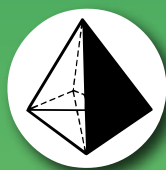


Petroleum Physical Property Standards



AccuStandard®

ASTM Physical Properties

PHYSICAL PROPERTIES METHODS

Flash Point – ASTM D56, D92, and D93
Distillation – ASTM D86
Kinematic Viscosity – ASTM D445
Freezing Point – ASTM D1015, D2386, and D5972
Aniline Point – ASTM D611
Karl Fischer – ASTM D1744, E1064, D4377, D4928, and D6304
Cloud Point – ASTM D2500, D5771, D5772, and D5773
Pour Point – ASTM D97 & D5950

CROSS-REFERENCE METHODS

ANALYSIS	ASTM	IP	ISO	DIN	JIS
Tag Flash Point	D56			51411	K 2580
Distillation	D86	123	3405	51751	K 2254
PMCC Flash Point	D93	34	2719	51758	K 2265
Kinematic Viscosity	D445	71-1	3104	51562	K 2283
Aniline Point	D611	2	2977	51775	
Hydrocarbon Types by FID	D1319	156	3837	51791	K 2536
Water (Karl Fischer)	D1744		6296		
Freezing Point	D2386	16	3013	51421	K 2276
Cloud Point	D2500	219	3015	51597	K 2269
Water (Karl Fischer)	D4377	356	10336		
Water (Karl Fischer)	D4928	386	10337		

Accredited to ISO 17034:2016 and ISO 17025:2017

ISO 17034:2016 accreditation goes above and beyond ISO/IEC 17025 and ISO 9001:2015 requirements, and demonstrates that a Reference Material Producer is able to follow the strict guidelines for producing, certifying, labeling, and reporting uncertainty for their products. Requirements include verifying stability and homogeneity for the products. AccuStandard ISO 17034:2016 scope includes ASTM methods for Flash Point, Distillation, Cloud Point, Freeze Point, Viscosity, and Water Content in petroleum products by Karl Fischer Titration.

AccuStandard is an active member of ASTM technical committees D02 (Petroleum) and D16 (Aromatic Hydrocarbons). We participate in the ASTM D02 PTP program for a periodic performance assessment. These assessments with other participating laboratories ensure we can confidently certify our values.

AccuStandard®
125 Market Street
New Haven, CT 06510
USA

CERTIFICATE OF ANALYSIS

Catalog No: ASTM-P-132-01
Description: PMCC D-93 - Flash Point (D-93) (50 - 63 °C)
Lot: 224021343
Shelf: N/A
Hazards: Refer to SDS for complete safety information

Date Certified: Feb 27, 2024
Expiration: Feb 27, 2024
Sample Size: 250 mL
Storage Conditions: Ambient (>5 °C)

ISO 17034 & 17025 Certified

Physical Property:
Flash Point: 59.8 °C
138.3 °F

Certified Values

was determined by ASTM D93

Repeatability: 1.73 °C
Reproducibility: 4.23 °C

Method

Repeatability & Reproducibility

Uncertainty

This Certified Reference Material was verified in accordance with ISO/IEC 17025 (PT-1306) and ISO 17034 (A1-1403). The uncertainty associated with the certified value reported on this certificate is 5.16 °C in accordance with ISO 17034. This value is the combined expanded uncertainty and represents an estimated expansion equal to the positive square root of the sum of the squares of the uncertainty of the component. A normal distribution is assumed and a coverage factor of k=2 is chosen using approximately a 95% confidence level. A product with a suffix >14, >28, etc. or <1, <2, etc. on its lot number has had its expiration date extended and is identical to the same lot number without the suffix. Lot numbers and certificates follow U.S. Conventions in reporting numerical values. A comma (,) is used to separate units of one thousand or greater. A period (.) is used as a decimal point marker. The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information. Recent information: Please refer to the SDS for information regarding the hazards associated with using this material. This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

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AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015



250 mL and 500 mL fill sizes are approximate

ASTM Physical Properties CRMs

ASTM D56, D92, D93 Flash Point Standards

Flash Point is the lowest temperature at which a heated liquid will form sufficient vapor to ignite when exposed to a flame source. For heavy oils or light hydrocarbons, we offer multiple flash point CRMs for your daily and routine checks that are ASTM D56, D92 and D93 compliant.

