


# 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>	<h3>Johnson Matthey PLC</h3>	
	<p><b>Issue No:</b> 017    <b>Issue date:</b> 17 November 2011</p>	
	<p><b>Analytical Laboratory</b> Catalysts Chemicals and Refining Orchard Road Royston Herts SG8 5HE</p>	<p><b>Contact: Mr Allan Best</b> <b>Tel:</b> +44 (0)1763 253213 <b>Fax:</b> +44 (0)1763 253812 <b>E-Mail:</b> allan.best@matthey.com <b>Website:</b> www.matthey.com</p>
<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
Pure Precious Metals, Precious Metal Alloys, Salts & Compounds	<u>Chemical Tests</u>	Documented In-House Method using:
	Precious metal content	Wet Chemical techniques
	Gold content	Wet chemical techniques
	Silver content	Gravimetric and Titration techniques
	Metallic impurities	Inductively Coupled Plasma Mass Spectroscopy (ICP-MS) Atomic Absorption Spectroscopy (AAS) Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) Gravimetric Techniques
	Alloy constituents	Gravimetric techniques, Wet chemical techniques, ICP-OES, AAS, X-Ray Fluorescence (XRF)
	Cation impurities	ICP-MS, ICP-OES, AAS, XRF
	Anions	Ion Selective Electrode (ISE) Wet chemical techniques
LIQUID PHASE CATALYSTS	Precious metal content	XRF, ICP-OES, ICP-MS Wet chemical techniques
	Anions	ISE



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
LIQUID PHASE CATALYSTS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method using:
Base Metals, Alloys, Salts, and Compounds	Major inorganic elements	ICP-MS, ICP-OES, AAS, Wet chemical techniques
	Metal Impurities	ICP-MS, ICP-OES, AAS,
	Carbon and sulphur	Combustion method
	Major inorganic elements	ICP-MS, ICP-OES, GFAAS, Wet chemical techniques
	Anions	Wet chemical techniques
	Anion impurities	ISE
	Cation impurities	ICP-MS, ICP-OES, AAS
Process waters	Cations and anions	Wet chemical techniques ICP-OES, ICP-MS and GFAAS
Air filters and wipe samples	Precious metals and metal impurities	ICP-MS, ICP-OES and GFAAS
PRECIOUS METAL and NON-PRECIOUS METAL POWDER SAMPLES	Moisture content by loss-on-drying	Gravimetric methods
Precious Metal Products: Gold Silver Platinum Palladium Iridium Rhodium Ruthenium Osmium	Wet Chemical techniques Elemental concentration by a valid technique, from: AAS, ICP-OES, ICP-MS, XRF.  Anions - ISE  Cations - AAS, ICP-OES, ICP-MS	Analysis through the appropriate application of in-house modules (documented in house methods) for preparation and measurement using Flexible Scope Protocol



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PRECIOUS METAL and NON-PRECIOUS METAL POWDER SAMPLES (cont'd)  Base Metals	<u>Chemical Tests</u> (cont'd)  Wet Chemical techniques Elemental concentration by a valid technique, from: AAS, ICP-OES, ICP-MS, XRF.  Anions - ISE  Cations - AAS, ICP-OES, ICP-MS	Analysis through the appropriate application of in-house modules (documented in house methods) for preparation and measurement using Flexible Scope Protocol (cont'd)
	END	