

Standards for petrochemistry

Quality, reliability, traceability
and confidence



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Introduction

Paragon Scientific Limited is a supplier expert in the production of premium Certified Reference Materials (CRM) and standards. Since 1994, they've produced high quality standards and reference materials using a combination of advanced manufacturing techniques, the use of primary laboratory test equipment, methodology, and extensive knowledge. The expertise they have in the manufacture of reference materials, and the robust certification process that they adopt, ensures the highest level of confidence and product integrity.

In 2019, VWR and Paragon Scientific Limited decided to combine their efforts, knowledge and portfolio for customers interested in different areas, such as:

- Petroleum and petrochemicals
- Adhesives
- Electronics
- Automobiles and aviation

With nearly 25 years' experience in the production of Certified Reference Materials (CRM), Paragon Scientific Limited is recognised internationally as a world-leading producer, synonymous with quality, which is evidenced by the dual-accreditation status they have from the United Kingdom Accreditation Service (UKAS) and from international standards ISO/IEC 17025 and ISO/IEC 17034.

VWR, part of Avantor's objective is to be the trusted global partner to customers and suppliers in the life science and advanced technology industries. By providing superior product and service solutions, we accelerate innovation and empower the success of our customers.

We set science in motion to create a better world

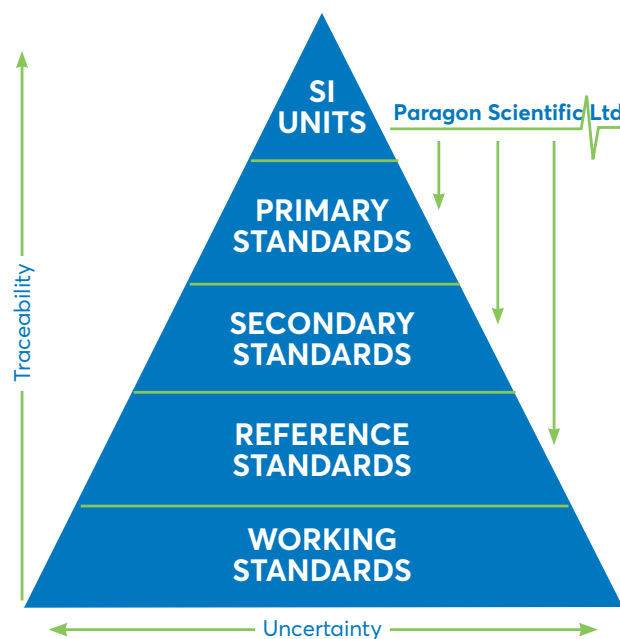
Integrity and quality are, and always will be, our priority. We also aim to deliver high purity standards and certified reference materials into the market to support you every day.

SOME DEFINITIONS

UKAS

The United Kingdom Accreditation Service (UKAS) is the sole national accreditation body for the United Kingdom. UKAS is recognised by the government to assess items against internationally agreed standards, organisations that provide certification, testing, inspection and calibration services.

The Hierarchy of Standards



Accreditation by UKAS demonstrates the competence, impartiality and performance capability of these evaluators. In short, UKAS 'checks the checkers'. UKAS is a non profit making private company limited by guarantee. UKAS is also independent of government interference.

COFRAC = DAKKS = ACCREDIA = BELAC = UKAS

Accreditation ISO/IEC 17025

This is based on the presence of a competent testing laboratory where, not only qualified staff have to be employed, but where each and every analysis carried out must correspond to specified criteria.

All instrumentation used is regularly checked by officially authorised calibration laboratories.

In addition, all relevant parameters used in measurement, e.g. weight and temperature, must correspond to national and international standards.



Accreditation ISO/IEC 17034

This accreditation provides the highest level of quality assurance, confirming the expertise of the manufacturer, the integrity of the production systems, and the reliability of the Certified Reference Materials that it produces. Combined with ISO 17025 accreditation, the highest level of quality is achieved through ISO 17025 and ISO 17034-2016., this is commonly referred to as 'Premium Standard' in the production of Certified Reference Materials.

CRM (Certified Reference Material)

This is a reference material produced by a laboratory accredited to ISO/IEC 17025 and ISO/IEC 17034 by strictly observing approved validated procedures.

- They have a Certificate of Analysis that provides the values of the specified properties and their associated uncertainties
- Certified values are obtained by one or two independent measurement methods, and provide full traceability to the highest metrological level of internationally accepted standards - NIST, BAM

Accreditations-What does it mean for you ?

Paragon Scientific Limited holds dual-accreditation status under the United Kingdom Accreditation Service (UKAS) to international standards of ISO/IEC 17025 and ISO/IEC 17034.

Over time, equipment will slowly degrade.

This is typically caused by normal wear and tear. However, changes in accuracy can also be caused by electric or mechanical shock or a hazardous manufacturing environment (e.g. oils, metal chips etc). Depending on the type of instrument and the environment in which it is being used, it may degrade very quickly or over a long period of time.

- Calibration improves the accuracy of a measuring device
- Accurate measuring devices improve product quality
- Calibrating your instrument is a type of maintenance that all owners should do to ensure that they are getting the most their equipment investment.

Calibrating your instrument ensures that the results of your instrument are accurate and reliable.

But for all that, the quality of the standards used is essential.

1. **Expertise:** Accreditation is a means of rigorous assessment and does so to fully assess the technical competence and veracity of organisations offering products such as Certified Reference Materials.
2. **Seal of quality:** Different accreditations are the proof of technical competence and integrity. Formal recognition of this allows our customers to feel certain in the quality of the products we produce.
3. **Technical competence and integrity:** It's important for customers to always examine the credentials of any producer of reference materials. As an accredited laboratory, we can easily verify our technical competence, and have full detailed technical analysis and traceable methodology for all our products and services.
4. **Confidence:** As an accredited laboratory, our products follow in strict accordance with an international test method protocols and, most importantly, have been formally recognised in our competence to do so.
5. **Quality improvement:** Since gaining accreditation is not a 'one off' measure, Paragon is regularly evaluated to ensure we continue to comply with excellent standards. The assessment reaches all aspects of technical operations, followed by extensive reports from UKAS on continual performance and improvement.

Certified Reference Materials (CRM) according to ASTM and IP norms

All the standards are certified ISO/IEC 17025 and ISO/IEC 17034
under UKAS accreditation

Ranges	Pack size	Description of the range	ASTM and IP norms	Pack type
Fuel testing				
Cold Filter Plugging Point	250 ml	Complete range of CRM, Cold Filter Plugging Point (CFPP), NOMINAL VALUE: from -12,4 °C to -21.7 °C	ASTM D6371, EN 116 / IP 309	Aluminium Bottle
Cloud point standards	250 ml	CRM, Cloud Point standard (Diesel), NOMINAL VALUE: -7.6 °C	ASTM D2500 / ISO 3015, IP 219	Aluminium Bottle
Density standards	250 ml	Complete range of CRM, Density, (Diesel), NOMINAL VALUE AT 15 °C, from 0,73632 to 0.86709 g/mL	ASTM D4052, IP 365, ISO 12185	Aluminium Bottle
Distillation standards	250 ml	Complete range of CRM, Distillation, (Diesel), NOMINAL VALUE: from 26,4 to 358.1 °C	ASTM D86, IP 123, EN ISO 3405	Aluminium Bottle
Freezing point standard	250 ml	CRM, Freezing Point, (Jet aviation fuel), NOMINAL VALUE -55.5 °C	ASTM D2386, IP 16, ISO 3013	Aluminium Bottle
Fuel testing standards	250 ml	CRM, Acidity Standard (Jet aviation fuel), NOMINAL VALUE: 0.0083 mg KOH/g	ASTM D3242	Aluminium Bottle
	250 ml	CRM, Aniline Point Standard, (Jet aviation fuel), NOMINAL VALUE: 58.48 °C	ASTM D611	Aluminium Bottle
	250 ml	CRM, FIA Aromatics Standard, (Jet aviation fuel), NOMINAL VALUE: 17.17 % Vol	ASTM D1319	Aluminium Bottle
	250 ml	CRM, Smoke Point Standard - Manual, (Jet aviation fuel), NOMINAL VALUE: 23.76 mm	ASTM D1322 / IP 57	Aluminium Bottle
	250 ml	CRM, Sulfur hydrocarbons Standard, (Jet aviation fuel), NOMINAL VALUE: 7.4 mg/kg		Aluminium Bottle
	1 L	CRM, Cetane Number Standard, (Diesel), NOMINAL VALUE: 52.6		Aluminium Bottle
	1 L	CRM, Motor Octane Number Standard, (Gazoline), NOMINAL VALUE: 86.9		Aluminium Bottle
	1 L	CRM, Research Octane Number Standard, (Gazoline), NOMINAL VALUE: 98	ASTM D2699	Aluminium Bottle
Pour point standards	250 ml	CRM, Pour Point, (Diesel), NOMINAL VALUE: -30.0 °C	ASTM D97, IP 15, ISO 3016	Aluminium Bottle
	250 ml	Complete range of CRM, Pour Point, (Lubricant), NOMINAL VALUE: from -14.7 to -38 °C	ASTM D97, IP 15, ISO 3016	Aluminium Bottle
Multi-parameters				
Multi-parameters standards	500 ml	CRM, Certified for Viscosity, Density, Flash point, Cloud Point, CFPP & Distillation (Diesel)	ASTM D2162, ASTM D4052, IP 219, IP 309, ASTM D86, ASTM D93 PROCEDURE A	Glass bottle
	500 ml	CRM, Certified for Viscosity, Density, Flash Point, Pour Point (Lubricant)	ASTM D2162, ASTM D1480, IP 15, ASTM D92, ASTM D93 PROCEDURE A	Glass bottle
Flash point				
Flash point standards- Cleveland Open Cup	250 ml	CRM, Flash Point, Cleveland Open Cup (COC), (Lubricant), NOMINAL VALUE: 256.8 °C	ASTM D92	Aluminium Bottle
	SET (3 x 80mL)	Complete range of CRM, Flash Point, Cleveland Open Cup (COC), NOMINAL VALUE: from 85.0 to 262.0 °C	ASTM D92	Glass bottle
Flash point standards- Pensky Marten Closed Cup Cleveland open cup	250 ml	Complete range of CRM, Flash Point, Pensky Marten Closed Cup (PMCC), (Lubricant), NOMINAL VALUE: from 100.7 to 190.5 °C	ASTM D93 PROCEDURE A	Aluminium Bottle
	250 ml	CRM, Flash Point, Pensky Marten Closed Cup (PMCC), (Diesel), NOMINAL VALUE: 56.2 °C	ASTM D93 PROCEDURE A	Aluminium Bottle
	SET (3 x 80mL)	Complete range of CRM, Flash Point, Pensky Marten Closed Cup (PMCC), NOMINAL VALUE: from 77.5 to 228.0 °C	ASTM D93 PROCEDURE A	Glass Bottle
Flash point standards - Cleveland Open Cup	SET (3 x 80mL)	Complete range of Secondary Working Standard, Flash Point, Cleveland Open Cup (COC), NOMINAL VALUE: from 85 to 257 °C	ASTM D92	Glass Bottle
Flash point standards - Pensky Marten Closed Cup Cleveland open cup	SET (3 x 80mL)	Complete range of Secondary Working Standard, Flash Point, Pensky Marten Closed Cup (PMCC), NOMINAL VALUE: from 59.0 to 232 °C	ASTM D93 PROCEDURE A	Glass Bottle
Flash point ABEL	250 ml	CRM, Flash Point, ABEL, (Jet aviation fuel), NOMINAL VALUE: 41.2 °C	IP 170	Aluminium Bottle
Flash point TAG	250 ml	CRM, Flash Point, TAG, (Jet aviation fuel), NOMINAL VALUE: 40.4 °C	ASTM D56	Aluminium Bottle
Density and Relative Density				
Density standards	250 ml	CRM, Density Standard, (Diesel), NOMINAL VALUE at 15 °C, 0.84238 g/mL	ASTM D4052, IP 365, ISO 12185	Aluminium Bottle
	250 ml	CRM, Density Standard, (Gazoline), NOMINAL VALUE at 15 °C, 0.73632 g/mL	ASTM D4052, IP 365, ISO 12185	Aluminium Bottle
	250 ml	CRM, Density Standard, (Jet aviation fuel), NOMINAL VALUE at 15 °C, 0.79672 g/mL	ASTM D4052, IP 365, ISO 12185	Aluminium Bottle
	250 ml	CRM, Density Standard, (Lubricant), NOMINAL VALUE at 15 °C, 0.86709 g/mL	ASTM D4052, IP 365, ISO 12185	Aluminium Bottle
Relative Density standards	500 ml	Complete range of Secondary Working Standard, Relative density at 15 °C, NOMINAL VALUE: from 0.6643 to 0.8797		Glass Bottle
	500 ml	Complete range of Secondary Working Standard, Relative density at 20 °C, NOMINAL VALUE: from 0.6597 to 0.8723		Glass Bottle
	500 ml	Complete range of Secondary Working Standard, Relative density at 25 °C, NOMINAL VALUE: from 0.6552 to 0.8693		Glass Bottle

