

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p><b>UKAS TESTING</b> 0967</p> <p>Accredited to <b>ISO/IEC 17025:2005</b></p>	<p><b>ITS Testing Services (UK) Limited</b> <b>(Intertek MSG Laboratory)</b></p> <p>Issue No: 024    Issue date: 23 April 2012</p>	
	<p>C131 Wilton Centre Wilton Redcar Cleveland TS10 4RF</p>	<p>Contact: Ms Trish Walker Tel: +44 (0)1642 435790 Fax: +44 (0)1642 435777 E-Mail: trish.walker@intertek.com Website: www.measurementscience.co.uk</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><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS</b></p> <p>Materials for <b>X-Ray Diffraction</b> may typically include:</p> <p>Solid materials that can be formed or sampled as specimens, including:</p> <p>Polymers Composites Inorganic and Organic Chemicals Catalysts Environmental and Process Materials and Contaminants Formulations Foodstuffs Adhesives Pharmaceuticals Electronic Materials</p> <p>Liquids can also be examined, including:</p> <p>Suspensions Colloids Surfactants</p>	<p><b><u>Physical &amp; Chemical Tests by X-Ray Diffraction</u></b></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>Polymer Crystallinity Index</p>	<p><b>Documented In-House Methods</b></p> <p>X-ray diffraction (XRD) based on</p> <p>BS EN 13925-1:2003 BS EN 13925-2:2003 BS EN 13925-3:2005</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Inorganic Analysis</b> may typically include:</p> <ul style="list-style-type: none"> <li>Adhesives</li> <li>Catalysts</li> <li>Coatings</li> <li>Deposits</li> <li>Extracts</li> <li>Feedstocks</li> <li>Fibres</li> <li>Filled Materials</li> <li>Films</li> <li>Filters</li> <li>Food Contact Materials</li> <li>Foodstuffs</li> <li>Formulations</li> <li>Lubricants</li> <li>Metals</li> <li>Natural &amp; Synthetic Polymers</li> <li>Oils Process Liquors</li> <li>Oxides</li> <li>Packaging</li> <li>Petrochemicals</li> <li>Pharmaceuticals</li> <li>Powders</li> <li>Processing Additives</li> <li>Raw Materials</li> <li>Residues</li> <li>Stabilisers</li> <li>Surfactants</li> <li>Supports</li> <li>Waste Streams</li> </ul>	<p><b><u>Chemical Tests by Inorganic Analysis</u></b></p> <p>Semi-Quantitative and Quantitative Elemental Analysis including:</p> <p>Catalyst Residues, Markers, Processing Additives, Stabilisers, Lubricants, Fillers, Poisons, Contamination, Trace Elements, Heavy metals, Corrosion</p> <p>CHNS Analysis</p> <p>Trace Sulphur</p> <p>Trace Chlorine</p> <p>Trace Nitrogen</p> <p>Mercury</p> <p>Arsenic</p> <p>Loss on Ignition</p> <p>Halides, Sulphate &amp; other Ions</p>	<p><b>In-House Methods using documented guidelines for single laboratory validation of methods of analysis using the techniques:</b></p> <p>Wavelength Dispersive X-Ray Fluorescence</p> <p>Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)</p> <p>Inductively Coupled Plasma Mass Spectroscopy (ICP-MS)</p> <p>Oxidative Combustion</p> <p>Pyrolysis with Atomic Absorption Spectrometry</p> <p>Inductively Coupled Plasma Mass Spectroscopy</p> <p>Inductively Coupled Plasma Optical Emission Spectroscopy</p> <p>Gravimetric Analysis</p> <p>Ion Chromatography</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Mechanical Testing</b> may typically include:</p> <p>Adhesives Polymers Resins Composites/Filled Materials Films Polymer Granules Wood Packaging</p>	<p><b><u>Mechanical Tests</u></b></p> <p>Static, oscillating and ramp measurement of strength, stiffness and toughness in tensile, compressive and flexural mode ranges. Sub-ambient to elevated temperatures, loads to 100 kN.