Agilent CrossLab
From Insight to Outcome

UST and ASTM Petrochemical Standards

Your essential resource for Agilent ULTRA chemical standards









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About Agilent standards

Agilent is a global leader in chromatography and spectroscopy, as well as an expert in chemical standards manufacturing. Agilent offers certified reference materials, QC standards, reagents, and buffers to complement our extensive line of instruments, columns, sample preparation products, consumables, and services. Our portfolio provides laboratories with full workflow solutions for efficient, accurate results.

Agilent has an extensive list of chemical standards, matched by expertise in designing and formulating custom standards to exacting specifications. Agilent products are available through our global distribution channels, and with our logistics capabilities we offer rapid turnaround time on all orders.

With over 40 years of technical expertise in measurement science, we provide innovative, quality products to address the entire analytical chemistry workflow for laboratories around the world.

Products

- Certified reference materials (CRM)
- Reference materials (RM)
- Calibration standards
- IQ/OQ/PQ standards
- Linearity standards
- Quality check samples
- Buffers and reagents
- Wash solution and diluents

Markets

Environmental

- Petrochemicals
- PCB/PBB
- Halocarbons
- VOC/Semi-VOC
- Pesticides
- Dioxins and furans

Food and Beverages

- Allergens
- Amino and nitroaromatics
- Pharma and vet drugs
- PAHs
- Lipids
- Food authenticity
- Phenols
- Dyes

Life Science

- Pharmaceutical
- Biopharma
- Academic and research
- University
- Governmental

Industrial and Mining

Petrochemical

- Matrix oils
- Metals in biodiesel
- Organometallic

Elemental Analysis

- Single element
- Multi-element

Custom products

Do you need a custom defined reference material or other chemical solution unique to your laboratory or testing procedure? If the product you require is not available as an Agilent product, we can prepare it for you on a custom basis. Custom reference materials are a fast, economical way to meet your specific laboratory needs.

Agilent maintains an expansive compatibility database, integrating 40 years of manufacturing and quality control data to create stable and reliable custom product formulations. Choose from any of our three quality control validation levels (see Page 4).

Visit **www.agilent.com/chem/standards** to request a quote.

Quality control laboratory



Agilent operates an ISO 17025 accredited quality control laboratory and is accredited to ISO Guide 34 as a reference material producer for the manufacture of certified reference materials (CRM).

Rely on the expertise of our applications development group for:

- Method development
- Pre- and postfill analysis
- Stability testing and protocols
- Homogeneity testing

Quality control validation levels

Chemical standards manufactured by Agilent are supplied with a lot-specific certificate of analysis (C of A) that reflects the associated quality control validation level. Certificates of analysis can ship with the product and are available online. All Agilent products, unless otherwise stated, are Level II - ISO Guide 34 reference materials.

		Reported Value	Reported Uncertainty	Former Name	Solutions	Neats	Lead Time (Customs)
Level I	ISO Guide 34 RM	True (calculated)	U_{char}	Gravimetric	Y	Y	5 business days
Level II	ISO Guide 34 RM	True (analytical)	U_{char}	Full validation	Y	Y	7 to 10 business days
Level III	ISO Guide 34	Certified	U_{exp}	ISO Guide 34	Y		15 to 20 business days

Level I solution: A reference material (RM) prepared gravimetrically in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The neat materials used for the product are verified by an Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. For each analyte, the true value, with its uncertainty value calculated at 95% confidence level, is reported.

Level I neat: RM prepared in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The true value (% purity) is reported.

Level II solution: RM prepared gravimetrically in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The neat materials used for the product are verified by an Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. The analyte concentrations are verified by an Agilent ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at 95% confidence level, is reported.

Level II neat: RM prepared in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The materials used for this product are verified by the Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. The true value (% purity), with its uncertainty value calculated at 95% confidence level, is reported.

Level III solution: RM prepared gravimetrically in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The neat materials used for this product are verified by the Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. The analyte concentrations are verified by an Agilent ISO 17025 accredited laboratory. For each analyte, the certified value is reported with its uncertainty value calculated as the expanded uncertainty, in accordance with ISO Guide 35.

Triple certification

Agilent is committed to product integrity by offering customers the assurance of triple certification to ISO standards.

Agilent operates under an ISO 9001 registered quality management system, where an accrediting body (TUV) attests to the quality of our methods, procedures, testing, production, and record keeping.

Our quality control laboratory is accredited to ISO 17025 (ANAB) for technical competence to perform testing of organic and inorganic materials and certified reference materials, as defined in our scope, accessible online at **www.agilent.com/chem/17025**

Agilent is further accredited to ISO Guide 34 (ANAB) for technical competence as a reference material producer of certified reference materials. This requires Agilent to identify and document the major components of uncertainty including homogeneity, short- and long-term stability, and uncertainty due to analytical characterization and manufacturing.

