phosphorus, Silicon	UV/VIS Spectrophotometry
	Sulphur	Combustion/Volumetric titration
Barytes	Barium, Silicon, Strontium, Calcium, Iron	Gravimetry, AAS
Bastanite, Monazite and Rare Earth Materials	Acid Insolubles	Gravimetry
	Total Rare Earths	Gravimetry
	Cerium	Volumetric titration
Bauxite	Alumina, Ca, Fe, Mg, P, K, Na, Si, Ti	XRF Spectrometry
Copper Concentrates	Chlorine (50 - 1000 ppm)	XRF Spectrometry
Chromium Ores	Chromium and Iron	Volumetric titration
	Phosphorus and Silica	UV/VIS Spectrophotometry
Colemanite, Tincal, Ulexite	Boron	Volumetric titration
Ilmenite and Rutile	Titanium Dioxide	Volumetric titration



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CONCENTRATES, ORES AND MINERALS - BASE METAL (cont'd)	<u>Chemical Tests</u> (cont'd)	<u>Documented In-House Method using:</u>
Iron Ores	Alumina, Ca, Cr, Mg, Mn, P, K, Si, Ti, V, Fe, Si, Al, S, V, Co, Ni, Cu, As, Pb, Zn	XRF Spectrometry
	Ca, Ce, Li, Mg, K, Na	AAS
	Iron and Iron as oxide	Volumetric titration
	Silica	Gravimetry
Manganese Ores	Alumina, Ba, Ca, Fe, Mg, P, K, Si, Ti	XRF Spectrometry
Manganese Ores	Manganese and Manganese Dioxide	Volumetric titration
	Silica	Gravimetry
Molybdenite	Molybdenum	Gravimetry
	Copper, Molybdenum, Rhenium	XRF Spectrometry
Olivine	Magnesium	Volumetric titration
Pyrite	Gold	Fire Assay Gravimetry
	Sulphur	Gravimetry
Siliceous Ores	Sb, As, Bi, Cd, Co, Cu, In, Fe, Pb, Mn, Ni, Se, Ag, Te, Th, Zn	AAS
	Silica	Gravimetry
Silver ores	Aluminium as oxide, Sb, As, Pb, Zn	peroxide fusion followed by ICP-OES
METALS AND ALLOYS - FERROUS	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
Ferrochrome and Charge Chrome	Chromium	Volumetric titration
Ferro Alloys	Palladium, Platinum, Rhodium, Phosphorus	ICP-OES, UV/VIS Spectrophotometry
	Silicon	Gravimetry



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METALS AND ALLOYS - FERROUS (cont'd)	<u>Chemical Tests</u> (cont'd)	<u>Documented In-House Method using:</u>
Ferro-Manganese	Manganese	Volumetric titration
Ferro-Molybdenum	Molybdenum	Gravimetry, XRF
METALS AND ALLOYS - BASE METAL	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Al, Bi, Cr, Co, Cu, Pb, Mn, Ag, Sn	Volumetric titration
	Al, Sb, As, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Ga, Ge, In, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Sr, Te, Th, Sn, Ti, V, Zn	AAS
	Sb, As, Bi, Cd, Cu, In, Ni, Rh	ICP-OES
	Ba, Cd, C, Cu, Ir, Mo, Ni, Rh, Ru, Si	Gravimetry
	Au, Pd, Pt, Rh, Ag	Fire Assay/Gravimetry, ICP-OES
	Molybdenum	XRF
	Phosphorus	UV/VIS Spectrophotometry
	Sulphur	Combustion/Volumetric titration
BASE METAL MATERIALS	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
- Sweeps, Residues, Slimes, Mattes and Secondary Materials	Al, Sb, Bi, Cr, Co, Pb, Mg, Sn, Ti, Zn	Volumetric titration
	Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Ga, Ge, In, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Sr, Te, Th, Sn, Ti, V, Zn	AAS
	Ba, Br, Cd, C, Cl, Cu, Mo, Ni, Os, Se	Gravimetry
	Fluorine	UV/VIS Spectrophotometry
	Au, Ir, Pd, Pt, Rh, Ru, Ag	Fire Assay/Gravimetry ICP-OES