STANDARDS FOR PETROCHEMISTRY

Ranges	Pack size	Description of the range	ASTM and IP norms	Pack type
Multi parameters				
Multi-parameters standards	30 ml	CRM, Refractive index & Density at 15 °C, 20 °C and 25 °C, (Water), NOMINAL VALUE: 1.3330 at 20 °C		Glass Bottle
	30 ml	CRM, Refractive index & Density at 15 °C, 20 °C and 25 °C, (Dodecane), NOMINAL VALUE :1.4217 at 20 °C		Glass Bottle
	30 ml	CRM, Refractive index & Density at 15 °C, 20 °C and 25 °C, (Dichloro-Toluene), NOMINAL VALUE :1.5463 at 20 °C		Glass Bottle
	30 ml	CRM, Refractive index & Density at 15 °C, 20 °C and 25 °C, (Bromonaphthalene), NOMINAL VALUE : 1.6579 at 20 °C		Glass Bottle
TAN				
Total acid number Standards	125 g and SET	Complete range of Total Acid Number standard, from 0.10 to 10.14 mg KOH/g		Glass Bottle
TBN				
Total base number standards	125 g and SET	Complete range of Total Base Number Standard, from 0.99 to 70.24 mg KOH/g		Glass Bottle
Viscosity				
General purpose viscosity standards	500 ml	Complete range of general purpose Viscosity Standard, NOMINAL VISCOSITY VALUE: from 0,2950 to 54900 mPa.s (25 °C)		Glass Bottle
Cold Cranking Simulator Viscosity standards	500 ml and Set	Complete range of Cold Cranking Simulator (CCS) Viscosity Standard from CL08 to CL74		Glass Bottle
Cone & Plate Viscosity Standards	500 ml	Complete range of Cone & Plate Viscosity Standard, NOMINAL VALUE at 25°C: from 28.97 to 20077 mPa.s		Glass Bottle
Flow cup Viscosity Standards	500 ml	Complete range of Flow Cup Viscosity Standard, NOMINAL VALUE at 20°C: from 8.945 to 3722 mPa.s		Glass Bottle
High temperature Viscosity standards	500 ml	Complete range of High Temperature Viscosity Standard (60°), NOMINAL VALUE at 60°C: 1.605 to 4897 mPa.s (60 °C)		Glass Bottle
High temperature Viscosity standards at 100°C and 150°C	500 ml	Complete range of High Temperature Viscosity Standard at 100 and 150°C, NOMINAL VALUE at 60°C: 11,57 to 36,15 mPa.s (100 °C)		Glass Bottle
Low temperature Viscosity standards at 100°C and 150°C	500 ml	Complete range of Low Temperature Viscosity Standard from -40°C to -12°C,		Glass Bottle
Medical Viscosity standards	100 and 500 ml	Complete range of Medical Grade Viscosity Standard, NOMINAL VALUE at 25°C: from 1.2 à 10.0 mPa.s		Glass Bottle
Pure water Viscosity standard	100 ml	Pure water Viscosity Standard at 5 °C, 20 °C, 25 °C & 37 °C		Glass Bottle
Rotational Mineral Oil Viscosity Standard	500 ml	Complete range of Rotational Mineral Oil Viscosity Standard, NOMINAL VALUE at 25°C: from 0.3051 to 72 328 mPa.s		Glass Bottle
Small sample Viscosity Standard	60 ml	Complete range of small sample Viscosity Standard, Kinematic Viscosity NOMINAL VALUE at 40°C: from 2.884 to 23 037 cSt		Glass Bottle
Viscosity check oils	500 m and 5l	Complete range of certified Viscosity Check Oils		Glass Bottle
Sulfur				
Light mineral oil Sulfur standards	100 ml and Kits	Complete range of CRM, Light Mineral oil Sulfur standard, VALUE: from 0.0005 % (5ppm) to 5.0000% (50 000 ppm)		Glass Bottle
Heavy mineral oil Sulfur standards	100 ml and Kits	Complete range of CRM, Heavy Mineral oil Sulfur standard, VALUE: from 0.0005 % (5ppm) to 5.0000% (50 000 ppm)		Glass Bottle
Synthetic diesel Sulfur standard	100 ml and Kits	Complete range of CRM, Synthetic diesel Sulfur standard, VALUE: from 0.0005 % (5ppm) to 5.0000% (50 000 ppm)		Glass Bottle
Kerosene (odourless) Sulfur standards	100 ml and Kits	Complete range of CRM, Kerosene (odourless) Sulfur standard, VALUE: from 0.0005 % (5ppm) to 5.0000% (50 000 ppm)		Glass Bottle
Laboratory reagents				
Laboratory reagent, electrolytes	SET (3 x 30ml)	Laboratory Reagent, Lithium Chloride 2M Electrolyte, Electrode filling solution	ASTM D664 /IP 177	Plastic Bottle
Synthetic sea water solution	SET (3 x 30ml) and bottles	Laboratory Reagent, SYNTHETIC Sea Water	ASTM D665 /IP 135	Glass Bottle



VWR Chemicals pH buffer standard solutions

Complete range of solutions from pH 1,00 to 12,00 at 20 or 25 °C

- Available in different pack types from 30 ml up to 20 L in sachets, bottles, bag-in-box and bulk packs
- Traceable to SRM from NIST
- Manufactured by an accredited supplier ISO 17034



VIEW
NOW

PB20062-EN

Certified Reference Materials (CRM) - Cold Filter Plugging Point (CFPP), cloud point, density, FAME, freezing point, pour point and fuel testing

A wide range of Certified Reference Materials for diesel, jet aviation fuel, gasoline and lubricant for Cold Filter Plugging Point (CFPP), cloud point, density, FAME, freezing point and fuel testing.