</p> <p>Long Term Tests:</p> <p>Tensile Creep Testing 23°C to + 250°C</p> <p>Creep Rupture (Static Fatigue) 23°C to +250°C</p> <p>Environmental Creep Rupture (Static Fatigue) at 23°C</p> <p>Dynamic Fatigue in Tension -70°C to +250°C</p> <p>Impact - Charpy (Energy 1 to 22J) (Temperature range -70°C to +80°C)</p> <p>Impact - Izod (Energy 1 to 22J) (Temperature range -70°C to +80°C)</p> <p>Heat Distortion Temperature (HDT)</p>	<p><b>Documented In-House Methods</b></p> <p>Universal testing machines</p> <p>Creep Testing Equipment</p> <p>Creep Rupture Equipment</p> <p>Environmental Creep Rupture Equipment</p> <p>Pneumatic Fatigue Sites and Universal Testing Machines</p> <p>ISO 179:2001</p> <p>ISO 180:2001</p> <p>ISO 75:2004</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Mechanical Testing</b> may typically include: (cont'd)</p> <p>Adhesives Polymers Resins Composites/Filled Materials Films Polymer Granules Wood Packaging</p>	<p><b><u>Mechanical Tests</u></b> (cont.)</p> <p>Tensile (Loads: 0.05N to 100 kN) (Temperature range -70°C to +350°C) (Strain to 1000%)</p> <p>Flexure (Loads: 0.05N to 100 kN) (Temperature range -70°C to +350°C)</p> <p>Density Compression (Loads: 0.05N to 100 kN) (Temperature range -70°C to +350°C)</p>	<p><b>Documented In-House Methods</b></p> <p>BS EN ISO 527-1:1993 BS EN ISO 527-2:1993 BS EN ISO 527-3:1996 BS EN ISO 527-4:1997 BS EN ISO 527-5:1997 BS 2782:Part 3: Methods 320C to 320F:1976 ASTM D638-10</p> <p>BS EN ISO 178:2001 BS 2782: Part 3: Method 335A ASTM D790-10</p> <p>In-house method BS EN ISO 604:2003 ASTM D695-10</p>



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<p><b>ORGANIC CHEMICALS, POLYMERS, COMPOSITES , MONOMERS, SURFACTANTS, FORMULATIONS AND PROCESS RELATED MATERIALS</b></p> <p>Materials for <b>NMR</b> may typically include:</p> <p>Adhesives Cast Polymers Cured andUncured Resins Films Polymer Shrink Packaging Heat seal Polymers PET Hot melt polymers Oil field chemicals Acrylics Polypropylene Polyethylene Polyamides Polyurethanes Polyesters Surfactants Lubricants Epoxides EO/PO copolymers Ethoxylates Propoxylates</p>	<p><b><u>Chemical Tests by Nuclear Magnetic Resonance</u></b></p> <p>Quantitative and Qualitative NMR to determine/identify:</p> <p>Impurities</p> <p>Composition both Molar and weight/weight</p> <p>Chemical Identification</p> <p>End Group Analysis</p> <p>Polymer Sequencing</p> <p>Tacticity</p> <p>Distribution of isomers</p> <p>Distribution of isomers</p> <p>Average Mn</p> <p>Deformulation</p> <p>Additive Analysis</p> <p>Chemical Identification</p> <p>Distribution of isomers</p> <p>Kinetic studies</p>	<p><b>Documented In-House Methods</b></p> <p>Nuclear Magnetic Resonance GPC/NMR, <sup>1</sup>H, <sup>13</sup>C, DEPT 135. 45 and 90, 2D NMR typically, COSY, HMBC, HMQC HETCOR, TOCSY, Multinuclear typically <sup>31</sup>P, <sup>19</sup>F, <sup>11</sup>B, <sup>27</sup>Al, <sup>29</sup>Si</p> <p>Using Spectrometers:</p> <p>JEOL Lambda 300 JEOL GSX 400 JEOL Eclipse 500</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS</b></p> <p>Materials for <b>Microscopy</b> may typically include:</p> <ul style="list-style-type: none"> <li>Additives</li> <li>Adhesives</li> <li>Catalysts</li> <li>Ceramics</li> <li>Coatings</li> <li>Colloids</li> <li>Composites</li> <li>Contamination</li> <li>Corrosion Products</li> <li>Deposits</li> <li>Dyes</li> <li>Electronics</li> <li>Environmental</li> <li>Epoxy</li> <li>Fibres</li> <li>Fillers</li> <li>Films</li> <li>Filters</li> <li>Foods</li> <li>Greases</li> <li>Hydrocarbons</li> <li>Impurities</li> <li>Inorganics</li> <li>Lacquers</li> <li>Laminates</li> <li>Liquids</li> <li>Lubricants</li> <li>Machine