

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>	Tata Steel UK Limited trading as Tata Steel Research, Development and Technology	
	Issue No: 027 Issue date: 29 November 2010	
	Swinden Technology Centre Moorgate Rotherham South Yorkshire S60 3AR	Contact: Mr A Kirk Tel: +44 (0)1709-820166 Fax: +44 (0)1709-825337 E-Mail: tony.kirk@tatasteel.com Website: http://www.tatasteelresearch.com
Testing performed by the Organisation at the locations specified below		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code				
<table border="0"> <tr> <td>Address</td> <td>Local contact</td> </tr> <tr> <td>Swinden Technology Centre Moorgate Rotherham South Yorkshire S60 3AR</td> <td>Mr A Kirk</td> </tr> </table>	Address	Local contact	Swinden Technology Centre Moorgate Rotherham South Yorkshire S60 3AR	Mr A Kirk	Support Functions: Quality System Quality Audit Administration Testing: Analysis of stack emissions samples Corrosion tests Mechanical tests Metallurgical tests Physical Testing Sampling and Testing: Stack Emissions Testing	A
Address	Local contact					
Swinden Technology Centre Moorgate Rotherham South Yorkshire S60 3AR	Mr A Kirk					

Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customer Sites requiring Stack Emissions Testing	Stack Emissions Testing	B



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
Composite Decking and Decking Panels	<u>Mechanical Tests</u>		
	Loading strength by distributed loading and differential pressure (loads up to 15 kN/m ²)	Documented In-House Method ICA PPD 704	A
METALS, ALLOYS and METAL PRODUCTS	<u>Mechanical Tests</u>		
	Creep and stress rupture (up to 1100°C)	BS EN ISO 204:2009	A
	Tensile stress relaxation (up to 1100°C)	BS EN 10319-1:2003	A
	Fracture toughness: (-196°C to ambient temperature)		
	K _{IC}	BS EN ISO 12737:2005 ASTM E399:2009	A
	K _{IC} , CTOD, J	BS 7448-1:1991	A
	K _{IC} , CTOD, J	BS 7448-2:1997	A
Welds in metallic materials			
Organic Coated Steel Strip and long products	<u>Corrosion Tests</u>		A
	Salt Spray Testing	ASTM B117- 09	A
	Cyclic Humidity Testing	BS 3900:Part F2:1973(1989)	A
	Kesternich SO ₂ test**	BS EN ISO 3231:1998	A
	Water resistance**	ASTM D870-09	A
	Prohesion**	ASTM G85-09	A
	(** Organic coatings only)		



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POLLUTANTS and EFFLUENTS:	<u>Chemical Tests</u>		
Environmental samples including dusts and steel making materials	Determination of trace elements (Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel, Potassium, Selenium, Thallium, Titanium, Vanadium, Zinc)	Documented in-house method ENVPES 103 using ICP/MS	A
	Analysis of anions (Fluoride, chloride, nitrate, sulphate, bromide, nitrate, phosphate)	Documented in-house method ENVPES 104	A
Dusts, ores, air filters	Determination of Lead-210 and Polonium -210	Documented in-house method ENVPES 822	A
Waste water effluents from integrated steelworks	Determination of 16 US EPA targeted PAHs	ENVPES 818	A
Waste water effluents	Determination of trace metals Al, As, Cd, Cr, Co, Cu, Fe, Pb, Mn, Ni, V, W	Documented in-house method ENVPES 825	A
ATMOSPHERIC POLLUTANTS AND EFFLUENTS – STACK GAS SAMPLES	<u>Chemical Tests</u>	Documented In-House Methods in accordance to the following national, international and other recognised standards.	A
Filters Probe and impinger rinses (toluene, acetone and water) XAD-2 resin trap	Polychlorinated dibenzo-p-dioxins (PCDD) Polychlorinated dibenzo-furans (PCDF)	Documented In-House Method ENVPES 100 based on US EPA methods 1613 and 23 and BS EN 1948-2, using solvent extraction followed by high resolution gas chromatography and high resolution mass spectrometry. (HRGC/HRMS)	A
	Polychlorinated biphenyls	Documented In-House Method ENVPES 817 based on US EPA method 1668A using solvent extraction followed by high resolution gas chromatography and high resolution mass spectrometry.	A