- Tested in accordance with ASTM/EN or IP Test method protocols
- Fully certified in accordance with UKAS and ISO/IEC 17034
- Certified by 'Round Robin Method' using independent test laboratories ensuring good inter-laboratory correlation
- Low level of uncertainty that achieves maximum data accuracy
- Supplied in tamper-evident bottles from 50 to 1000 ml with 12 months shelf life



Certified reference material, cold filter plugging point standards

Description	Norms	Pack type	Pk	Cat. No.
CRM, Cold Filter Plugging Point (CFPP), nominal value: -21,7 °C	ASTM D6371, EN 116, IP 309	Aluminium bottle	250 ml	99102.230
CRM, Cold Filter Plugging Point (CFPP), nominal value: -12,4 °C	ASTM D6371, EN 116, IP 309	Aluminium bottle	250 ml	99103.230
Certified reference material, cloud point standards				
CRM, Cloud Point Standard. (diesel), nominal value: -7,6 °C	ASTM D2500, ISO 3015, IP 219	Aluminium bottle	250 ml	99104.230
Certified reference material, density standards				
CRM, density standard, (diesel), nominal value @ 15 °C: 0,84238 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99105.230
CRM, density standard, (gasoline), nominal value @ 15 °C: 0,73632 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99109.230
CRM, density standard, (jet aviation fuel), nominal value @ 15 °C: 0,79672 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99110.230
CRM, density standard, (lubricant), nominal value @ 15 °C: 0,86709 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99111.230
Certified reference material, distillation standards				
CRM, distillation, (diesel), nominal value: 152,9 to 358,1 °C	ASTM D86, IP 123, EN ISO 3405	Aluminium bottle	250 ml	99106.230
CRM, distillation, (gasoline), nominal value: 26,4 to 174,9 °C	ASTM D86, IP 123, EN ISO 3405	Aluminium bottle	250 ml	99107.230
CRM, distillation, (jet aviation fuel), nominal value: 148,1 to 260,3 °C	ASTM D86, IP 123, EN ISO 3405	Aluminium bottle	250 ml	99108.230
Certified reference material, freezing point standards				
CRM, freezing point, (jet aviation fuel), nominal value: -55,5 °C	ASTM D2386, IP 16, ISO 3013	Aluminium bottle	250 ml	99127.230
Certified reference material, fuel testing standards				
CRM, acidity standard, (jet aviation fuel), nominal value: 0,0083 mg KOH/g	ASTM D3242	Aluminium bottle	250 ml	99122.230
CRM, aniline point standard, (jet aviation fuel), nominal value: 58,48 °C	ASTM D611	Aluminium bottle	250 ml	99123.230
CRM, FIA aromatics standard, (jet aviation fuel), nominal value: 17,17% vol.	ASTM D1319	Aluminium bottle	250 ml	99124.230
CRM, smoke point standard - manual, (jet aviation fuel), nominal value: 23,76 mm	ASTM D1322, IP 57	Aluminium bottle	250 ml	99125.230
CRM, sulfur hydrocarbons standard, (jet aviation fuel), nominal value: 7,4 mg/kg	ASTM D3227, IP 342, ISO 3012	Aluminium bottle	250 ml	99126.230
CRM, cetane number standard, (diesel), nominal value: 52,6	ASTM D613	Aluminium bottle	1 L	99128.290
CRM, motor octane number standard, (gasoline), nominal value: 86,9	ASTM D2700	Aluminium bottle	1 L	99129.290
CRM, research octane number standard, (gasoline), nominal value: 98	ASTM D2699	Aluminium bottle	1 L	99130.290
Certified reference material, pour point standards				
CRM, pour point, (diesel), nominal value: -30,0 °C	ASTM D97, IP 15, ISO 3016	Aluminium bottle	250 ml	99118.230
CRM, pour point, lubricant, nominal value: -14,7 °C	ASTM D97, IP 15, ISO 3016	Aluminium bottle	250 ml	99119.230
CRM, pour point, lubricant, nominal value: -30,3 °C	ASTM D97, IP 15, ISO 3016	Aluminium bottle	250 ml	99120.230
CRM, pour point, lubricant, nominal value: -38,0 °C	ASTM D97, IP 15, ISO 3016	Aluminium bottle	250 ml	99121.230



VWR Chemicals trace analysis

All you need for metal trace analysis.

- High purity NORMATOM® acids for sample preparation
- ICP and ICP-MS single- and multi-element standard solutions
- AAS standard solutions at 1000 mg/l
- IC single- and multi-element standard solutions
- Custom manufacturing services



SEE THE
RANGE

Multi-Parameter Certified Reference Materials (MPCRM) – diesel and lubricants

A wide range of Certified Reference Materials specifically for use with lubricant and diesel materials, each according to relevant test methods and protocols.

- Certified for viscosity, density, flash point, cloud point, CFPP, and distillation using ASTM/IP and EN test method protocols
- Tested in accordance with ASTM/EN or IP Test method protocols
- Fully certified in accordance with UKAS, ISO/IEC 17025 and ISO/IEC 17034
- Highest level of accreditation guarantee, that provides the most credible certified data currently available worldwide
- Low level of uncertainty that achieves maximum data accuracy
- Multiple test parameters that provide a flexible, cost effective solution
- Fully traceable to international standards
- Supplied in 500 ml inert glass bottles with 18 months shelf life

Multi-parameter certified reference material standards

Description	Norms	Pack type	Pk	Cat. No.
CRM, certified for viscosity, density, flash point, cloud point, CFPP & distillation (diesel)	ASTM D2162, ASTM D4052, IP 219, IP 309, ASTM D86, ASTM D93 procedure A	Glass bottle	500 ml	99100.260
CRM, certified for viscosity, density, flash point & pour point (lubricant)	ASTM D2162, ASTM D1480, IP 15, ASTM D92, ASTM D93 procedure A	Glass bottle	500 ml	99101.260

Flash point standards

This range is available as a Certified Reference Material (CRM) and as a Secondary Working Standard (SWS).

PRIMARY CERTIFIED REFERENCE MATERIALS

Certified Reference Materials, which are primary standards, have data that has been established by a specific method inter-laboratory study in full compliance with ISO/IEC 17034 in accordance with UKAS accreditation. These materials are intended to be used at least once a year for instrument and/or method verification in accordance with ASTM D92 and ASTM 93 (procedure A).

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations (specific inter laboratory study)
- Certified in accordance with ASTM D92 (Cleveland Open Cup) and ASTM D93-procedure A (Pensky Marten Closed Cup)
- Fully traceable to international standards
- Packed in 3x80 ml (one bottle = one shot to avoid contamination) with 12 months shelf life

ASTM D92 Cleveland Open Cup, flash point, Certified Reference Materials

Certified reference material, flash point standards - Cleveland Open Cup

Description	Norms	Pack type	Pk	Cat. No.
CRM, flash point, Cleveland Open Cup (COC), nominal value: 256,8 °C - lubricant	ASTM D92	Aluminium bottle	250 ml	99114.230
CRM, flash point, Cleveland Open Cup (COC), nominal value: 85,0 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99149.001
CRM, flash point, Cleveland Open Cup (COC), nominal value: 153,0 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99150.001
CRM, flash point, Cleveland Open Cup (COC), nominal value: 262,0 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99151.001



ASTM D93 (procedure A) Pensky Marten Closed Cup, flash point, Certified Reference Material

Certified reference material, flash point standards - Pensky Marten Closed Cup

Description	Norms	Pack type	Pk	Cat. No.
CRM, flash point, Pensky Marten Closed Cup: (PMCC), nominal value: 190,5 °C - lubricant	ASTM D93 procedure A	Aluminium bottle	250 ml	99112.230
CRM, flash point, Pensky Marten Closed Cup: (PMCC), nominal value: 100,7 °C - lubricant	ASTM D93 procedure A	Aluminium bottle	250 ml	99113.230
CRM, flash point, Pensky Marten Closed Cup: (PMCC), nominal value: 56,2 °C - diesel	ASTM D93 procedure A	Aluminium bottle	250 ml	99115.230
CRM, flash point, Pensky Marten Closed Cup: (PMCC), nominal value: 77,5 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99152.001
CRM, flash point, Pensky Marten Closed Cup: (PMCC), nominal value: 141,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99153.001
CRM, flash point, Pensky Marten Closed Cup: (PMCC), nominal value: 228,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99154.001

SECONDARY WORKING STANDARDS (SWS)

Secondary Working Standards are standards produced and certified in accordance with ISO/IEC 17025 and ISO/IEC 17034. These materials have been characterised in accordance with ASTM D92 and ASTM D93 (procedure A) and are designed to be used on a frequent basis in order to verify test equipment functionality as specified in ASTM D92 and D93 (procedure A). This is in addition to the use of primary CRM for the annual verification of an instrument.

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034
- Certified in accordance with ASTM D92 (Cleveland Open Cup) and ASTM D93 (procedure A) (Pensky Marten Closed Cup) for equipment performance checks
- Fully traceable to international standards
- Packed in 3x80 ml (one bottle = one shot to avoid contamination) with 12 months shelf life

ASTM D92 Cleveland open cup flash point Secondary Working Standard

Secondary working standards, flash point - Cleveland Open Cup

Description	Norms	Pack type	Pk	Cat. No.
Secondary working standard, flash point, Cleveland Open Cup (COC), nominal value: 85 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99161.001
Secondary working standard, flash point, Cleveland Open Cup (COC), nominal value: 148 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99162.001
Secondary working standard, flash point, Cleveland Open Cup (COC), nominal value: 188 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99163.001
Secondary working standard, flash point, Cleveland Open Cup (COC), nominal value: 257 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99164.001
Secondary working standard, flash point, Cleveland Open Cup (COC), nominal value: 112 °C	ASTM D92	Glass bottle	Set (3x80 ml)	99165.001

ASTM D93 (procedure A) Pensky Marten Closed Cup, flash point, Secondary Working Standard

Secondary working standards, flash point - Pensky Marten Closed Cup

Description	Norms	Pack type	Pk	Cat. No.
Secondary working standard, flash point, Pensky Marten Closed Cu: (PMCC), nominal value: 59,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99155.001
Secondary working standard, flash point, Pensky Marten Closed Cup (PMCC), nominal value: 76,5 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99156.001
Secondary working standard, flash point, Pensky Marten Closed Cup nominal value: 116,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99157.001
Secondary working standard, flash point, Pensky Marten Closed Cup (PMCC), nominal value: 143,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99158.001
Secondary working standard, flash point, Pensky Marten Closed Cup (PMCC), nominal value: 184,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99159.001
Secondary working standard, flash point, Pensky Marten Closed Cup (PMCC), nominal value: 232,0 °C	ASTM D93 procedure A	Glass bottle	Set (3x80 ml)	99160.001

Description	Norms	Pack type	Pk	Cat. No.
CRM, flash point, ABEL, nominal value: 41,2 °C - (jet aviation fuel)	IP 170	Aluminium bottle	250 ml	99116.230
CRM, flash point, TAG, nominal value: 40,4 °C - (jet aviation fuel)	ASTM D56	Aluminium bottle	250 ml	99117.230



VWR Chemicals PESTINORM® solvents

A complete range of solvents for detection of trace organic substances in the environment. The range offers extremely low halogenated and other organic compounds to prevent sample contamination.