Parts</li> <li>Medical Devices</li> <li>Metals</li> <li>Monomers</li> <li>Nano Materials</li> <li>Oils</li> <li>Organics</li> <li>Paints</li> <li>Pharmaceuticals</li> <li>Pigments</li> <li>Plastics</li> <li>Polymers</li> <li>Powders</li> </ul>	<p><b><u>Physical Tests by Microscopy</u></b></p> <p>Light Microscopy imaging of materials at various magnification</p> <p>SEM imaging of materials at various magnification</p> <p>TEM imaging of materials at various magnification</p> <p>Elemental identification and Qualitative Analysis</p>	<p><b>Documented In-House Methods</b></p> <p>Stereo Light Microscopy</p> <p>Transmission Light Microscopy</p> <p>All techniques available ie transmission, reflected, brightfield, darkfield phase, DIC, fluorescent, UV, etc</p> <p>SEM - SECONDARY</p> <p>SEM - BACKSCATTER</p> <p>SEM - CRYO</p> <p>TEM - BRIGHTFIELD</p> <p>TEM - DARKFIELD</p> <p>SEM - EDX</p> <p>TEM - EDX</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Surface Analysis</b> may typically include:</p> <ul style="list-style-type: none"> <li>Adhesives</li> <li>Biomaterials</li> <li>Cast Polymers</li> <li>Catalysts</li> <li>Ceramics</li> <li>Coated Materials</li> <li>Composites</li> <li>Cured and Uncured Resins</li> <li>Extruded Materials</li> <li>Fibres</li> <li>Filled Materials</li> <li>Films</li> <li>Foodstuffs</li> <li>Glass</li> <li>Laminated Materials</li> <li>Lubricants</li> <li>Medical Devices</li> <li>Metals</li> <li>Natural Products</li> <li>Packaging Materials</li> <li>Pharmaceutical Ingredients</li> <li>Plastics</li> <li>Polymers</li> <li>Polymer Additives</li> <li>Polymer Granules</li> <li>Powders</li> <li>Printed Materials</li> <li>Rubbers</li> <li>Semiconductors</li> <li>Surface Engineered Materials</li> <li>Surfactants</li> </ul>	<p><b><u>Chemical and Physical Tests by Surface Analysis</u></b></p> <p>Qualitative and Quantitative Analysis by XPS/ESCA enabling measurement of:</p> <p>Identification of elements and chemistry present in the surface region</p> <p>Quantification of elements and chemistry present in the surface region</p> <p>Identification and Quantification of functional groups and oxidation states</p> <p>Adhesion 'Plane of Failure' analysis</p> <p>Mapping of surface elemental and chemical distribution</p> <p>Work Function</p> <p>Coating thickness</p>	<p><b>Documented In-House Methods</b></p> <p>X-Ray Photoelectron Spectroscopy (XPS)/Electron Spectroscopy for Chemical Analysis (ESCA)</p> <p>XPS and Imaging XPS using the Kratos 'Axis Ultra' X-ray Photoelectron Spectrometer</p> <p>MSG-LAB-SOP-SA-27 XPS/ESCA calibration procedure for the Kratos 'Axis Ultra'</p> <p>MSG-LAB-SOP-SA-28 XPS/ESCA experimental procedure for the Kratos 'Axis Ultra'</p> <p>MSG-LAB-SAM-SA-1 The determination of surface elemental composition by XPS/ESCA</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Thermal Analysis</b> may typically include:</p> <ul style="list-style-type: none"> <li>Adhesives</li> <li>Cast Polymers</li> <li>Ceramics</li> <li>Composites</li> <li>Cured and Uncured Resins</li> <li>Extruded Materials</li> <li>Filled Materials</li> <li>Films</li> <li>Foodstuffs</li> <li>Metals</li> <li>Plastics</li> <li>Polymer Granules</li> <li>Powders</li> <li>Rubbers</li> <li>Shrink Packaging</li> <li>Surfactants</li> </ul>	<p><b><u>Physical Tests by Thermal Analysis</u></b></p> <p>Quantitative analysis by DSC, enabling measurement of:</p> <ul style="list-style-type: none"> <li>Crystallisation temperatures</li> <li>Degree of Crystallinity</li> <li>Enthalpy of