

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>	Alfred H Knight International Ltd Issue No: 013 Issue date: 26 April 2012	
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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>	Documented In-house Methods
	Loss on ignition	PA130 using thermo gravimetric technique
- new and spent autocatalysts	Pd, Pt, Rh	PS401 using fusion followed by ICP-OES
- Auto catalysts	Rh	PA126 using fire assay followed by inductively coupled plasma optical emission spectroscopy (ICP-OES)
- Catalysts (reforming/refining)	Loss on ignition	PA117 using gravimetry
- Catalysts (reforming/refining)	Re	PA119 using ICP-OES
- Catalysts (reforming/refining)	Pt	PS401 using ICP-OES
- PGM bearing material in carbon based catalysis	Ru, Rh, Ir	PC913 using fire assay followed by ICP-OES
METALS AND ALLOYS	<u>Chemical Tests</u>	Documented In-house Method
	C, S	SC4142 using combustion and infra red detection
METALS AND ALLOYS - NON FERROUS	<u>Chemical Tests</u>	Documented In-house Methods
- Blister copper, copper anodes and nickel matte	Ag, Au, Pt, Pd	PC912 using ICP-OES
- Copper anodes and blister copper	Cu	GC906 using electrogravimetry
- Cobalt alloys, residues and related materials	Co	SC829 using titrimetry



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METALS AND ALLOYS - NON FERROUS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-house Methods (cont'd)
- Copper bullion, electronic scrap, flue dust, residues, PM bearing scrap and sweeps	Ag, Au, Pt, Pd	PC902 using ICP-OES and gravimetry
- PM bearing copper scrap, electronic scrap and bullion	Cu	GC924 using electrogravimetry
- Copper (high purity)	Ag, Al, As, Be, Bi, Cd, Co, Cr, Fe, Mg, Mn, Ni, P, Pb, S, Sb, Se, Si, Sn, Te, Ti, Zn and Zr	OC900 using spark emission spectroscopy
ORES AND MINERALS	<u>Chemical Tests</u>	Documented In-house Methods
- mineral ores and concentrates	C, S	SC4142 using combustion and infra red detection
- Alumina sweeps and residues, catalysts, residues and refractory slags	Au, Pt, Pd	PA122 by fire assay, followed by ICP-OES and flame atomic absorption spectroscopy (FAAS)
- Base metal concentrates, catalysts, residues and slags	F	GC907 using ion selective electrode
- Base metal ores and concentrates	Hg	GC927 using ICP-OES
	Cl	GC944 using micro-coulometry and potentiometric titration
- Base metals, bulk and antimony concentrates, pyrites, nickel/copper slags and residues	S (Total)	GC914 using gravimetry
- Cassiterite and tin concentrates	Sn	TT701 by titrimetry
- Tin slags	Ta, Nb, Ti, Sn, Fe, Si, Mn, Ca, P, La, W	YT713 using XRF
- Columbite	Ta, Nb, Ti, Sn, Fe, Si, Mn, Ca, P, W	YN412 using XRF
- Colbalt concentrates	Co, Cu, Mn	YC803 using XRF
- Copper concentrates	Cu	GC936 using titrimetry
- Copper concentrates	As	GC905 using FAAS



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ORES AND MINERALS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-house Methods (cont'd)
- Copper concentrates	Cu	GC920 by electrogravimetry
- Copper concentrates and related materials	Ag	SC905 using FAAS
- Lead and bulk concentrates	Pb	GL203 using titrimetry
- Lead concentrates, zinc concentrates and related materials	Ag	SC905 using FAAS
- Lead, zinc and bulk concentrates	As	GL229 using FAAS
- Molybdenum concentrates	Oil	YM406 using gravimetry
- Molybdenum concentrates	Mo, Cu, P, Bi, Fe, W	YM404 using XRF
- Tantalite	Ta, Nb, Ti, Sn	YT111 using XRF
- Wolframite	W, Fe, Ca, Sn, Si, P	YT901 using XRF
- Wolfram powders, ferberite and hubnerite	Pb, As, Cu, Mo, Bi, Zn	YT908 using XRF
- Zinc concentrates	Zn, Cd, Pb, Cu, Fe, Si, Ca, Mn, Sn	YZ107 using XRF
- Zinc concentrates	Zn	GZ113 using titrimetry
- Zinc concentrates and bulk concentrates	Zn	GZ130 using titrimetry
PRECIOUS METALS	<u>Chemical Tests</u>	Documented In-house Methods
- Gold bullion	Au, Ag	PG406 using fire assay and gravimetry
- Silver metal and bullion	Ag	PS508 using titrimetry
- Silver metal and bullion	Au	PS510 using gravimetry
- Copper, lead, silver, zinc and bulk concentrates including pyrites	Au, Ag	PC904 using fire assay, gravimetry and FAAS
- PGM bearing concentrates	Pt, Pd, Rh, Au	PC905 using ICP-OES



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ANODE SLIMES and related materials	<u>Chemical Tests</u>	Documented In-house Methods
- Anode slimes	Cu	GC909 using electrogravimetry
- Anode slimes	Se	GC941 using FAAS
- Anode slimes, selenium slimes and residues	Ag, Au, Pt, Pd	PS301 using gravimetry and ICP-OES
- Miscellaneous	Moisture	GJ038 using gravimetry
Bulk Cargoes such as Minerals, ores and concentrates	<u>Physical Tests</u>	Documented In-house Methods
	Flow Moisture Point (FMP), and Transportable Moisture Limit (TML)	AHK/90/FMP based on ISO 12742:2007 and IMO Guide
END		