- High quality guaranteed, specifically for use in pesticide analysis
- Filtered at 0,2 µm, bottled under nitrogen, fitted with caps which have PTFE liners to prevent contamination
- Evaporation residue less than 5 ppm (<3 ppm for SUPRA TRACE grade)



SEE THE
RANGE

PB20066-EN

Density and relative density standards

CERTIFIED REFERENCE MATERIAL DENSITY STANDARDS

Standards designed for the calibration or verification of instruments used to measure the density of materials which are fluid at the desired test temperature within the range of 15 to 150 °C.

- Certified to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditation
- Density tested in accordance with primary level ASTM D1480 methodology
- Density standard range from 0,6500 to 1,6500 g/ml
- Tested in accordance with ASTM/EN or IP Test method protocols
- Available in single bottles with 12 months shelf life

Certified reference material, density standards

Description	Norms	Pack type	Pk	Cat. No.
CRM, density standard, diesel, nominal value @ 15 °C: 0,84238 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99105.230
CRM, density standard, gasoline, nominal value @ 15 °C: 0,73632 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99109.230
CRM, density standard, jet aviation fuel, nominal value @ 15 °C: 0,79672 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99110.230
CRM, density standard, lubricant, nominal value @ 15 °C: 0,86709 g/ml	ASTM D4052, IP 365, ISO 12185	Aluminium bottle	250 ml	99111.230

CALIBRATION STANDARDS, RELATIVE DENSITY

Standards designed for the calibration or verification of instruments used to measure density or relative density of materials at the desired test temperature within the range of 15 to 25 °C.

- Certified to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Certified in accordance with primary level ASTM D1480 methodology
- Relative density is calculated by dividing the density, as obtained from ASTM D1480, by the density of water at the reference temperature
- Available in tamper-evident bottles with 24 months shelf life

Relative density calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,6643	ASTM D1480	Glass bottle	500 ml	99131.260
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,7186	ASTM D1480	Glass bottle	500 ml	99132.260
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,7807	ASTM D1480	Glass bottle	500 ml	99133.260
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,8163	ASTM D1480	Glass bottle	500 ml	99134.260
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,8494	ASTM D1480	Glass bottle	500 ml	99135.260
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,8642	ASTM D1480	Glass bottle	500 ml	99136.260
Relative density standard @ 15 °C, nominal relative density: $^{15}/_4$ 0,8797	ASTM D1480	Glass bottle	500 ml	99137.260
Relative density standard @ 20 °C, nominal relative density: $^{20}/_4$ 0,6597	ASTM D1480	Glass bottle	500 ml	99138.260
Relative density standard @ 20 °C, nominal relative density: $^{20}/_4$ 0,7145	ASTM D1480	Glass bottle	500 ml	99139.260
Relative density standard @ 20 °C, nominal relative density: $^{20}/_4$ 0,7769	ASTM D1480	Glass bottle	500 ml	99140.260
Relative density standard @ 20 °C, nominal relative density: $^{20}/_4$ 0,8400	ASTM D1480	Glass bottle	500 ml	99141.260
Relative density standard @ 20 °C, nominal relative density: $^{20}/_4$ 0,8452	ASTM D1480	Glass bottle	500 ml	99142.260
Relative density standard @ 20 °C, nominal relative density: $^{20}/_4$ 0,8723	ASTM D1480	Glass bottle	500 ml	99143.260
Relative density standard @ 25 °C, nominal relative density: $^{25}/_4$ 0,6552	ASTM D1480	Glass bottle	500 ml	99144.260
Relative density standard @ 25 °C, nominal relative density: $^{25}/_4$ 0,7104	ASTM D1480	Glass bottle	500 ml	99145.260
Relative density standard @ 25 °C, nominal relative density: $^{25}/_4$ 0,7730	ASTM D1480	Glass bottle	500 ml	99146.260
Relative density standard @ 25 °C, nominal relative density: $^{25}/_4$ 0,8366	ASTM D1480	Glass bottle	500 ml	99147.260
Relative density standard @ 25 °C, nominal relative density: $^{25}/_4$ 0,8693	ASTM D1480	Glass bottle	500 ml	99148.260

Refractive Index Standards

Wide range of Refractive Index Certified Reference Materials which are ideal for verification and calibration of temperature-controlled refractometers. Each CRM provides certified values for refractive index measurements at 20, 25 and 30 °C.

- Traceable to NIST
- Low level of uncertainty achieves maximum accuracy of data at hand and dependable results
- Supplied in tamper-evident 10 ml glass bottles or as multi-pack of 5 bottles
- 12 months shelf life

Certified reference material refractive index standards

Description	Norms	Pack type	Pk	Cat. No.
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,3325 @ 25 °C		Glass bottle	10 ml	99177.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,3325 @ 25 °C		Glass bottle	Set (5x10 ml)	99177.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,3891 @ 25 °C		Glass bottle	10 ml	99178.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,3891 @ 25 °C		Glass bottle	Set (5x10 ml)	99178.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4023 @ 25 °C		Glass bottle	10 ml	99179.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4023 @ 25 °C		Glass bottle	Set (5x10 ml)	99179.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4196 @ 25 °C		Glass bottle	10 ml	99180.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4196 @ 25 °C		Glass bottle	Set (5x10 ml)	99180.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4206 @ 25 °C		Glass bottle	10 ml	99181.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4206 @ 25 °C		Glass bottle	Set (5x10 ml)	99181.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4573 @ 25 °C		Glass bottle	10 ml	99182.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4573 @ 25 °C		Glass bottle	Set (5x10 ml)	99182.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4941 @ 25 °C		Glass bottle	10 ml	99183.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,4941 @ 25 °C		Glass bottle	Set (5x10 ml)	99183.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,5349 @ 25 °C		Glass bottle	10 ml	99184.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,5349 @ 25 °C		Glass bottle	Set (5x10 ml)	99184.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,5440 @ 25 °C		Glass bottle	10 ml	99185.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,5440 @ 25 °C		Glass bottle	Set (5x10 ml)	99185.001
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,6556 @ 25 °C		Glass bottle	10 ml	99186.100
CRM, refractive index standard @ 20, 25 & 30 °C, nominal RI value: 1,6556 @ 25 °C		Glass bottle	Set (5x10 ml)	99186.001

Refractive Index and density Multi-Parameter Certified Reference Material

Four Certified Reference Materials combining certified data in both Refractive Index and density values at 15, 20 and 25 °C.

- Density tested in accordance with primary level ASTM D1480 methodology
- Traceable to NIST
- Low level of uncertainty achieves maximum accuracy of data at hand and dependable results
- Supplied in 30 ml sealed glass vials with 12 months shelf life

Certified reference material multi-parameters standards

Description	Norms	Pack type	Pk	Cat. No.
CRM, refractive index & density @ 15, 20 & 25 °C, nominal RI value: 1,3330 @ 20 °C - water	ASTM D1480	Glass bottle	30 ml	99173.030
CRM, refractive index & density @ 15, 20 & 25 °C, nominal RI value: 1,4217 @ 20 °C - dodecane	ASTM D1480	Glass bottle	30 ml	99174.030
CRM, refractive index & density @ 15, 20 & 25 °C, nominal RI value: 1,5463 @ 20 °C - dichlorotoluene	ASTM D1480	Glass bottle	30 ml	99175.030
CRM, refractive index & density @ 15, 20 & 25 °C, nominal RI value: 1,6579 @ 20 °C - bromonaphthalene	ASTM D1480	Glass bottle	30 ml	99176.030

Total Acid Number (TAN) standards

Extensive range of Total Acid Number standards manufactured for the verification of analytical instruments used to determine acid number by potentiometric titration.

- Typically used in, but not limited, to the analysis of used oils and lubricants
- Tested and certified in strict accordance with ASTM D664 / IP 177
- Traceable to international standards
- Available in tamper-evident packaging as single or triple pack
- 24 months shelf life



Total acid number standards

Description	Norms	Pack type	Pk	Cat. No.
Total acid number standard - 0,10 mg KOH/g	ASTM D664	Glass bottle	125 g	99343.202
Total acid number standard - 0,10 mg KOH/g	ASTM D664	Glass bottle	Set (3x125 g)	99343.001
Total acid number standard - 0,49 mg KOH/g	ASTM D664	Glass bottle	125 g	99344.202
Total acid number standard - 0,49 mg KOH/g	ASTM D664	Glass bottle	Set (3x125 g)	99344.001
Total acid number standard - 0,99 mg KOH/g	ASTM D664	Glass bottle	125 g	99345.202
Total acid number standard - 0,99 mg KOH/g	ASTM D664	Glass bottle	Set (3x125 g)	99345.001
Total acid number standard - 1,54 mg KOH/g	ASTM D664	Glass bottle	125 g	99346.202
Total acid number standard - 1,54 mg KOH/g	ASTM D664	Glass bottle	Set (3x125 g)	99346.001
Total acid number standard - 2,02 mg KOH/g	ASTM D664	Glass bottle	125 g	99347.154
Total acid number standard - 2,02 mg KOH/g	ASTM D664	Glass bottle	Set (3x50 g)	99347.001
Total acid number standard - 2,48 mg KOH/g	ASTM D664	Glass bottle	125 g	99348.154
Total acid number standard - 2,48 mg KOH/g	ASTM D664	Glass bottle	Set (3x50 g)	99348.001
Total acid number standard - 2,93 mg KOH/g	ASTM D664	Glass bottle	125 g	99349.154
Total acid number standard - 2,93 mg KOH/g	ASTM D664	Glass bottle	Set (3x50 g)	99349.001
Total acid number standard - 4,57 mg KOH/g	ASTM D664	Glass bottle	125 g	99350.154
Total acid number standard - 4,57 mg KOH/g	ASTM D664	Glass bottle	Set (3x50 g)	99350.001
Total acid number standard - 10,14 mg KOH/g	ASTM D664	Glass bottle	125 g	99351.154
Total acid number standard - 10,14 mg KOH/g	ASTM D664	Glass bottle	Set (3x50 g)	99351.001

Total Base Number (TBN) standards

Extensive range of Total Acid Number standards manufactured for the verification of analytical instruments used to determine acid number by potentiometric titration.