fusion (Delta H)</li> <li>Enthalpy of re-crystallisation (Delta H)</li> <li>Glass transition temperatures (Tg)</li> <li>Melting points</li> <li>Phase transition temperatures</li> <li>Specific heat capacity (Cp)</li> </ul> <p>Quantitative analysis by TMA, enabling measurement of:</p> <ul style="list-style-type: none"> <li>Coefficient of linear thermal expansion (CLTE)</li> <li>Dimensional change with temperature or force variation</li> <li>Material anisotropy</li> <li>Softening point (penetration and indentation studies)</li> </ul>	<p><b>Documented In-House Methods</b></p> <p>Differential Scanning Calorimetry (DSC)</p> <p>Thermomechanical Analysis (TMA)</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Vibrational Spectroscopy</b> may typically include:</p> <p>Solids, liquids or gases</p> <p>Additives Adhesives Catalyst materials Coatings Composite materials Experimental products Formulations Inorganic pigments/powders/ additives Manufactured polymer articles Medical devices Pharmaceuticals Plastics Process or Production contaminants Process related chemicals</p>	<p><b><u>Tests by Vibrational Spectroscopy</u></b></p> <p>Measurement of mid-Infrared, Near-Infrared, far-Infrared spectra, Raman, &amp; UV/Vis spectra</p> <p>Coat weight measurement</p> <p>Crystallinity and orientation in polymers</p> <p>Quantitative analysis of comonomers for polymer composition</p> <p>Identification of unknown materials</p> <p>Identification of product/process contaminants or by-products</p> <p>Product deformation</p> <p>Competitive materials analysis</p> <p>Structural elucidation of complex articles e.g. multilayer films, laminates, packaging materials, composites</p> <p>Analysis of surface composition and/or surface contamination</p> <p>Measurement of optical properties of materials (UV/vis transmittance/ reflectance/absorption)</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><b>Documented In-House Methods:</b></p> <p>Transmission and reflection FTIR spectroscopy</p> <p>FTIR microscopy (transmission, specular reflectance and <math>\mu</math>ATR)</p> <p>DRIFTS (Diffuse reflectance infrared spectroscopy)</p> <p>Photoacoustic FTIR spectroscopy</p> <p>FTIR global imaging</p> <p>Raman spectroscopy Confocal Raman microscopy</p> <p>Attenuated total reflectance (ATR) FTIR spectroscopy (macro and micro)</p> <p>Chemical imaging by Raman/FTIR mapping</p> <p>UV/vis transmission</p> <p>UV/vis reflectance (diffuse reflectance using integrating sphere)</p> <p>Hot stage microscopy (FTIR and Raman)</p> <p>Time-resolved spectroscopy</p> <p>spectroscopy)</p> <p>Surface Enhanced Raman Spectroscopy (SERS)</p> <p>Process monitoring (by Raman)</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Separation Science</b> may typically include:</p> <p>Air Chemicals Chemical Formulations Gases Polymers Polymer Articles Water Waste Waters</p>	<p><b><u>Chemical Tests by Separation Science</u></b></p> <p>Qualitative compositional analysis of Volatile Components</p> <p>Quantitative compositional analysis</p> <p>Quantitative analysis of monomers, solvents, volatile organic compounds</p> <p>Compositional Analysis of monomers and impurities</p> <p>Molecular Weight Distribution</p> <p>Qualitative and Quantitative analysis of Ionic components including organic acids</p> <p>Qualitative and Quantitative analysis of compounds</p> <p>Carbon Number distribution</p> <p>Paraffins, naphthenes and aromatics</p> <p>Qualitative and Quantitative Analysis of gases</p>	<p><b>Documented In-House Methods:</b></p> <p>Headspace-GC-MS</p> <p>Thermal Desorption-GC