


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>0967</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>ITS Testing Services (UK) Limited (Trading as Intertek Wilton)</p> <p>Issue No: 048 Issue date: 23 June 2021</p>	
	<p>C133 Wilton Centre Wilton Redcar Cleveland TS10 4RF</p>	<p>Contact: Mrs Leanne Armstrong Tel: +44 (0)1642 435708 E-Mail: leanne.armstrong@intertek.com Website: www.intertek.com/analytical-laboratories/wilton</p>
<p>Testing performed at the above address only</p>		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS Under flexible scope of accreditation</p>	<p><u>Chemical and Physical Tests</u></p> <p>Determinands limited to those already included in this schedule for the relevant analytical techniques</p>	<p>Analysis through the appropriate application of the Documented In-House Methods following the implementation of Flexible Scope procedure for extraction MSG-LAB-SOP-CHEM-126 using the following techniques:</p> <p>ICP-OES ICP-MS IC Vibrational Spectroscopy NMR Microscopy Migration Gravimetry</p> <p>Extraction techniques covered are: direct solvent extraction, filtration, soxhlet extraction and liquid/liquid extraction – or combinations of the above techniques.</p>



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POLYCRYSTALLINE AND AMORPHOUS MATERIALS	<p><u>Physical Characteristics of Materials by X-Ray Diffraction</u></p> <p>X-Ray Diffraction patterns in reflection or transmission geometry</p> <p>Phase identification from X-ray diffraction patterns using ICDD Powder Diffraction File database</p>	<p>Documented In-House Methods</p> <p>X-ray diffraction (XRD) MSG-LAB-SOP-XRD-8, -54 and -58 based on BS EN 13925-1:2003 BS EN 13925-2:2003 BS EN 13925-3:2005</p> <p>MSG-LAB-SOP-XRD-54</p>
INORGANIC AND ORGANIC MATERIALS	<p><u>Physical Tests</u></p> <p>Specific Surface Area</p>	<p>Documented In-House Methods</p> <p>Documented In-House Method MSG-SOP-LAB-SAP-03 based on BS ISO 9277-2010 (BET method of Nitrogen gas adsorption of solids)</p>
INORGANIC & ORGANIC PRODUCTS, POLYMERS, METALS, POWDERS, COMPOSITES AND PROCESS RELATED MATERIALS	<p><u>Elemental composition by Wavelength Dispersive X-Ray Fluorescence</u></p> <p>Semi-Quantitative Elemental analysis of Sodium (Z=11) to Uranium (Z=92)</p>	<p>Documented In-House Methods</p> <p>Wavelength Dispersive X-Ray Fluorescence MSG-LAB-SOP-XRF-30, -31, -32 and -99</p>



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Materials limited to those already included in this schedule for the relevant analytical techniques	<u>Chemical Tests by Inorganic Analysis</u>	Inorganic Analysis through the appropriate application of the Documented In-House Methods following the implementation of Flexible Scope Procedure MSG-LAB-SOP-IA-6 using the following techniques: XRF ICP-OES ICP-MS IC
	Introduction of new determinands Under flexible scope	
INORGANIC & ORGANIC PRODUCTS, POLYMERS, METALS, POWDERS, COMPOSITES AND PROCESS RELATED MATERIALS	Semi-Quantitative Elemental analysis of Li, Be, B, Na, Mg, Al, P, K, Ca, Sc, Ti, V, Cr, Fe, Mn, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Rb, Sr, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, Cs, Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Th & U	Inductively Coupled Plasma Mass Spectrometry (ICP-MS) MSG-LAB-SOP-ICP-51
	Quantitative elemental analysis of Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hg, Hf, Ho, In, Ir, K, La, Li, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pd, Pt, Rb, Re, Ru, Rh, Sb, Sc, Se, Si, Sm, Sn, Sr, Ta, Te, Th Ti, Tl, U, V, W, Y, Yb, Zn, Zr	Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) MSG-LAB-SOP-ICP-15, SOP-ICP-49, MSG-LAB-SOP-ICP-52, SOP-IA-5 or Inductively Coupled Plasma Mass Spectrometry (ICP-MS) MSG-LAB-SOP-ICP-51
AQUEOUS SOLUTIONS	Carbon, Hydrogen, Nitrogen, Sulphur and Chlorine	Thermal Oxidative Combustion MSG-LAB-XRF-020, 050, 100 and 101
	Loss on Ignition	Gravimetric Analysis
	pH	MSG-LAB-SOP-XRF-104
	Anions including Fluoride, Chloride, Bromide, Sulphate, Nitrite, Nitrate, Phosphate, Chlorate and Chlorite	Ion Chromatography MSG-Lab-SOP-XRF-103 and 106