- Typically used in, but not limited, to the analysis of used oils and lubricants
- Tested and certified in strict accordance with ASTM D2896 / IP 276
- Traceable to international standards
- Available in tamper-evident packaging as single or triple pack
- 24 months shelf life



Total base number standards

Description	Norms	Pack type	Pk	Cat. No.
Total base number standard - 0,99 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99352.202
Total base number standard - 0,99 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x125 g)	99352.001
Total base number standard - 3,01 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99353.154
Total base number standard - 3,01 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99353.001
Total base number standard - 10,01 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99354.154
Total base number standard - 10,01 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99354.001
Total base number standard - 15,17 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99355.154
Total base number standard - 15,17 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99355.001
Total base number standard - 30,17 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99356.154
Total base number standard - 30,17 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99356.001
Total base number standard - 40,51 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99357.154
Total base number standard - 40,51 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99357.001
Total base number standard - 6,06 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99358.154
Total base number standard - 6,06 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99358.001
Total base number standard - 70,24 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	125 g	99359.154
Total base number standard - 70,24 mg KOH/g	ASTM D2896/ IP 276	Glass bottle	Set (3x50 g)	99359.001

Viscosity standards

All these viscosity standards are certified in strict accordance with the associated methodology under ISO/IEC 17034 and UKAS accreditations. All of them are produced for the calibration and verification of glass capillary viscosimeters and other viscosity measuring equipment, where operating temperature is precisely controlled.

GENERAL VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Tested in accordance with ASTM D2162 (standard practice for basic calibration of master viscometers and viscosity standard oils)
- Density in g/ml in strict accordance with ASTM D1480
- Traceable to international standards
- Available in 500 ml pack sizes with 24 months shelf life



General purpose viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
General purpose viscosity standard, nominal viscosity 0.2950 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99444.260
General purpose viscosity standard, nominal viscosity 0.5204 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99445.260
General purpose viscosity standard, nominal viscosity 0.9525 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99446.260
General purpose viscosity standard, nominal viscosity 2.144 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99456.260
General purpose viscosity standard, nominal viscosity 3.291 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99472.260
General purpose viscosity standard, nominal viscosity 4.745 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99440.260
General purpose viscosity standard, nominal viscosity 7.442 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99474.260
General purpose viscosity standard, nominal viscosity 8.559 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99466.260
General purpose viscosity standard, nominal viscosity 10.37 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99438.260
General purpose viscosity standard, nominal viscosity 14.42 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99447.260
General purpose viscosity standard, nominal viscosity 20.4 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99448.260
General purpose viscosity standard, nominal viscosity 29.04 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99469.260
General purpose viscosity standard, nominal viscosity 48.59 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99459.260
General purpose viscosity standard, nominal viscosity 55.36 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99460.260
General purpose viscosity standard, nominal viscosity 71.11 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99462.260
General purpose viscosity standard, nominal viscosity 100.7 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99475.260
General purpose viscosity standard, nominal viscosity 124.9 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99467.260
General purpose viscosity standard, nominal viscosity 202.6 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99449.260
General purpose viscosity standard, nominal viscosity 258 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99451.260
General purpose viscosity standard, nominal viscosity 392 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99470.260
General purpose viscosity standard, nominal viscosity 488.1 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99457.260
General purpose viscosity standard, nominal viscosity 494 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99441.260
General purpose viscosity standard, nominal viscosity 717.4 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99461.260
General purpose viscosity standard, nominal viscosity 796.5 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99463.260
General purpose viscosity standard, nominal viscosity 990.9 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99439.260
General purpose viscosity standard, nominal viscosity 1273 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99476.260
General purpose viscosity standard, nominal viscosity 1690 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99468.260
General purpose viscosity standard, nominal viscosity 2610 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99452.260
General purpose viscosity standard, nominal viscosity 3481 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99453.260
General purpose viscosity standard, nominal viscosity 4599 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99471.260
General purpose viscosity standard, nominal viscosity 5738 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99442.260
General purpose viscosity standard, nominal viscosity 6618 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99458.260
General purpose viscosity standard, nominal viscosity 7657 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99443.260
General purpose viscosity standard, nominal viscosity 10030 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99464.260
General purpose viscosity standard, nominal viscosity 15406 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99465.260
General purpose viscosity standard, nominal viscosity 19588 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99477.260
General purpose viscosity standard, nominal viscosity 30991 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99450.260
General purpose viscosity standard, nominal viscosity 40049 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99454.260
General purpose viscosity standard, nominal viscosity 54900 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99455.260
General purpose viscosity standard, nominal viscosity 72328 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99473.260

STANDARDS FOR PETROCHEMISTRY

COLD CRANKING SIMULATOR (CCS) STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Ensures full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 500 ml or kits (8x500 ml, 14x500 ml and 18x500 ml) with 24 months shelf life



Cold Cranking Simulator viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Cold Cranking Simulator (CCS) viscosity standard, CL08	ASTM D5293	Glass bottle	500 ml	99376.260
Cold Cranking Simulator (CCS) viscosity standard, CL09	ASTM D5293	Glass bottle	500 ml	99377.260
Cold Cranking Simulator (CCS) viscosity standard, CL10	ASTM D5293	Glass bottle	500 ml	99378.260
Cold Cranking Simulator (CCS) viscosity standard, CL11	ASTM D5293	Glass bottle	500 ml	99379.260
Cold Cranking Simulator (CCS) viscosity standard, CL12	ASTM D5293	Glass bottle	500 ml	99380.260
Cold Cranking Simulator (CCS) viscosity standard, CL13	ASTM D5293	Glass bottle	500 ml	99381.260
Cold Cranking Simulator (CCS) viscosity standard, CL14	ASTM D5293	Glass bottle	500 ml	99382.260
Cold Cranking Simulator (CCS) viscosity standard, CL15	ASTM D5293	Glass bottle	500 ml	99383.260
Cold Cranking Simulator (CCS) viscosity standard, CL16	ASTM D5293	Glass bottle	500 ml	99384.260
Cold Cranking Simulator (CCS) viscosity standard, CL17	ASTM D5293	Glass bottle	500 ml	99385.260
Cold Cranking Simulator (CCS) viscosity standard, CL19	ASTM D5293	Glass bottle	500 ml	99386.260
Cold Cranking Simulator (CCS) viscosity standard, CL20	ASTM D5293	Glass bottle	500 ml	99387.260
Cold Cranking Simulator (CCS) viscosity standard, CL22	ASTM D5293	Glass bottle	500 ml	99388.260
Cold Cranking Simulator (CCS) viscosity standard, CL24	ASTM D5293	Glass bottle	500 ml	99389.260
Cold Cranking Simulator (CCS) viscosity standard, CL25	ASTM D5293	Glass bottle	500 ml	99390.260
Cold Cranking Simulator (CCS) viscosity standard, CL26	ASTM D5293	Glass bottle	500 ml	99391.260
Cold Cranking Simulator (CCS) viscosity standard, CL28	ASTM D5293	Glass bottle	500 ml	99392.260
Cold Cranking Simulator (CCS) viscosity standard, CL30	ASTM D5293	Glass bottle	500 ml	99393.260
Cold Cranking Simulator (CCS) viscosity standard, CL32	ASTM D5293	Glass bottle	500 ml	99394.260
Cold Cranking Simulator (CCS) viscosity standard, CL34	ASTM D5293	Glass bottle	500 ml	99395.260
Cold Cranking Simulator (CCS) viscosity standard, CL38	ASTM D5293	Glass bottle	500 ml	99396.260
Cold Cranking Simulator (CCS) viscosity standard, CL42	ASTM D5293	Glass bottle	500 ml	99397.260
Cold Cranking Simulator (CCS) viscosity standard, CL48	ASTM D5293	Glass bottle	500 ml	99398.260
Cold Cranking Simulator (CCS) viscosity standard, CL53	ASTM D5293	Glass bottle	500 ml	99399.260
Cold Cranking Simulator (CCS) viscosity standard, CL60	ASTM D5293	Glass bottle	500 ml	99400.260
Cold Cranking Simulator (CCS) viscosity standard, CL68	ASTM D5293	Glass bottle	500 ml	99401.260
Cold Cranking Simulator (CCS) viscosity standard, CL74	ASTM D5293	Glass bottle	500 ml	99402.260
Cold Cranking Simulator (CCS) viscosity standard kit with 8 values: CL14, CL19, CL22, CL25, CL28, CL32, CL48 & CL68	ASTM D5293	Glass bottle	Set	99403.001
Cold Cranking Simulator (CCS) viscosity standard kit with 14 values: CL10, CL12, CL14, CL16, CL19, CL22, CL25 (2) , CL28, CL32, CL38, CL48, CL60 & CL68	ASTM D5293	Glass bottle	Set	99404.001
Cold Cranking Simulator (CCS) viscosity standard kit with 18 values: CL08, CL09, CL10, CL11, CL12, CL13, CL14, CL15, CL16, CL19, CL22, CL25 (x2), CL28, CL32, CL38, CL48 & CL60	ASTM D5293	Glass bottle	Set	99405.001

FLOW CUP VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Especially designed for use in DIN, ISO, SHELL and Zahn flow cups
- Certified at 20 and 25 °C, and tested in accordance with ASTM D2162 (standard practice for basic calibration of master viscometers and viscosity standard oils)
- Density in g/ml in strict accordance with ASTM D1480
- Traceable to international standards
- Available in 500 ml with 24 months shelf life

Flow cup viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Flow cup viscosity standard, nominal viscosity 8.945 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99435.260
Flow cup viscosity standard, nominal viscosity 17.78 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99429.260
Flow cup viscosity standard, nominal viscosity 37.22 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99431.260
Flow cup viscosity standard, nominal viscosity 72.9 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99433.260
Flow cup viscosity standard, nominal viscosity 135.9 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99436.260
Flow cup viscosity standard, nominal viscosity 281.4 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99430.260
Flow cup viscosity standard, nominal viscosity 557.7 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99432.260
Flow cup viscosity standard, nominal viscosity 1044 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99434.260
Flow cup viscosity standard, nominal viscosity 1882 mPa.s (20 °C)	ASTM D1480	Glass bottle	500 ml	99437.260

CONE & PLATE (CAP) VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Density in g/ml in strict accordance with ASTM D1480
- Kinematic, mm²/s (cSt), dynamic viscosity in mPa.s(cP) mPa's (cP) and density, g/ml, given at all temperatures
- Full traceability to international standards
- 24 months shelf life