SOP/GC/MS/9</p> <p>Headspace-GC</p> <p>HPLC with diode array, uv, ELSD, fluorescence, conductimetric and electrochemical detection</p> <p>Gel Permeation Chromatography with Refractive Index and UV-vis detection and triple detection array</p> <p>HPLC</p> <p>Gas Chromatography with Packed Columns, Capillary Columns, Multi Dimensional Systems, Thermal Desorption, Flame Ionisation Detection, Thermal Conductivity Detection and mass spectrometric detection</p> <p>GC - FID</p> <p>GC - FID</p> <p>Gas Chromatography, Gas Chromatography - Mass Spectrometry</p>



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<p><b>AQUEOUS SOLUTIONS, ORGANO-METALLIC COMPLEXES, ORGANIC CHEMICALS, POLYMERS, COMPOSITES, MONOMERS, SURFACTANTS, FORMULATIONS AND PROCESS RELATED MATERIALS</b></p> <p>Materials for <b>Mass Spectrometry</b> may typically include:</p> <p>Adhesives Cast Polymers Cured and Uncured Resins Ethylene Vinyl Acetates Films Polymer Shrink Packaging Heat seal Polymers PET Hot melt polymers Oil field chemicals Acrylics Polypropylene Polybutadiene Polyethylene Polyamides Polyurethanes Polyesters Surfactants Lubricants Epoxides EO/PO copolymers Ethoxylates Propoxylates Vinyl Alcohol Vinyl Acetate</p>	<p><b><u>Chemical Tests by Mass Spectrometry</u></b></p> <p>Polymer end groups differentiation between cyclic and linear oligomers</p> <p>Average Mn Polydispersity</p> <p>Deformulation</p> <p>Chemical Identification of semi-volatile species</p> <p>Characterisation of cross-linked or insoluble polymers</p> <p>Characterisation of low level volatiles, undesirable impurities, identification of oligomeric species</p> <p>Quantification Additive/impurities/waste streams</p> <p>Evolved volatiles and thermal degradation characterisation of volatile components</p> <p>Characterisation of non-soluble polymers</p> <p>Identification and quantification of migratory species</p>	<p><b>Documented In-House Methods:</b></p> <p>Prerequisite Standard Operating Procedures (SOPS) Standard Analytical Methods (SAMS)</p> <p>Mass spectrometry using EI/CI/FD/FI/ESI/APCI Ionisation</p> <p>Gas Chromatography - Mass Spectrometry (GC-MS)</p> <p>Liquid Chromatography - Mass Spectrometry LC-MS/MS</p> <p>Matrix assisted laser desorption Ionisation time of flight mass-spectrometry MALDI-TOF</p> <p>Gel-permeation Chromatography-mass spectrometry (GPC-MS)</p> <p>Thermal desorption (TD) GC-MS Head space GC-MS</p> <p>Pyrolysis GC-MS (Py-GC-MS)</p>



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Issue No: 024    Issue date: 23 April 2012

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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS</b></p> <p>Materials for <b>Chemical Analysis</b> may typically include:</p> <p>Materials and articles in contact with foodstuffs – plastic:</p> <p>Acrylics (PMMA) Cellophane Cellulose Closures/sealing gaskets for polymers Components of paper and cardboard Ethylene vinyl acetate (EVA) Liquids Nylon Polymers Olefin Polymers Organic Compounds PEK Polymers Perfluorocarbons (PTFE) Plastic Polymers Polyamide (PA) Polyetheretherketone (PEEK) Polyethylene (PE) Polyethylene phthalate (PET) Polypropylene (PP) Polystyrene (PS) Polysulphone (PES) Polyvinylchloride (PVC) Polymeric coatings on metal substrates, glass cloth, paper and paperboard Solids Textiles</p>	<p><b><u>Chemical Tests by Chemical Analysis</u></b></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 2002/72/EC and subsequent amendments up to 2008/39/EC. 