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PLASTICS, POLYMERS AND COMPOSITES	<u>Mechanical Tests</u>	Documented In-House Methods Flexible scope enabling new versions of existing accredited standard test methods to be introduced in accordance with documented Intertek corporate procedure COR-PR-14 (Management of Change)
Plastics, polymers and composites	Dynamic Fatigue in Tension (Temperature range -50°C to +250°C)	Documented in-house method MSG-LAB-SAM-MTP-77
Plastics, polymers and composites	Impact – Charpy (Energy 1 to 4J) (Temperature range -50°C to +80°C)	ISO 179-1
Plastics, polymers and composites	Impact – Izod (Energy 1 to 22J) (Temperature range -50°C to +80°C)	ISO 180
Rigid Plastics, Polymers and Ebonite	Heat Distortion Temperature (HDT)	BS EN ISO 75-1 BS EN ISO 75-2
Plastic, Composites and Polymers	Tensile (Loads: 0.05N to 100 kN) (Temperature range -50°C to +250°C) (Strain to 1000%)	BS EN ISO 527-1 BS EN ISO 527-2 BS EN ISO 527-3 BS EN ISO 527-4 BS EN ISO 527-5 ASTM D638
Plastics, polymers and composites	Flexure (Loads: 0.05N to 100 kN) (Temperature range -50°C to +250°C)	BS EN ISO 178 ASTM D790
Non-Cellular Plastics and elastomers	Density	ISO 1183-1 Method A ASTM D792
Rigid Plastics, Polymers and composites	Compression (Loads: 0.05N to 100kN) (Temperature range -50°C to + 250°C)	BS EN ISO 604 ASTM D695
Thermoplastics	Vicat Softening Point	BS EN ISO 306 ASTM D1525



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ORGANIC CHEMICALS, POLYMERS, COMPOSITES, MONOMERS, SURFACTANTS, FORMULATIONS AND PROCESS RELATED MATERIALS	<u>Chemical Tests by Nuclear Magnetic Resonance</u>	Documented in-house methods
	Quantitative and Qualitative NMR Composition both Molar and weight/weight Chemical Identification Polymer Sequencing Polymers Distribution of isomers Average Mn Product Deformulation Competitive materials analysis	1H, 13C, DEPT. Solvent Suppression 2D NMR typically, COSY HMBC, HMQC HSQC, TOCSY, Multinuclear typically 31P,19F,11B, 29Si MSG-LAB-SOP-NMR—11 Using Spectrometers: JEOL ECS 400 JEOL Eclipse Nuclear Magnetic Resonance
	Polyethylene Terephthalate Co monomers	MSG-LAB-SAM-NMR -3, 4 Using Spectrometers: JEOL ECS 400 JEOL Eclipse Nuclear Magnetic Resonance
	End Group Analysis	MSG-LAB-SAM-NMR -21 Using Spectrometers: JEOL ECS 400 JEOL Eclipse Nuclear Magnetic Resonance
	Additives in Polyesters	MSG-LAB-SAM-NMR-249, 250, 253 Using Spectrometers: JEOL ECS 400 JEOL Eclipse Nuclear Magnetic Resonance
Poloxamer Testing	MSG-LAB-SAM-NMR-205 GPC/NMR MSG-LAB-SOP-NMR—31 Using Spectrometers: JEOL ECS 400 JEOL Eclipse Nuclear Magnetic Resonance	