The most current Agilent certifications are accessible at **www.agilent.com/quality**

Tips and tools

To view our entire portfolio of over 7,000 standards, all manufactured under ISO 17025 Guide 34, visit **www.agilent.com/chem/standards**

Level 2 reference material Certificate of Analysis

Agilent

Certificate of Analysis
ISO Guide 34

C4-C24 Even Carbon Saturated FAME Mix

Product Number: 5191-4278 **Page:** 1 of 1

Lot Number: CR-5364 **Lot Issue Date:** 17-Nov-2017 **Expiration Date:** 31-Dec-2019

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
methyl butanoate	000623-42-7	RM04575	1005 ± 5 µg/mL
methyl hexanoate	000106-70-7	NT01630	1005 ± 5 µg/mL
methyl octanoate	000111-11-5	NT01094	1003 ± 5 µg/mL
methyl decanoate	000110-42-9	NT00187	1004 ± 5 µg/mL
methyl laurate	000111-82-0	NT01095	1003 ± 5 µg/mL
methyl tetradecanoate	000124-10-7	NT00188	1003 ± 5 µg/mL
methyl palmitate	000112-39-0	RM07128	1001 ± 5 µg/mL
methyl octadecanoate	000112-61-8	RM12285	1002 ± 5 µg/mL
methyl arachidate	001120-28-1	RM11588	1003 ± 5 µg/mL
methyl docosanoate	000929-77-1	NT01096	1004 ± 5 µg/mL
tetracosanoic acid methyl ester	002442-49-1	NT01097	1004 ± 5 µg/mL

Matrix: hexane

Storage: Store Refrigerated (2° - 8°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

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ISO17025 Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 **www.agilent.com/quality**

An example of a Certificate of Analysis for an Agilent reference material.

GHS compliance

Agilent is a certified GHS author for SDS and GHS compliant labeling. Chemical products manufactured and distributed by Agilent are compliant with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Safety Data Sheets (SDS) and labels are prepared in accordance with regulations and in the following languages:

European CLP Regulation
Regulation 1272/2008

- Chinese (standard Mandarin)
- Czech
- Danish
- Dutch
- English
- Estonian
- Finnish
- French
- German
- Italian
- Japanese
- Korean
- Polish
- Portuguese
- Romanian
- Russian
- Spanish
- Swedish

USA GHS-OSHA Regulation
Hazcom 2012

- English
- Spanish
- French

Chinese GHS Regulation
GB/T 17519-2013 and GB/T 16483-2008

- Chinese (standard Mandarin)
- English

Additional languages are available upon request.
As regulations are updated and expanded, Agilent will maintain up-to-date records online at **www.agilent.com**

Tips and tools

To view our entire portfolio of over 7,000 standards, all manufactured under ISO 17025 Guide 34, visit **www.agilent.com/chem/standards**

Underground Storage Tank (UST) standards

B.T.E.X. in unleaded gasoline

This is composite unleaded gasoline for which the B.T.E.X. components have been analyzed. The concentrations of the components are certified by Agilent.

B.T.E.X. in Unleaded Gasoline

Description	Analytes			Total Vol.	Part No.
7 analytes	Benzene Ethylbenzene Toluene	Xylenes (total) Isopropylbenzene	Naphthalene Methyl *tert*-butyl ether (MTBE)	1 x 1 mL	BTX-3000-1*

*Concentrations certified on the accompanying certificate

B.T.E.X. Mixtures

Description	Analytes		Total Vol.	Part No. 100 µg/mL	Part No. 200 µg/mL	Part No. 2,000 µg/mL
6 analytes, in methanol	Benzene Ethylbenzene Toluene	*o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	BTX-100-1	BTX-110-1	BTX-2000N-1

GRO Mixture (EPA)

Description	Analytes and Concentration				Total Vol.	Part No
9 analytes, in methanol	Benzene Ethylbenzene *n*-Heptane 2-Methylpentane Toluene	500 µg/mL 500 µg/mL 500 µg/mL 1,500 µg/mL 1,500 µg/mL	1,2,4-Trimethylbenzene 2,2,4-Trimethylpentane *o*-Xylene *m*-Xylene	1,000 µg/mL 1,500 µg/mL 1,000 µg/mL 1,000 µg/mL	1 x 1 mL	UST-110-1

GRO Mixture

Description	Analytes			Total Vol.	Part No.
9 analytes, at 1,000 µg/mL, in methanol	Benzene Ethylbenzene 3-Methylpentane	Naphthalene Toluene 1,2,4-Trimethylbenzene	2,2,4-Trimethylpentane (isooctane) *o*-Xylene *m*-Xylene	1 x 1 mL	UST-120-1

LUST Retention Time Standard

Description	Analytes			Total Vol.	Part No.
7 analytes, at 25 µg/mL, in methylene chloride	*n*-Hexane (C_6) *n*-Decane (C_{10}) *n*-Dodecane (C_{12})	*n*-Tetracosane (C_{24}) *n*-Octacosane (C_{28})	*n*-Triacontane (C_{30}) *n*-Tetracontane (C_{40})	1 x 1 mL	UST-300-1

