


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS TESTING</p> <p>2744</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>SGS Analytics United Kingdom Limited</p> <p>Issue No: 020 Issue date: 08 April 2021</p>	
	<p>Unit 6 Parc Caer Seion Conwy Wales LL32 8FA</p>	<p>Contact: Aneka Cheeseman Tel: +44 (0)191 243 0871 E-Mail: Aneka.Cheeseman@sgs.com Website: www.sgs.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
PETROLEUM and PETROLEUM PRODUCTS	<u>Chemical and Physical Tests</u>	International Standard IP and ASTM Test Methods. Documented In-House Methods in the code format LM
Oils	Chlorine	LM-39 using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES)
	Dielectric breakdown	LM-9 based on BS EN 60156
	Flash Point (Pensky Martens Closed Cup)	LM-15 based on ASTM Method D93
	Oil Cleanliness	LM-44 in-house procedure for international method BS EN ISO 4406
	Total Acid Number	LM-7 based on IP Method IP 177
	Total Acid Number	LM-6 based on IP Method IP 139
	Total Base Number	LM-4 based on IP Method IP 276
	Viscosity	LM-3 based on ASTM D7279
	Apparent Viscosity	ASTM D5293-20 using Cannon Thermoelectric Cold Cranking Simulator CCs 2100 LT
	Viscosity	ASTM D4683-20 using Tannas TBS22100E-F-HTHS tapered Bearing viscometer at 150°C



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PETROLEUM and PETROLEUM PRODUCTS (cont'd)	<u>Chemical and Physical Tests</u> (cont'd)	
	Kinematic Viscosity at 50 & 100°C	IP71 part 1 1997 (2017) using U-tube viscometer
	Water content (up to 25%)	IP74/2000 (2014) by distillation
	Noack Volatility	ASTM D5800-20 using ISL NCK2 5G
	Water Content	LM-8 based on ASTM Method D1533 and LM-33 based on ASTM method D6304
	Density	LM-51 based on IP method IP 160
	Density – Oscillating U-Tube Method	BS EN ISO 12185:1996, IP 365/97 (2020) using Anton Paar DMA 4100 M Densitometer
	Carbon Residue – Micro Method 0.1 – 30 % m/m	BS EN ISO 10370:2014, IP 398/15 (2004) using Alcor MCRT-160 Micro Carbon Residue Tester
	Carbon Residue – Micro Method on the 10 % Volume Distillation Residue 0.01 – 0.47 % m/m	
	Distillation Characteristics at Atmospheric Pressure	BS EN ISO 3405:2011 (superseded), IP 123/11 (14) using Tanaka AD-6 Audot Distillation Tester
Cloud Point	LM-45 based on IP method IP 219	
Pour Point	LM-18 based on IP method IP 15	



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PETROLEUM and PETROLEUM PRODUCTS (cont'd)	<p><u>Chemical and Physical Tests</u> (cont'd)</p> <p>Wear Metals: Aluminium Barium Boron Cadmium Calcium Chromium Copper Iron Lead Lithium Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Silicon Silver Sodium Sulphur Tin Titanium Vanadium Zinc</p> <p>Metals: Aluminium Calcium Iron Nickel Phosphorus Sodium Silicon Vanadium Zinc</p> <p>Sulphur content (0.03-5%)</p>	<p>LM-5 using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) based on ASTM Method D5185</p> <p>IP501/05 (2019) using ICP</p> <p>ASTM D4294-16e1 using energy dispersive X-ray Fluorescence Spectrometry</p>



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PETROLEUM and PETROLEUM PRODUCTS (cont'd) Insulating oils	<u>Chemical and Physical Tests</u> (cont'd) Polychlorinated biphenyls (Total)	LM-41 and LM-104 using extraction, SPE clean-up and capillary GC-ECD, based on BS EN 61619:1997
END		