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ATMOSPHERIC POLLUTANTS AND EFFLUENTS – STACK GAS SAMPLES (cont'd)	<u>Chemical Tests</u>	Documented In-House Methods in accordance to the following national, international and other recognised standards.	
Filters Probe and impinger rinses (acetone, toluene, hexane and water) XAD-2 resin trap	Polycyclic aromatic hydrocarbons	Documented In-House Method ENV PES 821	A
Sorbent tubes	Determination of Volatile organic compounds (speciated)	Documented In-House Method ENV PES 101	A
Filter Papers and Rinse Solutions	<u>Physical Testing</u>		
	Weighing of Particulate Matter	BS EN 13284-1:2002 BS ISO 9096:2003 (ENVPES 924)	A
Testing of Stack Emissions to Atmosphere	<u>Sampling and On-Line Analysis</u>	National, International and other recognised standards using documented In-House work instructions to meet the requirements of DD CEN/TS 15675:2007 / BS EN 15259:2007	
	Water vapour	US EPA Method 4 (ENVPES 927)	B
	Carbon monoxide	ISO 12039:2001 (ENVPES 911)	B
	Oxygen	ISO 12039:2001 (ENVPES 911)	B
Testing of Stack Emissions to Atmosphere	<u>Sampling with subsequent analysis by an ISO/IEC 17025 Accredited Laboratory</u>	National, European, International and Environment Agency specified standards including MIDs and Documented In-House work instructions to meet the requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007 / BS EN 15259:2007	
	Total Particulate Matter (0 to 50 mg/m ³)	BS EN 13284-1:2002 (ENVPES 926)	B



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Testing of Stack Emissions to Atmosphere	<u>Sampling with subsequent analysis by an ISO/IEC 17025 Accredited Laboratory</u>	National, European, International and Environment Agency specified standards including MIDs and Documented In-House work instructions to meet the requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007 / BS EN 15259:2007	
	Total Particulate Matter (20 to 1000 mg/m ³)	BS ISO 9096:2003 (ENVPES 926)	B
	Hydrogen Chloride	BS EN 1911-1:1998 (ENVPES 930)	B
	<u>Halides and Halogens</u> Hydrogen Bromide Chlorine Bromine	US EPA Methods 26 and 26a (ENVPES 930)	B
	Hydrogen sulphide	US EPA Method 11 (ENVPES 936)	B
	Hydrogen Fluoride	BS ISO 15713:2006 (ENVPES 944)	B
	Ammonia	BS EN 14791:2005 (ENVPES 946)	B
	Metals	BS EN 14385:2004 (ENVPES 929)	B
	Mercury	BS EN 13211:2001 (ENVPES 935)	B
	Dioxins and Furans	BS EN 1948-1:2006 (ENVPES 928)	B
	Polycyclic Aromatic Hydrocarbons (PAHs)	BS ISO 11338-1:2003 (ENVPES 945)	B
Sulphur dioxide	BS EN 14791:2005 (ENVPES 937)	B	



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Testing of Stack Emissions to Atmosphere	<u>Sampling and On-Line Analysis</u>	National, European, International and Environment Agency specified standards including MIDs and Documented In-House work instructions to meet the requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007 / BS EN 15259:2007	
	Pressure, Temperature and Velocity	BS EN 13284-1:2002 (ENVPES 926)	B
	Water Vapour	BS EN 14790:2005 (ENVPES 941)	B
	Carbon Dioxide*	ISO 12039:2001 (ENVPES 911 - NDIR analyser)	B
	Carbon Monoxide*	BS EN 15058:2006 (ENVPES 911 - NDIR analyser)	B
	Oxides of Nitrogen*	BS EN 14792:2005 (ENVPES 911 – Chemiluminescence analyser)	B
	Oxygen*	BS EN 14789:2005 (ENVPES 911 - Validated Zirconium cell analyser)	B
	Total Gaseous Organic Carbon* (TOC / VOC) (20 to 500 mg/m ³)	BS EN 13526:2002 (ENVPES 935 - FID analyser)	B
Total Gaseous Organic Carbon* (TOC / VOC) (0 to 20 mg/m ³)	BS EN 12619:1999 (ENVPES 935 - FID Analyser)	B	
END			

* - The scale range of the analyser used for this test must be that detailed on its current MCERTS certificate or a range validated by the organisation to meet MCERTS requirements.