Fuel Oil Degradation Mixture

Description	Analytes	Total Vol.	Part No.
4 analytes, at 2,000 µg/mL, in methylene chloride	*n*-Heptadecane (C_{17}) *n*-Octadecane (C_{18}) Phytane Pristane	1 x 1 mL	UST-310-1

Gasoline Additives

Description	Analytes	Total Vol.	Part No.
4 analytes, at 200 µg/mL, in methanol	Dibromomethane 1,2-Dichloroethane Ethylene dibromide Methyl *tert*-butyl ether	1 x 1 mL	HCM-620-1

Diesel/Motor Oil Standard

Description	Analytes	Total Vol.	Part No.
2 analytes, at 50,000 µg/mL, in hexane	Diesel fuel SAE 10W30 motor oil	1 x 1 mL	RGO-730-1

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Alaska – Method AK 101, AK 102, AK 103

GRO Aliphatic Calibration Mix (AK)

Description	Analytes			Total Vol.	Part No.
5 analytes, at 2,000 µg/mL, in methanol	*n*-Hexane (C_6) *n*-Heptane (C_7)	*n*-Octane (C_8) *n*-Nonane (C_9)	*n*-Decane (C_{10})	1 x 1 mL	SAK-100-1

GRO Aromatic Calibration Mix (AK)

Description	Analytes			Total Vol.	Part No.
14 analytes, at 2,000 µg/mL, in methanol	Benzene Ethylbenzene 1-Ethyl-2-methylbenzene (2-ethyltoluene) 1-Ethyl-3-methylbenzene (3-ethyltoluene) 1-Ethyl-4-methylbenzene (4-ethyltoluene)	Isopropylbenzene *n*-Propylbenzene Toluene 1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene *o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	SAK-120-1

DRO Aliphatic Calibration Mix (AK)

Description	Analytes				Total Vol.	Part No.
16 analytes, at 1,000 µg/mL, in methylene chloride	*n*-Decane (C_{10}) *n*-Undecane (C_{11}) *n*-Dodecane (C_{12}) *n*-Tridecane (C_{13})	*n*-Tetradecane (C_{14}) *n*-Pentadecane (C_{15}) *n*-Hexadecane (C_{16}) *n*-Heptadecane (C_{17})	*n*-Octadecane (C_{18}) *n*-Nonadecane (C_{19}) *n*-Eicosane (C_{20}) *n*-Heneicosane (C_{21})	*n*-Docosane (C_{22}) *n*-Tricosane (C_{23}) *n*-Tetracosane (C_{24}) *n*-Pentacosane (C_{25})	1 x 1 mL	UST-210-1

Retention Time Marker Mix (AK)

Description	Analytes			Total Vol.	Part No.
3 analytes, at 50 µg/mL, in methylene chloride	*n*-Decane (C_{10})	*n*-Pentacosane (C_{25})	*n*-Hexatriacontane (C_{36})	1 x 1 mL	SAK-200-1

RRO Aliphatic Calibration Mix (AK)

Description	Analytes			Total Vol.	Part No.
5 analytes, at 1,000 µg/mL, in hexane	*n*-Hexacosane (C_{26}) *n*-Octacosane (C_{28})	*n*-Triacontane (C_{30}) *n*-Dotriacontane (C_{32})	*n*-Tetratriacontane (C_{34})	1 x 1 mL	SAK-210-1

GRO Retention Time Marker Mix (AK)

Description	Analytes		Total Vol.	Part No.
2 analytes, at 1,000 µg/mL, in methylene chloride	*n*-Hexane (C_6)	*n*-Decane (C_{10})	1 x 1 mL	SAK-201-1

DRO Retention Time Marker Mix (AK)

Description	Analytes		Total Vol.	Part No.
2 analytes, at 2,000 µg/mL, in methylene chloride	*n*-Decane (C_{10})	*n*-Pentacosane (C_{25})	1 x 1 mL	SAK-202-1

Composite Motor Oil Standard

Description	Analytes		Total Vol.	Part No.
2 analytes, at 25,000 µg/mL, in methylene chloride	SAE 10W30 motor oil	SAE 10W40 motor oil	1 x 1 mL	RGO-724-1

RRO Retention Time Marker Mix (AK)

Description	Analytes		Total Vol.	Part No.
2 analytes, at 2,000 µg/mL, in hexane	*n*-Pentacosane (C_{25})	*n*-Hexatriacontane (C_{36})	1 x 1 mL	SAK-203-1

Arizona – Method 8015AZ

Retention Time Verification Mixture (AZ)

Description	Analytes	Total Vol.	Part No.
3 analytes, at 1,000 µg/mL, in methylene chloride	*n*-Decane (C_{10}) *n*-Docosane (C_{22}) *n*-Dotriacontane (C_{32})	1 x 1 mL	SAZ-100-1

