


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>Accredited to ISO/IEC 17025:2017</p>	<h3>Tun Abdul Razak Research Centre</h3> <p>Issue No: 035 Issue date: 09 October 2023</p>	
	<p>Brickendonbury Hertford Hertfordshire SG13 8NL</p>	<p>Contact: Ms J Patel Tel: +44 (0)1992 584966 Fax: +44 (0)1992 554837 E-Mail: jpatel@tarrc.co.uk Websites: www.tarrc.co.uk www.rubberconsultants.com</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>RUBBERS/ELASTOMERS, RUBBER/ELASTOMER PRODUCTS AND MATERIALS IN CONTACT WITH RUBBER</p>	<p><u>Chemical Tests</u></p>	
	<p>Aromaticity of oils extracted from rubbers/rubber compounds</p>	<p>Documented In-House Method 093a using NMR according to ISO 21461:2012</p>
	<p>Ash content</p>	<p>Documented In-House Method 001 based on ISO 247:1990</p>
	<p>Nitrosamine testing of rubber</p>	<p>Documented In-House Method 051 using Gas Chromatography with Nitrogen Chemiluminescence Detection, covering BS EN 12868:1999 and BS ISO 29941:2010</p>
	<p>Qualitative and Quantitative Analysis for rubber identification and content</p>	<p>Documented In-House Methods using:</p> <ul style="list-style-type: none"> - Thermogravimetric Analysis (TGA): method 011 - Differential Scanning Calorimetry (DSC): method 012a - FT-IR Spectroscopy: Method 031a - Pyrolysis with Infra-Red (PIR) including surface ATR Spectroscopy: method 031b - TG-IR interface Method 031c (IR interfaced to TGA)



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RUBBERS/ELASTOMERS, RUBBER/ELASTOMER	<u>Chemical Tests</u> (cont'd)	Documented In-House Methods using:
PRODUCTS AND MATERIALS IN CONTACT WITH RUBBER (cont'd)	Elemental Analysis: Aluminium Antimony Arsenic Barium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Selenium Silicon Sulphur Tin Titanium Vanadium Zinc	Inductively Coupled plasma with Atomic Emission Spectroscopy (ICP-AES): method 081
RUBBER, POLYMERS, PLASTICS, ELASTOMERS		Documented In-House Methods using:
RUBBER, POLYMER, PLASTIC, ELASTOMER PRODUCTS	Identification of elements for composition analysis, reverse engineering filler type, or contamination	Scanning Electron Microscopy (SEM) with Energy Dispersive X-ray Spectrometry (EDS), Line-scans and X-ray Mapping Spectrometry: methods 072b and 072d
MATERIALS IN CONTACT WITH RUBBERS, POLYMERS, PLASTICS, ELASTOMERS		



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MATERIALS IN CONTACT WITH RUBBERS, POLYMERS, PLASTICS, ELASTOMERS	<u>Chemical and Physical Test</u>	Documented In-House Methods using:
RUBBER, POLYMERS, PLASTICS, ELASTOMERS	Qualitative scanning electron microscopy (SEM) using magnifications in the range 1.5x to 300,000x	- Scanning Electron Microscopy (SEM): method 072c
RUBBER, POLYMER, PLASTIC, ELASTOMER PRODUCTS	Quantitative measurement of length using magnifications in the range 50x to 30,000x	
	Sample preparation for scanning electron microscopy (SEM)	- Sample preparation for scanning electron microscopy (SEM); method 072a
RUBBERS, POLYMERS, PLASTICS, ELASTOMERS	<u>Physical Tests</u>	
RUBBER, POLYMER, PLASTIC, ELASTOMER PRODUCTS	Optical Microscopy/Qualitative Analysis	Documented In House Method using:
MATERIALS IN CONTACT WITH RUBBERS, POLYMERS, PLASTICS, ELASTOMERS	Quantitative measurement of length using magnifications in the range: 100x to 625x for phase contrast and 20x to 625x for transmitted, incident, bright field, and dark field imaging (using compound optical microscope)	- Compound Optical Microscope including phase contrast, transmitted and incident light, bright field and dark field imaging, Method 071a
	4x to 112x using stereo optical microscope	- Stereo Optical Microscope with digital camera: Method 071c - Zoom lens with digital camera for low magnification imaging: method 071b
TYRES - COMMERCIAL AND PASSENGER VEHICLES	<u>Performance Test</u>	Documented In-House Method based on, and meeting the requirements of, ECE 30, 54, 108 and 109 (TTL 002)
	Endurance 200 - 5000 kgf	

END