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, 10% v/v aqueous ethanol, fat simulants or substitute fat simulants as laid down by the Commission Directives 85/572/EEC and 93/8/EEC amending 82/711/EEC.</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><b>Documented In-House Methods:</b></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 1186-6:2002 Overall migration into olive oil using a pouch</p> <p>European EN 1186-7:2002 Overall migration into aqueous simulants using a pouch</p> <p>European EN 1186-8:2002 Overall migration into olive oil by article filling</p> <p>European EN 1186-9:2002 Overall migration into aqueous simulants by article filling</p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Chemical Analysis</b> may typically include: (cont'd)</p> <p>Materials and articles in contact with foodstuffs - plastic: (cont'd)</p> <p>Acrylics (PMMA) Cellophane Cellulose Closures/sealing gaskets for polymers Components of paper and cardboard Ethylene vinyl acetate (EVA) Liquids Nylon Polymers Olefin Polymers Organic Compounds PEK Polymers Perfluorocarbons (PTFE) Plastic Polymers Polyamide (PA) Polyetheretherketone (PEEK) Polyethylene (PE) Polyethylene phthalate (PET) Polypropylene (PP) Polystyrene (PS) Polysulphone (PES) Polyvinylchloride (PVC) Polymeric coatings on metal substrates, glass cloth, paper and paperboard Solids Textiles</p>	<p><b><u>Chemical Tests by Chemical Analysis</u></b> (cont.)</p> <p>European Overall and Specific Migration guide laying down the basic rules Directives, 82/711/EEC 85/572/EEC and 94/62/EC</p>	<p><b>Documented In-House Methods:</b></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 1186-12:2002 Overall migration at low temperatures</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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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS, COMPOSITES AND PROCESS RELATED MATERIALS (cont'd)</b></p> <p>Materials for <b>Chemical Analysis</b> may typically include: (cont'd)</p> <p>Materials and articles in contact with foodstuffs - plastic: (cont'd)</p> <p>Acrylics (PMMA) Cellophane Cellulose Closures/sealing gaskets for polymers Components of paper and cardboard Ethylene vinyl acetate (EVA) Liquids Nylon Polymers Olefin Polymers Organic Compounds PEK Polymers Perfluorocarbons (PTFE) Plastic Polymers Polyamide (PA) Polyetheretherketone (PEEK) Polyethylene (PE) Polyethylene phthalate (PET) Polypropylene (PP) Polystyrene (PS) Polysulphone (PES) Polyvinylchloride (PVC) Ploymeric coatings on metal substrates, glass cloth, paper and paperboard Solids Textiles</p>	<p><b><u>Chemical Tests by Chemical Analysis</u></b> (cont.)</p> <p>Total extractives in solvents including chloroform extractable, xylene soluble, hexane soluble, fluoride and heavy metals for polymers, resins, paper and paperboard and adhesives as specified in the FDA Code of Federal Regulations parts 21 CFR 175, 21 CFR 176 and 21 CFR 177</p> <p>Overall migration and specific migration testing according to the FDA guidelines in support of FDA notification for a new food contact substance indirect or direct food contact</p>	<p><b>Documented In-House Methods:</b></p>



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<p><b>INORGANIC &amp; ORGANIC CHEMICALS, POLYMERS AND AQUEOUS SUSPENSIONS, SURFACTANTS, TEXTILES</b></p> <p>Materials for <b>Chemical Analysis</b> may typically include:</p> <p>Surfactants Polymers Polymer Aqueous Suspensions</p>	<p><b><u>Chemical Tests</u></b></p> <p>The determination of:</p> <p>Ammonium perfluoro octanoate (APFO)</p>	<p><b>Documented In-House Methods:</b></p> <p>SAM/CHEM/PAF9</p>
	<p align="center">END</p>	