Individual Petrochemical Standards for UST Testing – AK and AZ

Standards	Concentration	Total Vol.	Part No.
Unleaded regular gasoline (oxygenate free)	5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-608-1
Unleaded premium gasoline (oxygenate free)			RGO-609-1
Diesel fuel 2			RGO-611-1
SAE 10W30 motor oil	1,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-722-1
SAE 10W40 motor oil			RGO-723-1

Internal and Surrogate Standards for UST Testing – AK and AZ

Standards	Concentration	Total Vol.	Part No.
4-Bromofluorobenzene	2,000 µg/mL, in methanol	1 x 1 mL	STS-110N-1
1-Chloro-4-fluorobenzene			STS-570-1
α,α,α-Trifluorotoluene			STS-220N-1
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
Squalane			IST-670-1
o-Terphenyl			IST-480-1
n-Triacontane-d_{62}			IST-720-1

California – PVOC and WIP

Revised PVOC Mixture (CA)

Description	Analytes			Total Vol.	Part No.
7 analytes, at 1,000 µg/mL, in methanol	Benzene Ethylbenzene	Methyl *tert*-butyl ether (MTBE) Toluene	*o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	UST-141-1

WIP VOA Standard (CA)

Description	Analytes			Total Vol.	Part No.
11 analytes, at 2,000 µg/mL, in methanol	Benzene Chlorobenzene Ethylbenzene 1,2-Dichlorobenzene	1,3-Dichlorobenzene 1,4-Dichlorobenzene Methyl *tert*-butyl ether (MTBE) Toluene	*o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	SCA-100-1

PVOC Mixture (CA)

Description	Analytes			Total Vol.	Part No.
6 analytes, at 1,000 µg/mL, in methanol	Benzene Ethylbenzene	Methyl *tert*-butyl ether (MTBE) Toluene	*o*-Xylene *m*-Xylene	1 x 1 mL	UST-140-1

Oxygenates Standard (CA)

Description	Analytes		Total Vol.	Part No.
5 analytes, at 2,000 µg/mL, in methanol (except as noted)	Diisopropyl ether (DIPE) Ethyl *tert*-butyl ether (ETBE) Methyl *tert*-butyl ether (MTBE)	*tert*-Amyl methyl ether (TAME) *tert*-Butyl alcohol (at 10,000 µg/mL)	1 x 1 mL	SCA-110-1

Connecticut – ETPH method

ETPH Standard (CT)

Description	Analytes		Total Vol.	Part No.
14 analytes, at 1,000 µg/mL, in hexane	*n*-Nonane (C_9) *n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16}) *n*-Octadecane (C_{18}) *n*-Nonadecane (C_{19})	*n*-Eicosane (C_{20}) *n*-Docosane (C_{22}) *n*-Tetracosane (C_{24}) *n*-Hexacosane (C_{26}) *n*-Octacosane (C_{28}) *n*-Triacontane (C_{30}) *n*-Hexatriacontane (C_{36})	1 x 1 mL	SMA-310-1

Florida – Method FL-PRO

TRPH Standard (FL)

Description	Analytes		Total Vol.	Part No.
17 analytes, at 500 µg/mL, in hexane	*n*-Octane (C_8) *n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16}) *n*-Octadecane (C_{18}) *n*-Eicosane (C_{20}) *n*-Docosane (C_{22}) *n*-Tetracosane (C_{24})	*n*-Hexacosane (C_{26}) *n*-Octacosane (C_{28}) *n*-Triacontane (C_{30}) *n*-Dotriacontane (C_{32}) *n*-Tetratriacontane (C_{34}) *n*-Hexatriacontane (C_{36}) *n*-Octatriacontane (C_{38}) *n*-Tetracontane (C_{40})	1 x 1 mL	SFL-601-1

TPRH Surrogate Standards (FL)

Standards	Total Vol.	Part No. 2,000 µg/mL in Carbon Disulfide	Part No. 2,000 µg/mL in Methylene Chloride	Part No. 10,000 µg/mL in Methylene Chloride
n-Nonatriacontane (C_{39})	1 x 1 mL	IST-680-1		
o-Terphenyl	1 x 1 mL		IST-480-1	IST-481-1

PAH Standard (FL)

Description	Analytes		Total Vol.	Part No.
18 analytes, at 2,000 µg/mL, in methylene chloride/benzene (1:1)	Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene Benzo[*b*]fluoranthene Benzo[*k*]fluoranthene Benzo[*ghi*]perylene Benzo[*a*]pyrene Chrysene	Dibenz[*a,h*]anthracene Fluoranthene Fluorene Indeno[1,2,3-*cd*]pyrene 1-Methylnaphthalene 2-Methylnaphthalene Naphthalene Phenanthrene Pyrene	1 x 1 mL	SFL-610-1

Tips and tools

Find more EPA Method standards online at **www.agilent.com/chem/standards**

Iowa – Method OA-1, OA-2

B.T.E.X. in unleaded gasoline

This is composite unleaded gasoline for which the B.T.E.X. components have been analyzed. The component concentrations are certified by Agilent on the accompanying certificate.