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BASE METAL MATERIALS (cont'd)	<u>Chemical Tests</u> (cont'd)	<u>Documented In-House Method using:</u>
- Sweeps, Residues, Slimes, Mattes and Secondary Materials (cont'd)	Selenium	ICP-OES
	Sulphur	Combustion/Volumetric titration
PRECIOUS METAL BEARING MATERIALS	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
Bullion: Gold, Gold/Silver, Silver, Lead, Copper/Precious metal	Gold	Fire Assay
	Gold, Silver	Fire Assay, Gravimetry
	Palladium, Platinum	Fire Assay, ICP-OES
	Copper	Gravimetry
	Silver	Volumetric titration
	Iridium, Rhodium	ICP-OES
Platinum bullion, precious metal concentrates and residues	Platinum, Palladium, Rhodium	Gravimetry, ICP-OES
Carbonaceous Material	Gold	Fire Assay, Gravimetry
Complexed Organics, Resins and Cyanides	Gold	Gravimetry
Electronic/Computer Materials	Copper and Gold	Gravimetry
	Gold, Silver	Fire Assay, Gravimetry
	Palladium, Platinum	Fire Assay, ICP-OES
	Silver	AAS
Metals and Alloys	Copper	Gravimetry
	Gold, Silver	Fire Assay, Gravimetry
	Palladium, Platinum	Fire Assay, ICP-OES
	Platinum, Rhodium, Iridium	Gravimetry, ICP-OES
	Silver	Volumetric titration
	Palladium, Platinum, Rhodium	ICP-OES



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PRECIOUS METAL BEARING MATERIALS (cont'd)	<u>Chemical Tests (cont'd)</u>	<u>Documented In-House Method using:</u>
Ores and Concentrates	Au, Ir, Pd, Os, Pt, Rh, Ru (Osmiridium)	Gravimetry, ICP-OES
Silver/Film Scrap	Silver: Halide and Raw Scrap	Fire Assay, Gravimetry
Sweeps/Residues	Copper	Gravimetry
	Au, Ag, Pd, Pt, Rh	Fire Assay, ICP-OES
	Au, Pd, Pt, Ir, Rh, Ru	Gravimetry ICP-OES
	Silver	Fire Assay, Gravimetry
CHEMICALS: INORGANIC	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
Nickel Carbonate, Oxide, Sulphate	Nickel	Gravimetry
Rhenium Salts	Rhenium	Gravimetry
Sulphur	Ash Acidity Hydrocarbons Sulphur	Gravimetry
	Chlorine	UV/VIS Spectrophotometry
DUSTS AND PARTICULATES	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Ga, In, Fe, Pb, Mg, Mn, Mo, Ni, Se, Ag, Sr, Te, Th, Sn, Ti, V, Zn	ICP-OES
GLASS, OXIDES	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Boron	Volumetric titration
	B Ca, Li, Mg, Al, Na, Pd, Rh, Ru	ICP-OES
	Alumina, Ba, Ca, Cr, Hf, Fe, Mn, Mg, P, K, Si, Na, Sr, Ti, V, Y, Zn, Zr	XRF Spectrometry



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GLASS, OXIDES (cont'd)	<u>Chemical Tests</u> (cont'd)	<u>Documented In-House Method using:</u>
High grade Rhodium	Rhodium	ICP-OES
FLUORSPAR	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Ca, Fe, Pb, P, Si	XRF Spectrometry
	Fluorine	UV/VIS Spectrophotometry, Volumetric titration
METALS: HIGH PRIORITY	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
Aluminium, Cadmium, Lead, Tin, Zinc	Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Ga, In, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Te, Th, Sn, Ti, V, Zn	AAS
	Silicon and Germanium	UV/VIS Spectrophotometry
SOILS	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Ga, In, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Te, Th, Sn, Ti, V, Zn	AAS
	Gold	Fire Assay, Gravimetry
	Au, Ir, Pd, Pt, Rh, Ru	Fire Assay, ICP-OES
	Silver	AAS
WATER, TRADE EFFLUENT (to sewer)	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
	Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Ga, in, Fe, Pb, MC, Mn, hg, Mo, Ni, Se, Ag, Sr, te, th, Sn, ti, V, Zn	AAS



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SCAN PROFILE QUALITATIVE/QUANTITATIVE	<u>Chemical Tests</u>	<u>Documented In-House Method using:</u>
All Materials in Solution	Base Metals	ICP-OES
Non-Metallic Materials	Base/Precious Metals	ICP-OES
Metallic Materials and Solutions	Base/Precious Metals	ICP-OES
ALL MATERIALS (LISTED IN THIS SCHEDULE EXCEPT SOLUTIONS)	<u>Physical Tests</u>	<u>Documented In-House Method using:</u>
	Moisture content	Gravimetry
	Loss on Ignition	Gravimetry
	Size Analysis	Mesh Screening
	Specific Gravity	Gravimetry
	END	