Cone & Plate viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Cone & plate viscosity standard, nominal viscosity 14.50 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99419.260
Cone & plate viscosity standard, nominal viscosity 28.97 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99420.260
Cone & plate viscosity standard, nominal viscosity 56.14 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99406.260
Cone & plate viscosity standard, nominal viscosity 75.19 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99417.260
Cone & plate viscosity standard, nominal viscosity 100.4 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99422.260
Cone & plate viscosity standard, nominal viscosity 150.0 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99423.260
Cone & plate viscosity standard, nominal viscosity 200.4 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99424.260
Cone & plate viscosity standard, nominal viscosity 250.2 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99425.260
Cone & plate viscosity standard, nominal viscosity 300.8 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99426.260
Cone & plate viscosity standard, nominal viscosity 351.1 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99427.260
Cone & plate viscosity standard, nominal viscosity 391.0 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99428.260
Cone & plate viscosity standard, nominal viscosity 714.8 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99408.260
Cone & plate viscosity standard, nominal viscosity 1008 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99409.260
Cone & plate viscosity standard, nominal viscosity 1517 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99410.260
Cone & plate viscosity standard, nominal viscosity 2044 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99421.260
Cone & plate viscosity standard, nominal viscosity 2506 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99411.260
Cone & plate viscosity standard, nominal viscosity 3993 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99412.260
Cone & plate viscosity standard, nominal viscosity 6055 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99413.260
Cone & plate viscosity standard, nominal viscosity 8081 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99414.260
Cone & plate viscosity standard, nominal viscosity 10030 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99415.260
Cone & plate viscosity standard, nominal viscosity 15166 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99416.260
Cone & plate viscosity standard, nominal viscosity 20077 mPa.s (25.00°C)	ASTM D1480	Glass bottle	500 ml	99418.260

HIGH TEMPERATURE VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Manufactured for temperatures between 20 and 150 °C tested at 10 different temperatures
- Kinematic, mm²/s (cSt), dynamic viscosity mPa's (cP) and density, g/ml, given at temperatures between 20 and 150 °C
- Ensures full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 500 ml tamper-evident security packaging with 24 months shelf life

High temperature viscosity calibration standards

Description	Pack type	Pk	Cat. No.
High temperature viscosity standard, nominal viscosity: 1,605 mPa.s (60 °C)	Glass bottle	500 ml	99490.260
High temperature viscosity standard, nominal viscosity: 2,935 mPa.s (60 °C)	Glass bottle	500 ml	99491.260
High temperature viscosity standard, nominal viscosity: 7,806 mPa.s (60 °C)	Glass bottle	500 ml	99492.260
High temperature viscosity standard, nominal viscosity: 20,05 mPa.s (60 °C)	Glass bottle	500 ml	99493.260
High temperature viscosity standard, nominal viscosity: 34,33 mPa.s (60 °C)	Glass bottle	500 ml	99494.260
High temperature viscosity standard, nominal viscosity: 57,98 mPa.s (60 °C)	Glass bottle	500 ml	99495.260
High temperature viscosity standard, nominal viscosity: 149,2 mPa.s (60 °C)	Glass bottle	500 ml	99496.260
High temperature viscosity standard, nominal viscosity: 431,7 mPa.s (60 °C)	Glass bottle	500 ml	99497.260
High temperature viscosity standard, nominal viscosity: 1533 mPa.s (60 °C)	Glass bottle	500 ml	99498.260
High temperature viscosity standard, nominal viscosity: 4897 mPa.s (60 °C)	Glass bottle	500 ml	99499.260
High temperature viscosity standard, nominal viscosity: 149,2 mPa.s (60 °C)	Glass bottle	500 ml	99500.260*
High temperature viscosity standard, nominal viscosity: 431,7 mPa.s (60 °C)	Glass bottle	500 ml	99501.260*
High temperature viscosity standard (100 to 150 °C), nominal viscosity: 11,57 mPa.s (100 °C)	Glass bottle	500 ml	99502.260
High temperature viscosity standard (100 to 150 °C), nominal viscosity: 17,43 mPa.s (100 °C)	Glass bottle	500 ml	99503.260
High temperature viscosity standard (100 to 150 °C), nominal viscosity: 36,15 mPa.s (100 °C)	Glass bottle	500 ml	99504.260

* means that these standards have been checked only at 2 temperatures

STANDARDS FOR PETROCHEMISTRY

LOW TEMPERATURE VISCOSITY STANDARDS

- Used for the verification of viscometers at sub-zero temperatures on a routine basis
- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Ensure full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 500 ml with 24 months shelf life

Low temperature viscosity calibration standards

Description	Pack type	Pk	Cat. No.
Low temperature viscosity standard, J10, nominal viscosity: 894,8 cSt (-40 °C)	Glass bottle	500 ml	99478.260
Low temperature viscosity standard, JF1-H, nominal viscosity: 13,00 cSt (-40 °C)	Glass bottle	500 ml	99479.260
Low temperature viscosity standard, JF1-L, nominal viscosity: 6,664 cSt (-40 °C)	Glass bottle	500 ml	99480.260
Low temperature viscosity standard, N105B, nominal viscosity: 63815 cSt (-25 °C)	Glass bottle	500 ml	99481.260
Low temperature viscosity standard, N115B, nominal viscosity: 168320 cSt (-20 °F)	Glass bottle	500 ml	99482.260
Low temperature viscosity standard, N120B, nominal viscosity: 172601 cSt (-40 °C)	Glass bottle	500 ml	99483.260
Low temperature viscosity standard, N1400B, nominal viscosity: 156250 cSt (-12 °C)	Glass bottle	500 ml	99484.260
Low temperature viscosity standard, N14B, nominal viscosity: 19605 cSt (-40 °C)	Glass bottle	500 ml	99485.260
Low temperature viscosity standard, N27B, nominal viscosity: 24522 cSt (-40 °C)	Glass bottle	500 ml	99486.260
Low temperature viscosity standard, N2B, nominal viscosity: 9,095 cSt (-20 °C)	Glass bottle	500 ml	99487.260
Low temperature viscosity standard, N400B, nominal viscosity: 68176 cSt (-25 °C)	Glass bottle	500 ml	99488.260
Low temperature viscosity standard, N480B, nominal viscosity: 149373 cSt (-25 °C)	Glass bottle	500 ml	99489.260

MEDICAL VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Tested in accordance with ASTM D2162, primary method for viscosity standard calibration
- Traceable to international standards
- Available in 100 and 500 ml pack sizes

Medical grade viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 1,2 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99505.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 1,2 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99505.260
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 1,6 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99506.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 1,6 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99506.260
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 2,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99507.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 2,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99507.260
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 3,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99508.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 3,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99508.260
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 4,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99509.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 4,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99509.260
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 6,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99510.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 6,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99510.260
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 10,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	100 ml	99511.180
Medical grade viscosity standard, contains antibacterial agent, nominal viscosity: 10,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99511.260



VWR Chemicals volumetric solutions for titration

All you need for titration.

- AVS TITRINORM: 'Ready to use' volumetric solutions, traceable to NIST available in different packs
- ConvoL NORMADOSE: Concentrated volumetric solutions
- Secondary reference standards for reliable calibration in volumetric analysis



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PB20068-EN

SILICONE ROTATIONAL VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Tested and certified at 20 and 25 °C
- Ensures full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 600 ml supplied in ready to use 'test in pack' containers with 12 months shelf life

Silicone rotational viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Rotational silicone viscosity standard, nominal viscosity: 10,12 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99512.271
Rotational silicone viscosity standard, nominal viscosity: 100,7 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99514.271
Rotational silicone viscosity standard, nominal viscosity: 100075 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99515.271
Rotational silicone viscosity standard, nominal viscosity: 1003 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99516.271
Rotational silicone viscosity standard, nominal viscosity: 12423 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99517.271
Rotational silicone viscosity standard, nominal viscosity: 251,5 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99518.271
Rotational silicone viscosity standard, nominal viscosity: 30036 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99519.271
Rotational silicone viscosity standard, nominal viscosity: 357,0 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99520.271
Rotational silicone viscosity standard, nominal viscosity: 4,988 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99521.271
Rotational silicone viscosity standard, nominal viscosity: 50,49 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99522.271
Rotational silicone viscosity standard, nominal viscosity: 503,9 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99523.271
Rotational silicone viscosity standard, nominal viscosity: 5034 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99524.271
Rotational silicone viscosity standard, nominal viscosity: 60139 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99525.271
Rotational silicone viscosity standard, nominal viscosity: 75,53 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99526.271
Rotational silicone viscosity standard, nominal viscosity: 9970 mPa.s (25 °C)	ASTM D2162	Plastic bottle	600 ml	99513.271

SMALL SAMPLE VISCOSITY STANDARDS – ASTM D7279

- Certified in strict accordance to ASTM D2162 at 40 and 100 °C
- Certified in strict accordance to ISO 17025 and ISO/IEC 17034
- Manufactured specifically for users at ASTM D7279
- Ensure full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 60 ml lower volume cost effective solution with 24 months shelf life

Small sample viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Small sample viscosity standard, kinematic viscosity nominal value: 2,884 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99360.600
Small sample viscosity standard, kinematic viscosity nominal value: 5,697 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99361.600
Small sample viscosity standard, kinematic viscosity nominal value: 10 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99362.600
Small sample viscosity standard, kinematic viscosity nominal value: 31,99 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99363.600
Small sample viscosity standard, kinematic viscosity nominal value: 54,13 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99364.600
Small sample viscosity standard, kinematic viscosity nominal value: 100,3 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99365.600
Small sample viscosity standard, kinematic viscosity nominal value: 181,3 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99366.600
Small sample viscosity standard, kinematic viscosity nominal value: 313,7 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99367.600
Small sample viscosity standard, kinematic viscosity nominal value: 524,8 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99368.600
Small sample viscosity standard, kinematic viscosity nominal value: 1009 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99369.600
Small sample viscosity standard, kinematic viscosity nominal value: 1705 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99370.600
Small sample viscosity standard, kinematic viscosity nominal value: 2094 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99371.600
Small sample viscosity standard, kinematic viscosity nominal value: 3351 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99372.600
Small sample viscosity standard, kinematic viscosity nominal value: 6684 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99373.600
Small sample viscosity standard, kinematic viscosity nominal value: 13072 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99374.600
Small sample viscosity standard, kinematic viscosity nominal value: 23037 cSt (40 °C)	ASTM D7279 and ASTM D2162	Glass bottle	60 ml	99375.600