B.T.E.X. in Unleaded Gasoline

Description	Analytes		Total Vol.	Part No.
7 analytes, in unleaded gasoline	Benzene Ethylbenzene Toluene Xylenes (total)	Isopropylbenzene Naphthalene Methyl *tert*-butyl ether (MTBE)	1 x 1 mL	BTX-3000-1

B.T.E.X. Mixtures

Description	Analytes		Total Vol.	Part No. 100 µg/mL	Part No. 200 µg/mL	Part No. 2,000 µg/mL
6 analytes, in methanol	Benzene Ethylbenzene Toluene	*o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	BTX-100-1	BTX-110-1	BTX-110-1

Individual Petrochemical Standards for UST Testing – IA

Standards	Concentration	Total Vol.	Part No.
Unleaded regular gasoline (oxygenate free)	5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-608-1
Unleaded premium gasoline (oxygenate free)			RGO-609-1
Diesel fuel 2			RGO-611-1
Kerosene			RGO-621-1
Mineral spirits			RGO-701-1
SAE 10W30 motor oil	1,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-722-1
SAE 10W40 motor oil			RGO-723-1

Internal and Surrogate Standards for UST Testing – IA

Standards	Concentration	Total Vol.	Part No.
4-Bromofluorobenzene	2,000 µg/mL, in methanol	1 x 1 mL	STS-110N-1
α,α,α-Trifluorotoluene			STS-220N-1

Kansas – TPH method

Determination of midrange hydrocarbons (MRH) and high-range hydrocarbons (HRH)

This method collectively quantitates extractable petroleum hydrocarbons within two ranges: midrange hydrocarbons (C_9 – C_{18}) and high-range hydrocarbons (C_{19} – C_{35}). Solvent extraction followed by GC/FID analysis is used to measure the total concentration of extractable petroleum hydrocarbons in water and soil/sediment matrices.

MRH/HRH Surrogate Spiking Solution

Description	Solution	Total Vol.	Part No.
1 analyte, at 1,000 mg/L, in hexane	1-Chlorooctadecane	1 x 5 mL	SKS-110

MRH/HRH Surrogate Spiking Solution

Description	Solution	Total Vol.	Part No.
1 analyte, at 1,000 mg/L, in methylene chloride	1-Chlorooctadecane	1 x 5 mL	SKS-121

MRH/HRH Internal Standard Solution

Description	Solution	Total Vol.	Part No.
1 analyte, at 5,000 mg/L, in methylene chloride	5-α-Androstane	1 x 5 mL	SKS-130

MRH/HRH Stock Standard Solution

Description	Analytes			Total Vol.	Part No. 2,000 mg/L in Methylene Chloride	Part No. 2,000 mg/L in Hexane
14 analytes	*n*-Decane *n*-Docosane *n*-Dodecane *n*-Eicosane *n*-Hexacosane	*n*-Hexadecane *n*-Nonadecane *n*-Nonane *n*-Octacosane *n*-Octadecane	*n*-Pentatriacontane *n*-Tetracosane *n*-Tetradecane *n*-Triacontane	1 x 5 mL	SKS-120	SKS-111

Kansas modified 8015 (LRH)

Kansas method for the determination of low-range hydrocarbons (LRH)

This method collectively quantitates low-range hydrocarbons (C_5 – C_8). This is a purge-and-trap method, using GC/FID to measure the total concentration of volatile hydrocarbons in water and soil/sediment matrices.

LRH Stock Standard Solution

Description	Analytes		Total Vol.	Part No.
4 analytes, at 2,000 mg/L, in methanol	2,2,4-Trimethylpentane 2-Methylpentane	*n*-Nonane *n*-Pentane	1 x 5 mL	SKS-100

LRH Surrogate Spiking Solution

Description	Analyte	Total Vol.	Part No.
1 analyte, at 10,000 mg/L, in methanol	2,5-Dibromotoluene	1 x 5 mL	SKS-101

Maine – Methods 4.1.25, 4.2.17

GRO Mixture (ME)

Description	Analytes		Total Vol.	Part No.
10 analytes, at 1,000 µg/mL, in methanol	Benzene Ethylbenzene Methyl *tert*-butyl ether (MTBE) Naphthalene Toluene	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene *o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	UST-100-1

GRO Mixture (ME)

Description	Analytes and Concentration				Total Vol.	Part No.
9 analytes, in methanol	Benzene Ethylbenzene *n*-Heptane 2-Methylpentane Toluene	500 µg/mL 500 µg/mL 500 µg/mL 1,500 µg/mL 1,500 µg/mL	1,2,4-Trimethylbenzene 2,2,4-Trimethylpentane *o*-Xylene *m*-Xylene	1,000 µg/mL 1,500 µg/mL 1,000 µg/mL 1,000 µg/mL	1 x 1 mL	UST-110-1