ASTM No.	Nominal Flash Point	Cat. No.	Unit	ASTM No.	Nominal Flash Point	Cat. No.	Unit
TCC D56	67 °C	ASTM-P-133-04	250 mL	PMCC D93	60 °C	ASTM-P-132-01	250 mL
COC D92	138 °C	ASTM-P-133-03	250 mL	PMCC D93	93 °C	ASTM-P-132-02	250 mL
COC D92	200 °C	ASTM-P-132-03	250 mL	PMCC D93	65 °C	ASTM-P-133-01	250 mL
COC D92	230 °C	ASTM-P-132-04	250 mL	PMCC D93	134 °C	ASTM-P-133-02	250 mL

ASTM D86 Distillation Standards

The automatic distillation apparatus duplicates the distillation conditions of the manual method. The increased reliance on the detectors requires an independent standard to verify that the apparatus is performing correctly. This synthetic blend of hydrocarbons boils in the temperature range specified in ASTM D86 distillation Groups 1 and 2. The fuel oil meets the Group 4 criteria.

The Group 1 and 2 standards cover the boiling range from 129-368°F (54-187°C). The Group 4 standard covers the range from 410-670°F (210-355°C). ▲ Hazardous fee required.

Group	Description	Cat. No.	Unit	Group	Description	Cat. No.	Unit
1, 2	Synthetic Distillation Standard	ASTM-P-126-01 ▲	500 mL	4	Distillation Standard	ASTM-P-127-01 ▲	250 mL
						ASTM-P-127-02 ▲	500 mL

The accuracy of the temperature monitoring device in the distillation apparatus is fundamental to achieve reliable distillation results. These CRMs are designed to help accurately verify the temperature device response time in accordance with ASTM D86. This is particularly important since the response time of the electronic measuring device tends to be different when compared to the conventional mercury thermometers

Description	Cat. No.	Unit	Description	Cat. No.	Unit
Low Range Check Standard	D-86-LR	500 mL	High Range Check Standard	D-86-HR	500 mL

ASTM D445 Kinematic Viscosity Calibration Standards

Kinematic Viscosity is the measurement of a liquid flow time using a calibrated viscometer tube in a controlled temperature bath. The Kinematic viscosity of petroleum products is important to determine the quality of the product, the applicability and the suitable storage conditions. AccuStandard viscosity CRMs are made in accordance with ASTM Test Method D445 and covers a broad range of Viscosity values.

Viscosity @ 40°C	Cat. No.	Unit	Viscosity @ 40°C	Cat. No.	Unit
4 Cst	ASTM-P-128-01	500 mL	19 Cst	ASTM-P-128-03	500 mL
7 Cst	ASTM-P-128-02	500 mL	400 Cst	ASTM-P-128-07	500 mL
Description	Cat. No.	Unit	Description	Cat. No.	Unit
Viscosity: 61 cSt @40 °C, 29 cSt @100 °C	D-445-04	500 mL	Viscosity: 180 cSt @40 °C, 16 cSt @100 °C	D-445-05	500 mL

ASTM D1015, D2386, D5972, D7153 Freezing Points for Aviation Fuel

Aviation fuel freezing point is the lowest temperature at which fuel remains free of solid hydrocarbon crystals.

Nominal Freezing Point	Cat. No.	Unit	Nominal Freezing Point	Cat. No.	Unit
- 50 °C	ASTM-P-129-01	250 mL	- 45 °C	ASTM-P-129-02	250 mL

ASTM D611 Aniline Point Standards (NOT ON ISO 17034 SCOPE)

Aniline point is the temperature at which equal volume of Aniline and oil becomes miscible and no phase separation is observed. The measurement of Aniline point is important to determine the Aromaticity as well as the aromatic content in oils and heavy hydrocarbons. The percentage of aromatic compounds in such materials directly impacts properties such as viscosity and flash point. In addition to Pure Aniline, we offer a wide range of Aniline Point standards that cover multiple Aniline Point temperatures and complies with both ASTM D611 and ASTM D611E.