PURE WATER VISCOSITY STANDARDS

- Certified in strict accordance to ISO 17025, ISO/IEC 17034 and UKAS
- Certified in strict accordance to ASTM D445 for 5 °C
- Certified in strict accordance to ASTM D2162 for 20, 25 and 37 °C
- Density in g/ml in strict accordance with ASTM D1480 for all temperatures
- Ensures full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 100 ml with 6 months shelf life

Pure water viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Pure water viscosity standard, kinematic viscosity nominal value: 1,5257 cSt @ 5 °C, (certified @ 5, 20, 25 & 37 °C)	ASTM D445 and ASTM D2162	Glass bottle	100 ml	99566.180

MINERAL OIL ROTATIONAL VISCOSITY STANDARDS

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS accreditations
- Are the first choice where end-users are unable to have silicone in their process
- Dynamic viscosity at 20 and 25 °C is derived from the kinematic viscosity measured in strict accordance with ASTM D2162, and the density is measured in strict accordance with ASTM D1480
- Dynamic viscosity at intermediate temperatures is derived from the kinematic viscosity calculated in strict accordance with ASTM D341, and interpolated density measurements by calculation
- Ensures full compliance to ASTM and IP Test method protocols
- Traceable to international standards
- Available in 500 ml pack sizes with 12 months shelf life

Rotational mineral oil viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Rotational mineral oil viscosity standard, nominal viscosity: 0,3051 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99527.260
Rotational mineral oil viscosity standard, nominal viscosity: 0,5204 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99528.260
Rotational mineral oil viscosity standard, nominal viscosity: 0,9525 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99529.260
Rotational mineral oil viscosity standard, nominal viscosity: 2,144 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99530.260
Rotational mineral oil viscosity standard, nominal viscosity: 3,329 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99531.260
Rotational mineral oil viscosity standard, nominal viscosity: 4,745 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99532.260
Rotational mineral oil viscosity standard, nominal viscosity: 7,520 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99533.260
Rotational mineral oil viscosity standard, nominal viscosity: 10,37 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99534.260
Rotational mineral oil viscosity standard, nominal viscosity: 14,50 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99535.260
Rotational mineral oil viscosity standard, nominal viscosity: 20,40 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99536.260
Rotational mineral oil viscosity standard, nominal viscosity: 29,04 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99537.260
Rotational mineral oil viscosity standard, nominal viscosity: 55,68 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99538.260
Rotational mineral oil viscosity standard, nominal viscosity: 75,19 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99539.260

Rotational mineral oil viscosity calibration standards

Description	Norms	Pack type	Pk	Cat. No.
Rotational mineral oil viscosity standard, nominal viscosity: 101,4 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99540.260
Rotational mineral oil viscosity standard, nominal viscosity: 150,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99541.260
Rotational mineral oil viscosity standard, nominal viscosity: 203,1 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99542.260
Rotational mineral oil viscosity standard, nominal viscosity: 250,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99543.260
Rotational mineral oil viscosity standard, nominal viscosity: 300,8 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99544.260
Rotational mineral oil viscosity standard, nominal viscosity: 351,1 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99545.260
Rotational mineral oil viscosity standard, nominal viscosity: 389,1 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99546.260
Rotational mineral oil viscosity standard, nominal viscosity: 494,0 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99547.260
Rotational mineral oil viscosity standard, nominal viscosity: 719,7 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99548.260
Rotational mineral oil viscosity standard, nominal viscosity: 796,5 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99549.260
Rotational mineral oil viscosity standard, nominal viscosity: 1008 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99550.260
Rotational mineral oil viscosity standard, nominal viscosity: 1260 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99551.260
Rotational mineral oil viscosity standard, nominal viscosity: 1517 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99552.260
Rotational mineral oil viscosity standard, nominal viscosity: 2013 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99553.260
Rotational mineral oil viscosity standard, nominal viscosity: 2556 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99554.260
Rotational mineral oil viscosity standard, nominal viscosity: 4024 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99555.260
Rotational mineral oil viscosity standard, nominal viscosity: 4588 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99556.260
Rotational mineral oil viscosity standard, nominal viscosity: 5738 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99557.260
Rotational mineral oil viscosity standard, nominal viscosity: 6055 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99558.260
Rotational mineral oil viscosity standard, nominal viscosity: 7657 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99559.260
Rotational mineral oil viscosity standard, nominal viscosity: 8081 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99560.260
Rotational mineral oil viscosity standard, nominal viscosity: 10030 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99561.260
Rotational mineral oil viscosity standard, nominal viscosity: 15166 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99562.260
Rotational mineral oil viscosity standard, nominal viscosity: 19588 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99563.260
Rotational mineral oil viscosity standard, nominal viscosity: 40049 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99564.260
Rotational mineral oil viscosity standard, nominal viscosity: 72328 mPa.s (25 °C)	ASTM D2162	Glass bottle	500 ml	99565.260



VWR Chemicals Karl Fischer reagents for accurate water determination

'Ready to use' solutions, reagents and standards for volumetric and coulometric analyses.

- Fast, stable and accurate endpoints
- Buffered systems for controlled pH
- Long-term stability and shelf life
- Batch-to-batch reproducibility

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Certified viscosity check oils

These check oils are for validating the performance of Cold Cranking Simulators and kinematic viscosimeters by measuring commercially available formulated engine oils. Viscosity values for them have been tested and certified at typical blend targets.

- Certified in strict accordance to ISO/IEC 17025 and ISO/IEC 17034
- Kinematic, mm²/s (cSt) in accordance with ASTM D445
- Density in g/ml in strict accordance with ASTM D4052
- CCS dynamic viscosity (cP) in accordance with ASTM D5293
- Viscosity index in accordance with ASTM D2270
- Fully traceable to international standards
- Available in 500ml and 5l with 24 months shelf life

Description	Norms	Pack type	Pk	Cat. No.
Viscosity check oil, 5W30, CCS dynamic viscosity, nominal: Kinematic 65,90 CST at 40 °C, VI 170	ASTM D445	Glass bottle	500 ml	99170.260
Viscosity check oil, 5W30, CCS dynamic viscosity, nominal: Kinematic 65,90 CST at 40 °C, VI 170	ASTM D445	Plastic bottle	5 L	99170.360
Viscosity check oil, 10W30, CCS dynamic viscosity, nominal: Kinematic 67,27 CST at 40 °C, VI 142	ASTM D4052	Glass bottle	500 ml	99171.260
Viscosity check oil, 10W30, CCS dynamic viscosity, nominal: Kinematic 67,27 CST at 40 °C, VI 142	ASTM D4052	Plastic bottle	5 L	99171.360
Viscosity check oil, 15W40, CCS dynamic viscosity, nominal: Kinematic 103,1 CST at 40 °C, VI 142	ASTM D5293 and ASTM D2270	Glass bottle	500 ml	99172.260
Viscosity check oil, 15W40, CCS dynamic viscosity, nominal: Kinematic 103,1 CST at 40 °C, VI 142	ASTM D5293 and ASTM D2270	Plastic bottle	5 L	99172.360

Certified Reference Materials, sulfur

Sulfur CRMs are suitable for calibration, verification or for use in quality control procedures used for analysing sulfur content in petroleum products. Our range is in strict accordance to both ISO/IEC 17025 and ISO/IEC 17034, and UKAS that includes sulfur in light mineral oil, heavy mineral oil, and in synthetic diesel, with sulfur content ranging from 0 (blank) through to 5,0000% (50000 ppm) for each material.

- Certified in strict accordance to ISO/IEC 17025, ISO/IEC 17034 and UKAS
- Ensures full compliance to ASTM and IP Test method protocols
- Provides low levels of uncertainty, ensuring maximum accuracy of data at hand Suitable for but not limited to internationally recognised test methods and protocol: ASTM D2622, ASTM D3120, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497.
- Traceable to international standards
- Available in 100 ml tamper-evident glass bottles also available in sets with 12 months shelf life



Certified reference material, light mineral oil sulfur standards

Description	Norms	Pack type	Pk	Cat. No.
CRM, sulfur in light mineral oil, 0,0005% (5 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99187.180
CRM, sulfur in light mineral oil, 0,0010% (10 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99188.180
CRM, sulfur in light mineral oil, 0,0025% (25 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99189.180
CRM, sulfur in light mineral oil, 0,0050% (50 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99190.180
CRM, sulfur in light mineral oil, 0,0100% (100 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99191.180
CRM, sulfur in light mineral oil, 0,0250% (250 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99192.180
CRM, sulfur in light mineral oil, 0,0300% (300 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99193.180
CRM, sulfur in light mineral oil, 0,0500% (500 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99194.180
CRM, sulfur in light mineral oil, 0,0700% (700 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99195.180
CRM, sulfur in light mineral oil, 0,0750% (750 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99196.180
CRM, sulfur in light mineral oil, 0,1000% (1000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99197.180
CRM, sulfur in light mineral oil, 0,2500% (2500 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99198.180
CRM, sulfur in light mineral oil, 0,3000% (3000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99199.180
CRM, sulfur in light mineral oil, 0,5000% (5000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99200.180
CRM, sulfur in light mineral oil, 1,0000% (10000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99201.180
CRM, sulfur in light mineral oil, 1,5000% (15000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99202.180
CRM, sulfur in light mineral oil, 2,0000% (20000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99203.180
CRM, sulfur in light mineral oil, 3,0000% (30000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99204.180
CRM, sulfur in light mineral oil, 4,0000% (40000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99205.180
CRM, sulfur in light mineral oil, 5,0000% (50000 ppm)	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99206.180
CRM, sulfur in light mineral oil, blank	ASTM D2622, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497	Glass bottle	100 ml	99207.180