DRO Mixture (ME)

Description	Analytes		Total Vol.	Part No.
10 analytes, 2,000 µg/mL, in methylene chloride	*n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16}) *n*-Octadecane (C_{18})	*n*-Eicosane (C_{20}) *n*-Docosane (C_{22}) *n*-Tetracosane (C_{24}) *n*-Hexacosane (C_{26}) *n*-Octacosane (C_{28})	1 x 1 mL	UST-200-1

Individual and Surrogate Standards for UST Testing – ME

Standards	Concentrations	Total Vol.	Part No.
4-Bromofluorobenzene	2,000 µg/mL, in methanol	1 x 1 mL	STS-110N-1
α, α, α-Trifluorotoluene			STS-220N-1
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
o-Terphenyl			IST-480-1
p-Terphenyl			IST-490-1



UST-200-1

Massachusetts – Volatile Petroleum Hydrocarbons (VPH) method

Primary VPH Dilution Standard (MA)

Description	Analytes				Total Vol.	Part No.
16 analytes, at 1,000 µg/mL, in methanol	*n*-Pentane 2-Methylpentane Methyl *tert*-butyl ether (MTBE) 2,2,4-Trimethylpentane (isooctane)	Benzene Toluene *n*-Nonane *n*-Decane	Ethylbenzene *m*-Xylene *p*-Xylene *o*-Xylene	1,2,4-Trimethylbenzene *n*-Butylcyclohexane Naphthalene 2,5-Dibromotoluene (surrogate)	1 x 1 mL	SMA-101-1

Primary VPH Dilution Standard, No Surrogate (MA)

Description	Analytes				Total Vol.	Part No.
15 analytes, at 1,000 µg/mL, in methanol	*n*-Pentane 2-Methylpentane Methyl *tert*-butyl ether 2,2,4-Trimethylpentane	Benzene Toluene *n*-Nonane *n*-Decane	Ethylbenzene *m*-Xylene *p*-Xylene *o*-Xylene	1,2,4-Trimethylbenzene *n*-Butylcyclohexane Naphthalene	1 x 1 mL	SMA-121-1

VPH Matrix Spiking Solution (MA)

Description	Analytes				Total Vol.	Part No.
16 analytes, at 50 µg/mL, in methanol	*n*-Pentane 2-Methylpentane Methyl *tert*-butyl ether (MTBE) 2,2,4-Trimethylpentane (isooctane)	Benzene Toluene *n*-Nonane *n*-Decane	Ethylbenzene *m*-Xylene *p*-Xylene *o*-Xylene	1,2,4-Trimethylbenzene *n*-Butylcyclohexane Naphthalene 2,5-Dibromotoluene (surrogate)	1 x 1 mL	SMA-111-1

VPH Surrogate Spiking Solutions (MA)

Description	Analyte	Total Vol.	Part No. 5,000 µg/mL	Part No. 10,000 µg/mL
1 analyte, in methanol	2,5-Dibromotoluene	1 x 1 mL	STS-550-1	SKS-101

Gasoline Standard

Description	Analyte	Total Vol.	Part No.
1 analyte, at 5,000 µg/mL, in methanol	Unleaded gasoline	1 x 1 mL	RGO-601-1

Primary VPH Dilution Standard (MA)

Description	Analytes and Concentration						Total Vol.	Part No.
14 analytes, in methanol	*n*-Pentane 2-Methylpentane Methyl *tert*-butyl ether 2,2,4-Trimethylpentane Benzene	1,000 µg/mL 1,500 µg/mL 1,500 µg/mL 1,500 µg/mL 500 µg/mL	Toluene *n*-Nonane Ethylbenzene *m*-Xylene *p*-Xylene	1,500 µg/mL 1,000 µg/mL 500 µg/mL 1,000 µg/mL 1,000 µg/mL	*o*-Xylene 1,2,4-Trimethylbenzene Naphthalene 2,5-Dibromotoluene (surr)	1,000 µg/mL 1,000 µg/mL 1,000 µg/mL 1,000 µg/mL	1 x 1 mL	SMA-100-1

Primary VPH Dilution Standard, No Surrogate (MA)

Description	Analytes					Total Vol.	Part No.
13 analytes, in methanol	*n*-Pentane 2-Methylpentane Methyl *tert*-butyl ether	2,2,4-Trimethylpentane Benzene Toluene	Ethylbenzene *n*-Nonane *m*-Xylene	*p*-Xylene *o*-Xylene	1,2,4-Trimethylbenzene Naphthalene	1 x 1 mL	SMA-120-1

VPH Matrix Spiking Solution (MA)

Description	Analytes				Total Vol.	Part No.
14 analyte, at 50 µg/mL, in methanol	*n*-Pentane 2-Methylpentane Methyl *tert*-butyl ether (MTBE) 2,2,4-Trimethylpentane (isooctane)	Benzene Toluene *n*-Nonane Ethylbenzene	*m*-Xylene *p*-Xylene *o*-Xylene	1,2,4-Trimethylbenzene Naphthalene 2,5-Dibromotoluene (surrogate)	1 x 1 mL	SMA-110-1