Method 611(A) Nominal Aniline Point	Cat. No.	Unit	Method 611(E) Nominal Aniline Point	Cat. No.	Unit
0 °C	D-611-SET	5 x 20 mL	43 °C	D-611E-SET	3 x 20 mL
30 °C	D-611-01	20 mL	62 °C	D-611E-01	20 mL
55 °C	D-611-02	20 mL	77 °C	D-611E-02	20 mL
68 °C	D-611-03	20 mL		D-611E-03	20 mL
94 °C	D-611-04	20 mL	Pure Aniline	ASTM-P-134-PAK	5 x 20 mL
	D-611-05	20 mL			

For routine purposes pure aniline is packaged in ampules under dry nitrogen. This minimizes the risk of oxidation.

Physical Properties Petroleum CRMs

ASTM D1744, E1064, D4377 Water in Liquid Petroleum Products by Karl Fischer D4928, D6304

The Karl Fischer Coulometric titration is used to determine water content in Petroleum, Pharmaceutical as well as Food products. ASTM D4377 Karl Fischer CRMs are available as low as 60 PPM with versatile fill sizes that meet all your lab needs.

Water Content	Cat. No.	Unit	Water Content	Cat. No.	Unit
60 µg/g	KF-0.6X-5ML-VAP	10 x 5 mL	5000 µg/g	KF-50X-2ML-VAP	10 x 2 mL
100 µg/g	KF-1X-2ML-VAP	10 x 2 mL		KF-50X-5ML-VAP	10 x 5 mL
	KF-1X-5ML-VAP	10 x 5 mL		KF-50X-20ML-PAK	5 x 20 mL
	KF-1X-20ML-PAK	5 x 20 mL			
1000 µg/g	KF-10X-2ML-VAP	10 x 2 mL			
	KF-10X-5ML-VAP	10 x 5 mL			
	KF-10X-20ML-PAK	5 x 20 mL			

Value Added PAKs (VAP)

Multiple single units packaged together for consistency & cost savings.

ASTM D2500, D5771, D5772, D5773 Cloud Point Calibration

The Cloud Point is known as the lowest temperature when a petroleum product becomes cloudy and hydrocarbon crystals start forming. Cloud Point is an important parameter to measure in order to determine quality and performance of petroleum products. Cloud Point CRMs cover a range from -20 °C up to +5 °C. They are available for immediate dispatch to meet your application needs.

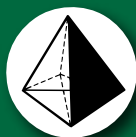
Cloud Point (Approx. Value)	Cat. No.	Unit	Cloud Point (Approx. Value)	Cat. No.	Unit
+ 5 °C	ASTM-P-131-01	250 mL	- 15 °C	ASTM-P-131-04 ▲	250 mL
- 2 °C	ASTM-P-131-02 ▲	250 mL	- 20 °C	ASTM-P-131-05 ▲	250 mL
- 10 °C	ASTM-P-131-03 ▲	250 mL			

ASTM D97, D5950 Pour Point Calibration

The Pour Point of a liquid is defined as the lowest temperature at which a petroleum product can be poured under certain testing criteria. Pour Point is an important characteristic to measure for Refineries and Petroleum Testing Labs to ensure fuel meets the desired specifications.

Pour Point (Approx. Value)	Cat. No.	Unit	Pour Point (Approx. Value)	Cat. No.	Unit
- 50 °C	ASTM-P-135-01 ▲	250 mL	- 15 °C	ASTM-P-135-04	250 mL
- 25 °C	ASTM-P-135-02 ▲	250 mL	- 40 °C	ASTM-P-135-05 ▲	250 mL
- 5 °C	ASTM-P-135-03 ▲	250 mL			

▲ Hazardous fee required.



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