


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS REFERENCE MATERIALS 27393</p> <p>Accredited to ISO 17034:2016</p>	ARO Scientific Ltd	
	Issue No: 003	Issue date: 15 September 2025
	Unit 1 Bridgeway Business Park Ditton Road Widnes WA8 0QE	Contact: Miss Lucey Burke Tel: +44 (0)151 424 2828 E-Mail: lb@aroscientific.com Website: www.aroscientific.com
Reference material production at the above address		

DETAIL OF ACCREDITATION

Matrix / Artefact	Property Value(s) / Identity / Characterisation Range	Characterisation Procedure / Technique	Type* (CRM / RM)
<u>Certified Reference Materials with Flash Point Properties</u> Petroleum Products, Base, Blended and Fuel Oils	Flash point, Pensky-Martens closed cup	Measurement by a method specific, interlaboratory study ASTM D93 Procedure A & B IP 34 ISO 2719	CRM
Petroleum Products, Base, Blended and Fuel Oils	Flash point, Cleveland open cup	Measurement by a method specific, interlaboratory study ASTM D92 IP36 ISO 2592 EN 2592	CRM
Petroleum Products, Base, Blended and Fuel Oils	Abel Flash Point	Measurement by a method specific, interlaboratory study IP 170, ISO 13736, or technically equivalent	CRM
Petroleum Products, Base, Blended and Fuel Oils	Flash Point, Tag Closed Cup	Measurement by a method specific, interlaboratory study ASTM D56, or technically equivalent	CRM



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<u>Secondary Working Standard Reference Materials with Flash Point Properties</u> Petroleum Products, Base, Blended and Fuel Oils Petroleum Products, Base, Blended and Fuel Oils	Flash Point, Pensky-Martens Closed Cup	Measurement by a single primary method at ARO in accordance with ASTM D93 Procedure A and B, IP 34, ISO 2719, or technically equivalent.	CRM
	Flash Point, Cleveland Open Cup	Measurement by a single primary method at ARO in accordance with ASTM D92, IP 36, ISO 2592, EN 2592, or technically equivalent.	CRM
<u>Certified Reference Materials with Pour Point Properties</u> Petroleum Products, Base, Blended and Fuel Oils	Pour Point	Measurement by a method specific, interlaboratory study ASTM D97, IP 15, ISO 3016, BS 2000: Part 15, or technically equivalent.	CRM
<u>Certified Reference Materials with Cloud Point Properties</u> Petroleum Products, Base, Blended and Fuel Oils	Cloud Point	Measurement by a method specific, interlaboratory study ASTM D2500, IP 219, ISO 3015, EN 23015, or technically equivalent.	CRM
<u>Certified Reference Materials with Cold Filter Plugging Point Properties</u> Petroleum Products, Base, Blended and Fuel Oils	Cold Filter Plugging Point (CPPP) -	Measurement by a method specific, interlaboratory study ASTM D6371, IP 309, EN 116, BS 2000: Part 309, or technically equivalent.	CRM



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<u>Certified Reference Materials with Distillation Properties</u> Petroleum Products, Base, Blended and Fuel Oils	Distillation Properties	Measurement by a method specific, interlaboratory study ASTM D86, IP 123, ISO 3405, EN ISO 3405, or technically equivalent.	CRM
<u>Certified Reference Materials with Colour Properties</u> Petroleum Products, Base, Blended and Fuel Oils	ASTM Colour	Measurement by a single, primary, method at a laboratory (spectrophotometry) ASTM D6045	CRM
Petroleum Products, Base, Blended and Fuel Oils	Saybolt Colour	Measurement by a single, primary, definitive method at a laboratory (spectrophotometry) ASTM D6045 ASTM D156	CRM
Petroleum Products, Base, Blended and Fuel Oils	Gardner colour	Measurement by a single, primary, definitive method at a laboratory (spectrophotometry) ASTM D6166 ASTM D1544	CRM
<u>Certified Reference Materials with Other Properties</u> Petroleum Products, Base, Blended and Fuel Oils	Acid Number (AN) Total Acid Number (TAN)	Measurement by single primary method at ARO in accordance with ASTM D664	CRM
Petroleum Products, Base, Blended and Fuel Oils	Base Number (BN) Total Base Number (TBN)	Measurement by single primary method at ARO in accordance with ASTM D2896	CRM
Petroleum Products, Base, Blended and Fuel Oils	Sulfur content	Measurement by Gravimetric preparation	CRM
Kerosene and Aviation Turbine Fuels	Smoke Point	Measurement by a method specific, interlaboratory study ASTM D1322, or technically equivalent	CRM



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<u>Certified Reference Materials with Other Properties (Cont'd)</u> Aviation Fuels	Freezing Point	Measurement by a method specific, interlaboratory study ASTM D2386, IP 16, or technically equivalent	CRM
<u>Certified Reference Materials with Viscosity Properties</u> Petroleum Products, Base, Blended, Fuel Oils and Aqueous Blends	Kinematic Viscosity Dynamic Viscosity	Measurement by a single primary method at ARO. ASTM D2162 Viscosity values at intermediate temperatures can be determined in accordance with ASTM D341. Viscosity index can be calculated in accordance with ASTM D2270	CRM CRM
<u>Certified Reference Materials with Liquid Density Properties</u> Petroleum Products, Base, Blended, Fuel Oils, Aqueous Blends and Salt Solutions	Density - Liquid	Measurement by a single, primary, method at ARO ASTM D1480 Calculation of Relative Density (Specific Gravity) from ASTM D1480 Density by division of Density by the Density of Water at the Specified Water Reference Temperature. Note: Relative Density (Specific Gravity) has no units by definition	CRM



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<u>Certified Reference Materials with Liquid Density Properties (Cont'd)</u> Petroleum Products, Base, Blended, Fuel Oils, Aqueous Blends and Salt Solutions	0.6 g/ml to 1.65 g/ml	Measurement by a method specific, interlaboratory study ASTM D4052 IP365 ISO12185	CRM
<u>Certified Reference Materials with Refractive Index Properties</u> Petroleum Products, Base, Blended, Fuel Oils and Aqueous blends	Refractive Index	Measurement by single primary method at ARO using Digital Refractometer	CRM

Flexible Scope

The laboratory is accredited to ISO 17034:2016 for reference material production activities in accordance with the standards highlighted in the schedule. This may also include new versions of existing accredited standard test methods to be introduced in accordance with documented in-house procedure, providing that:

- (1) The method or standard does not introduce new principles of measurement.
- (2) The method or standard does not require measurements to be made outside the parametric boundaries defined within the standard specifications already accredited and detailed within this Schedule of Accreditation.
- (3) The competency of reference material production is within the current scope covered by this Schedule of Accreditation.

Information about flexible scopes of accreditation is available in UKAS document GEN 4 and EA document EA-2/05.

END

***Type**

CRM = Certified Reference Material(s)

RM = Reference Material(s)

Refer to ISO 17034 for full definitions