Massachusetts – Extractable Petroleum Hydrocarbons (EPH) method

EPH Aromatic Hydrocarbon Standard (MA)

Description	Analytes			Total Vol.	Part No.
17 analytes, at 1,000 µg/mL, in methylene chloride	Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene Benzo[*b*]fluoranthene Benzo[*k*]fluoranthene	Benzo[*ghi*]perylene Benzo[*a*]pyrene Chrysene Dibenz[*a,h*]anthracene Fluoranthene Fluorene	Indeno[1,2,3-*cd*]pyrene 2-Methylnaphthalene Naphthalene Phenanthrene Pyrene	1 x 1 mL	SMA-300-1

EPH Aliphatic Hydrocarbon Standard (MA)

Description	Analytes			Total Vol.	Part No.
14 analytes, at 1,000 µg/mL, in hexane	*n*-Nonane (C_9) *n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16})	*n*-Octadecane (C_{18}) *n*-Nonadecane (C_{19}) *n*-Eicosane (C_{20}) *n*-Docosane (C_{22}) *n*-Tetracosane (C_{24})	*n*-Hexacosane (C_{26}) *n*-Octacosane (C_{28}) *n*-Triacontane (C_{30}) *n*-Hexatriacontane (C_{36})	1 x 1 mL	SMA-310-1

EPH Matrix Spike Standard (MA)

Description	Analytes			Total Vol.	Part No.
31 analytes, at 25 µg/mL, in hexane	Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene Benzo[*a*]pyrene Benzo[*b*]fluoranthene Benzo[*ghi*]perylene Benzo[*k*]fluoranthene Chrysene *n*-Decane (C_{10}) Dibenz[*a,h*]anthracene	*n*-Docosane (C_{22}) *n*-Dodecane (C_{12}) *n*-Eicosane (C_{20}) Fluoranthene Fluorene *n*-Hexacosane (C_{26}) *n*-Hexadecane (C_{16}) *n*-Hexatriacontane (C_{36}) Indeno[1,2,3-*cd*]pyrene 2-Methylnaphthalene	Naphthalene *n*-Nonadecane (C_{19}) *n*-Nonane (C_9) *n*-Octacosane (C_{28}) *n*-Octadecane (C_{18}) Phenanthrene Pyrene *n*-Tetracosane (C_{24}) *n*-Tetradecane (C_{14}) *n*-Triacontane (C_{30})	1 x 1 mL	SMA-330-1

EPH Surrogate Spiking Solution (MA)

Description	Analytes	Total Vol.	Part No.
2 analytes, at 2,000 µg/mL, in acetone	*o*-Terphenyl (OTP) 1-Chlorooctadecane (COD)	1 x 1 mL	ISM-580-1

EPH Fractionation Surrogate Standard Mixture (MA)

Description	Analytes	Total Vol.	Part No.
2 analytes, at 2,000 µg/mL, in methylene chloride	2-Bromonaphthalene 2-Fluorobiphenyl	1 x 1 mL	ISM-650-1



SMA-310-1

Shooters – Open and shoot spiking standards

No dilution required

Shooters are ready-to-shoot spiking solutions at the working concentrations specified by the EPA methods. Just open the bottle and spike the sample. Since these working level solutions are packaged in convenient bottles, rather than ampoules, follow the EPA protocols for storage and stability checking of working standards. See the EPA method you are using for the specific protocol.

EPH Matrix Spike Standard Shooter (MA)

Description	Analytes		Total Vol.	Part No.
10 analytes, at 50 µg/mL, in acetone	Acenaphthene Anthracene Chrysene Naphthalene Pyrene	*n*-Eicosane (C_{20}) *n*-Nonadecane (C_{19}) *n*-Nonane (C_9) *n*-Octacosane (C_{28}) *n*-Tetradecane (C_{14})	1 x 100 mL	SMA-322X

EPH Fractionation Surrogate Standard Mixture Shooter (MA)

Description	Analytes	Total Vol.	Part No.
2 analytes, at 40 µg/mL, in hexane	2-Bromonaphthalene 2-Fluorobiphenyl	1 x 100 mL	ISM-651X

EPH Surrogate Spiking Solution Shooter (MA)

Description	Analytes	Total Vol.	Part No.
2 analytes, at 40 µg/mL, in acetone	*o*-Terphenyl (OTP) 1-Chlorooctadecane (COD)	1 x 100 mL	ISM-581X

Internal and Surrogate Standards for UST Testing – MA EPH

Standards	Concentration	Vol.	Part No.
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
2-Bromonaphthalene			IST-551-1
1-Chlorooctadecane			IST-470-1
2-Fluorobiphenyl			ATS-140-1
o-Terphenyl			IST-480-1