STANDARDS FOR PETROCHEMISTRY

Certified reference material, light mineral oil sulfur standards in set

Description	Composition	Pack size	Pk	Cat.N°
Sulfur in light mineral oil, ASTM D2622, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99250.001
Sulfur in light mineral oil, ASTM D2622, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99251.001
Sulfur in light mineral oil, ASTM D2622, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99252.001
Sulfur in light mineral oil, ASTM D4294, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99256.001
Sulfur in light mineral oil, ASTM D4294, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99257.001
Sulfur in light mineral oil, ASTM D4294, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99258.001
Sulfur in light mineral oil, ASTM D7039, calibration set A	Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm)	Glass bottle	Set (5 x 100 ML)	99262.001
Sulfur in light mineral oil, ASTM D7039, calibration set B	Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm)	Glass bottle	Set (6 x 100 ML)	99263.001
Sulfur in light mineral oil, ASTM D7220, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm)	Glass bottle	Set (5 x 100 ML)	99266.001
Sulfur in light mineral oil, ASTM D7220, calibration set B	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99267.001
Sulfur in light mineral oil, IP 336, calibration set A	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (5 x 100 ML)	99270.001
Sulfur in light mineral oil, IP 336, calibration set B	Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (4 x 100 ML)	99271.001
Sulfur in light mineral oil, IP 336, calibration set C	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm)	Glass bottle	Set (4 x 100 ML)	99272.001
Sulfur in light mineral oil IP 336, calibration set D	Blank, 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (4 x 100 ML)	99273.001
Sulfur in light mineral oil, IP 336, calibration set E	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (7 x 100 ML)	99274.001
Sulfur in light mineral oil, IP 336, calibration set F	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (7 x 100 ML)	99275.001
Sulfur in light mineral oil, IP 496, calibration set A	Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99282.001
Sulfur in light mineral oil, IP 497, calibration set A	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm)	Glass bottle	Set (6 x 100 ML)	99284.001

Certified reference material, heavy mineral oil sulfur standards in set

Description	Composition	Pack size	Pk	Cat.N°
Sulfur in heavy mineral oil, ASTM D2622, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99253.001
Sulfur in heavy mineral oil, ASTM D2622, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99254.001
Sulfur in heavy mineral oil, ASTM D2622, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99255.001
Sulfur in heavy mineral oil, ASTM D4294, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99259.001
Sulfur in heavy mineral oil, ASTM D4294, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99260.001
Sulfur in heavy mineral oil, ASTM D4294, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99261.001
Sulfur in heavy mineral oil, ASTM D7039, calibration set A	Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm)	Glass bottle	Set (5 x 100 ML)	99264.001
Sulfur in heavy mineral oil, ASTM D7039, calibration set B	Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm)	Glass bottle	Set (6 x 100 ML)	99265.001
Sulfur in heavy mineral oil, ASTM D7220, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm)	Glass bottle	Set (5 x 100 ML)	99268.001
Sulfur in heavy mineral oil, ASTM D7220, calibration set B	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99269.001
Sulfur in heavy mineral oil, IP 336, calibration set A	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (5 x 100 ML)	99276.001
Sulfur in heavy mineral oil IP 336, calibration set B	Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (4 x 100 ML)	99277.001
Sulfur in heavy mineral oil IP 336, calibration set C	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm)	Glass bottle	Set (4 x 100 ML)	99278.001
Sulfur in heavy mineral oil IP 336, calibration set D	Blank, 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (4 x 100 ML)	99279.001
Sulfur in heavy mineral oil IP 336, calibration set E	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (7 x 100 ML)	99280.001
Sulfur in heavy mineral oil, IP 336, calibration set F	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (7 x 100 ML)	99281.001
Sulfur in heavy mineral oil, IP 496, calibration set A	Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99283.001
Sulfur in heavy mineral oil, IP 497, calibration set A	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm)	Glass bottle	Set (6 x 100 ML)	99285.001



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Perform LC-MS with a complete range of reagents, filters, vials and safety caps.



MORE INFORMATION

PB20067-EN

Certified reference material, synthetic diesel sulfur standards in set

Description	Composition	Pack size	Pk	Cat.N°
Sulfur in synthetic diesel, ASTM D2622, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99286.001
Sulfur in synthetic diesel, ASTM D2622, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99287.001
Sulfur in synthetic diesel, ASTM D2622, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99288.001
Sulfur in synthetic diesel, ASTM D4294, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99289.001
Sulfur in synthetic diesel, ASTM D4294, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99290.001
Sulfur in synthetic diesel, ASTM D4294, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99291.001
Sulfur in synthetic diesel, ASTM D7039, calibration set A	Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm)	Glass bottle	Set (5 x 100 ML)	99292.001
Sulfur in synthetic diesel, ASTM D7039, calibration set B	Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm)	Glass bottle	Set (6 x 100 ML)	99293.001
Sulfur in synthetic diesel, ASTM D7220, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm)	Glass bottle	Set (5 x 100 ML)	99294.001
Sulfur in synthetic diesel, ASTM D7220, calibration set B	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99295.001
Sulfur in synthetic diesel, IP 336, calibration set A	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (5 x 100 ML)	99296.001
Sulfur in synthetic diesel, IP 336, calibration set B	Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (4 x 100 ML)	99297.001
Sulfur in synthetic diesel, IP 336, calibration set C	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm)	Glass bottle	Set (4 x 100 ML)	99298.001
Sulfur in synthetic diesel, IP 336, calibration set D	Blank, 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (4 x 100 ML)	99299.001
Sulfur in synthetic diesel, IP 336, calibration set E	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (7 x 100 ML)	99300.001
Sulfur in synthetic diesel, IP 336, calibration set F	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (7 x 100 ML)	99301.001
Sulfur in synthetic diesel, IP 496, calibration set A	Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99302.001
Sulfur in synthetic diesel, IP 497, calibration set A	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm)	Glass bottle	Set (6 x 100 ML)	99303.001

Certified reference material, kerosene (odourless) sulfur standards in set

Description	Composition	Pack size	Pk	Cat.N°
Sulfur in odourless kerosene , ASTM D2622, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99325.001
Sulfur in odourless kerosene , ASTM D2622, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99326.001
Sulfur in odourless kerosene , ASTM D2622, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99327.001
Sulfur in odourless kerosene , ASTM D4294, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750ppm), 0.1 % (1000 ppm)	Glass bottle	Set (8 x 100 ML)	99328.001
Sulfur in odourless kerosene , ASTM D4294, calibration set B	Blank, 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm)	Glass bottle	Set (4 x 100 ML)	99329.001
Sulfur in odourless kerosene , ASTM D4294, calibration set C	Blank, 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (5 x 100 ML)	99330.001
Sulfur in odourless kerosene , ASTM D7039, calibration set A	Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm)	Glass bottle	Set (5 x 100 ML)	99331.001
Sulfur in odourless kerosene , ASTM D7039, calibration set B	Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm)	Glass bottle	Set (6 x 100 ML)	99332.001
Sulfur in odourless kerosene , ASTM D7220, calibration set A	Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm)	Glass bottle	Set (5 x 100 ML)	99333.001
Sulfur in odourless kerosene , ASTM D7220, calibration set B	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99334.001
Sulfur in odourless kerosene , IP 336, calibration set A	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (5 x 100 ML)	99335.001
Sulfur in odourless kerosene , IP 336, calibration set B	Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (4 x 100 ML)	99336.001
Sulfur in odourless kerosene , IP 336, calibration set C	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm)	Glass bottle	Set (4 x 100 ML)	99337.001
Sulfur in odourless kerosene , IP 336, calibration set D	Blank, 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (4 x 100 ML)	99338.001
Sulfur in odourless kerosene , IP 336, calibration set E	Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm)	Glass bottle	Set (7 x 100 ML)	99339.001
Sulfur in odourless kerosene , IP 336, calibration set F	Blank, 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm)	Glass bottle	Set (7 x 100 ML)	99340.001
Sulfur in odourless kerosene , IP 496, calibration set A	Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm)	Glass bottle	Set (6 x 100 ML)	99341.001
Sulfur in odourless kerosene , IP 497, calibration set A	Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm)	Glass bottle	Set (6 x 100 ML)	99342.001

Laboratory reagents

LITHIUM CHLORIDE ELECTROLYTE

High quality analytical reagents manufactured and certified compliant for use in ASTM D664 / IP 177 (standard test method for acid number of petroleum products by potentiometric titration).

- Produced in accordance with ASTM D664 / IP 177 and equivalent methodologies
- Ensures full compliance to ASTM and IP Test method requirements for reagent preparation
- Convenient 30 ml bottle size for direct filling into the electrode
- Cost effective and time saving
- 6 months shelf life

Laboratory reagent, electrolytes

Description	Norms	Pack type	Pk	Cat. No.
2 M lithium chloride electrolyte, electrode filling	ASTM D 664, IP 177	Plastic bottle	set (3x30 ml)	99166.001
2 M lithium chloride electrolyte, electrode filling	ASTM D 664, IP 177	Plastic bottle	set (5x30 ml)	99167.001
2 M lithium chloride electrolyte, electrode filling	ASTM D 664, IP 177	Plastic bottle	set (10x30 ml)	99168.001

SYNTHETIC SEA WATER

A high quality analytical reagent manufactured and certified compliant for use in ASTM D665 / IP 135 (standard test method for rust-preventing characteristics of inhibited mineral oil in the presence of water) and equivalent methodologies.

- Produced in accordance with ASTM D665 / IP 135 and equivalent methodologies
- Ensures full compliance to ASTM and IP Test method requirements for reagent preparation
- Convenient packs in single doses or multi-dose packs
- Cost effective and time saving
- 12 months shelf life

Synthetic sea water solution

Description	Norms	Pack type	Pk	Cat. No.
Synthetic sea water	ASTM 665, IP 135	Glass bottle	set (10x30ml)	99169.001
Synthetic sea water	ASTM 665, IP 135	Glass bottle	300 ml	99169.251
Synthetic sea water	ASTM 665, IP 135	Glass bottle	500 ml	99169.260
Synthetic sea water	ASTM 665, IP 135	Glass bottle	5 L	99169.360

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