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INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS	<p><u>Physical Tests by Microscopy</u></p> <p>Light Microscopy imaging and measurement of materials at various magnification</p> <p>SEM imaging and measurement of materials at various magnification</p> <p>TEM imaging and measurement of materials at various magnification</p> <p>Elemental identification and Qualitative Analysis</p>	<p>Documented In-House Methods</p> <p>Stereo Light Microscopy MSG-LAB-SOP-MIC-27, 52</p> <p>Transmission Light Microscopy MSG-LAB-SOP-MIC-15, 46, 51 All techniques available ie transmission, reflected, brightfield, darkfield phase, DIC, fluorescent, UV, etc</p> <p>MSG-LAB-SOP-MIC-59</p> <p>MSG-LAB-SOP-MIC-33</p> <p>MSG-LAB-SOP-MIC-58</p>



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INORGANIC & ORGANIC PRODUCTS, POWDERS, SUSPENSIONS AND EMULSIONS	<p><u>Physical Tests - Particle Size Distribution by Laser Diffraction</u></p> <p>Quantitative analysis enabling measurement of:</p> <p>Particle Size Distribution</p> <p>Between 0.04 and 2000 μm for water-based materials; between 0.4 and 2000 μm for dry powders and solvents</p>	<p>Documented in-house methods</p> <p>Laser Diffraction (using Coulter LS230 instrument) MSG-LAB-SOP-MIC—40, -41 and -43 based on BS ISO 133201-1</p>
INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS	<p><u>Physical Tests by Thermal Analysis</u></p> <p>Quantitative analysis by DSC, enabling measurement of:</p> <p>Crystallisation temperatures Degree of Crystallinity Enthalpy of fusion (Delta H) Enthalpy of re-crystallisation (Delta H) Glass transition temperatures (Tg) Melting points Phase transition temperatures Specific heat capacity (Cp)</p>	<p>Documented In-House Methods</p> <p>Differential Scanning Calorimetry (DSC) using MSG-LAB-SOP-TA-44 and MSG-LAB-SOP-TA-7</p>



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INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS	<u>Tests by Vibrational Spectroscopy</u>	Documented In-House Methods
	Measurement of mid-Infrared, Near-Infrared, far-Infrared spectra, Raman, & UV/Vis spectra	Transmission and reflection FTIR Spectroscopy using MSG-LAB-SOP-IR-15, 37, 45, 57, 61, 63
	Identification of unknown materials	FTIR microscopy (transmission, specular reflectance and μ ATR) using MSG-LAB-SOP-IR-57
		DRIFTS (Diffuse reflectance infrared spectroscopy) using MSG-LAB-SOP-IR-57, 61
	Identification of product/process contaminants and/or by-products	Raman spectroscopy using MSG-LAB-SOP-IR-46, 60
		Confocal Raman microscopy using MSG-LAB-SOP-IR-60
	Product deformulation	Attenuated total reflectance (ATR) FTIR spectroscopy (macro and micro) using MSG-LAB-SOP-IR-15, 37, 45, 57, 61
	Competitive materials analysis	Chemical imaging by Raman/FTIR mapping using MSG-LAB-SOP-IR-57, 60
	Structural elucidation of multilayer or multiphase systems e.g. composite materials, formulated pharmaceuticals and tableted/solid drug dose delivery systems	UV/vis transmission using MSG-LAB-SOP-IR-62
Analysis of surface composition and/or surface contamination	UV/vis reflectance (diffuse reflectance using integrating sphere) using MSG-LAB-SOP-IR-62	
Measurement of optical properties of materials (UV/Vis transmittance/reflectance/absorption)	Hot stage microscopy (FTIR and Raman) using MSG-LAB-SOP-IR-46, 57, 60, 61	



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<p>INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (continued)</p> <p>ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS</p>	<p><u>Tests by Vibrational Spectroscopy</u> (continued)</p> <p>Chemical imaging</p> <p>Reaction kinetics/mechanistic investigations, including Homogeneous Catalysis</p> <p>Analysis of surfaces of powders (inorganic, organic and metallic)</p> <p><u>Chemical Tests by Gel Permeation Chromatography</u></p> <p>Molecular weight distribution Average Mn polydispersity</p>	<p>Time-resolved spectroscopy using MSG-LAB-SOP-IR-46, 57, 60, 61</p> <p>Surface Enhanced Raman Spectroscopy (SERS) using MSG-LAB-SOP-IR-46, 60</p> <p>Process monitoring (by Raman) using MSG-LAB-SOP-IR-46</p> <p>Documented In-House Methods</p> <p>Gel permeation chromatography with refractive index, ELSD and UV-Vis detection and triple detection array</p> <p>MSG-LAB-SOP-GPC-1 to 5</p>



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<p>INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS</p>	<p><u>Chemical Tests by Chemical Analysis</u></p> <p>The following overall migration testing to demonstrate compliance with the European Commission Directive 1935/2004/EC "Materials and Articles in Contact with Food" and Commission Regulation No 10/2011. Plastic material in contact with food stuff using techniques such as: total immersion, single sided cell, reverse pouch and pouch using the European Standards EN 1186:2002 and the food simulants distilled water, 3% v/w acetic acid, 20% v/v aqueous ethanol, fat simulants or substitute fat simulants as laid down by the Commission Regulation No 10/2011.</p> <p>Overall migration and specific migration testing according to the EFSA guidelines in support of EFSA notification for a new food contact substance for food contact applications.</p>	<p>European EN 1186-1:2002 Guidelines for European overall migration testing for plastic materials and articles in contact with foodstuffs</p> <p>European EN 1186-2:2002 Overall migration into olive oil by total immersion</p> <p>European EN 1186-3:2002 Overall migration into aqueous simulants by total immersion</p> <p>European EN 1186-4:2002 Overall migration into olive oil by cell</p> <p>European EN 1186-5:2002 Overall migration into aqueous simulants by cell</p> <p>European EN 1186-9:2002 Overall migration into aqueous simulants by article filling</p> <p>European EN 1186-10:2002 Overall migration into olive oil (modified method where incomplete extraction of olive oil occurs)</p> <p>European EN 1186-13:2002 Overall migration at high temperatures</p> <p>European EN 1186-14:2002 "Substitute tests" for overall migration intended to come into contact with fatty foodstuffs using test media iso-octane and 95% ethanol</p> <p>European EN 1186-15:2002 Alternative test methods to migration in fatty food simulants by rapid extraction into iso-octane and 95% ethanol</p> <p>European EN 13130-2:2004 Determination of Terephthalic Acid in food simulants</p>



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INORGANIC & ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (continued)	<u>Chemical Tests by Chemical Analysis (continued)</u>	The following methods and specifications are described in the United States Regulations 21 CFR
Acrylic and modified acrylic plastics	Determination of total non-volatile extractives in solvents	177.1010
Components of paper and paperboard	Determination of total extractives and chloroform-soluble extractives	176.1700
Fluorocarbon resins	Determination of total extractives in solvents	177.1380
Nylon resins	Maximum extractable fraction in solvents	177.1500
Olefin polymers	Maximum extractable fraction in solvents	177.1520 (MSG-LAB-SAM-CHEM-26)
Perfluorocarbon resins	Total extractives and Fluoride extractives in solvents	177.1550
Polyaryletherketone resins	Determination of total extractives in solvents	177.1556
Poly(aryletherketone) resin	Determination of chloroform-soluble extractives	177.2415 (MSG-LAB-SAM-CHEM-15)
Polyethylene phthalate polymers	Determination of chloroform-soluble extractives	177.1630 (MSG-LAB-SAM-CHEM-21)
Rubber articles intended for repeated use	Determination of total extractives in solvents	177.2600



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ALL MATERIALS PREVIOUSLY LISTED ON THIS SCHEDULE Under flexible scope of accreditation	<u>Chemical Tests by Chemical Analysis</u> Determination of the mass of test material soluble in solvent under specified conditions	Analysis through the appropriate application of the Documented In-House Methods following the implementation of Flexible Scope procedure for extraction MSG-LAB-SOP-CHEM-126 Gravimetric analysis
END		