Michigan – GRO and PNA

PNA Standard (MS)

Description	Analytes			Total Vol.	Part No.
17 analytes, at 1,000 µg/mL, in methylene chloride	Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene Benzo[*b*]fluoranthene Benzo[*k*]fluoranthene	Benzo[*ghi*]perylene Benzo[*a*]pyrene Chrysene Dibenz[*a,h*]anthracene Fluoranthene Fluorene	Indeno[1,2,3-*cd*]pyrene 2-Methylnaphthalene Naphthalene Phenanthrene Pyrene	1 x 1 mL	SMA-300-1

Mississippi – GRO, DRO, and PAH

GRO Mixture (MS)

Description	Analytes and Concentration		Total Vol.	Part No.
10 analytes, in methanol	Benzene Ethylbenzene *n*-Heptane 2-Methylpentane Toluene 1,2,4-Trimethylbenzene 2,2,4-Trimethylpentane *o*-Xylene *m*-Xylene *p*-Xylene	500 µg/mL 500 µg/mL 500 µg/mL 1,500 µg/mL 1,500 µg/mL 1,000 µg/mL 1,500 µg/mL 1,000 µg/mL 1,000 µg/mL 1,000 µg/mL	1 x 1 mL	UST-111-1

DRO Aliphatic Calibration Mix (MS)

Description	Analytes		Total Vol.	Part No.
16 analytes, at 1,000 µg/mL, in methylene chloride	*n*-Decane (C_{10}) *n*-Undecane (C_{11}) *n*-Dodecane (C_{12}) *n*-Tridecane (C_{13}) *n*-Tetradecane (C_{14}) *n*-Pentadecane (C_{15}) *n*-Hexadecane (C_{16}) *n*-Heptadecane (C_{17})	*n*-Octadecane (C_{18}) *n*-Nonadecane (C_{19}) *n*-Eicosane (C_{20}) *n*-Heneicosane (C_{21}) *n*-Docosane (C_{22}) *n*-Tricosane (C_{23}) *n*-Tetracosane (C_{24}) *n*-Pentacosane (C_{25})	1 x 1 mL	UST-210-1

PAH Standard (MS)

Description	Analytes		Total Vol.	Part No.
17 analytes, at 1,000 µg/mL, in methylene chloride	Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene Benzo[*b*]fluoranthene Benzo[*k*]fluoranthene Benzo[*ghi*]perylene Benzo[*a*]pyrene Chrysene	Dibenz[*a,h*]anthracene Fluoranthene Fluorene Indeno[1,2,3-*cd*]pyrene 2-Methylnaphthalene Naphthalene Phenanthrene Pyrene	1 x 1 mL	SMA-300-1

New Jersey – OQA-QAM-025

TRPH Standard (NJ)

Description	Analytes			Total Vol.	Part No.
35 analytes, at 500 µg/mL, in methylene chloride	*n*-Octane (C_8) *n*-Nonane (C_9) *n*-Decane (C_{10}) *n*-Undecane (C_{11}) *n*-Dodecane (C_{12}) *n*-Tridecane (C_{13}) *n*-Tetradecane (C_{14}) *n*-Pentadecane (C_{15}) *n*-Hexadecane (C_{16}) *n*-Heptadecane (C_{17}) *n*-Octadecane (C_{18}) *n*-Nonadecane (C_{19})	*n*-Eicosane (C_{20}) *n*-Heneicosane (C_{21}) *n*-Docosane (C_{22}) *n*-Tricosane (C_{23}) *n*-Tetracosane (C_{24}) *n*-Pentacosane (C_{25}) *n*-Hexacosane (C_{26}) *n*-Heptacosane (C_{27}) *n*-Octacosane (C_{28}) *n*-Nonacosane (C_{29}) *n*-Triacontane (C_{30}) *n*-Hentriacontane (C_{31})	*n*-Dotriacontane (C_{32}) *n*-Tritriacontane (C_{33}) *n*-Tetratriacontane (C_{34}) *n*-Pentatriacontane (C_{35}) *n*-Hexatriacontane (C_{36}) *n*-Heptatriacontane (C_{37}) *n*-Octatriacontane (C_{38}) *n*-Nonatriacontane (C_{39}) *n*-Tetracontane (C_{40}) Phytane Pristane	1 x 1 mL	SNJ-200-1

TRPH Column Resolution Standard (NJ)

Description	Analytes	Total Vol.	Part No.
4 analytes, at 2,000 µg/mL, in methylene chloride	*n*-Heptadecane (C_{17}) *n*-Octadecane (C_{18}) Phytane Pristane	1 x 1 mL	UST-310-1

Individual Petrochemical Standards for UST Testing – NJ

Standards	Concentration	Total Vol.	Part No.
Diesel fuel 2	5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-611-1
SAE 10W30 motor oil	1,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-722-1
SAE 10W40 motor oil			RGO-723-1

Internal and Surrogate Standards for UST Testing – NJ

Standards	Concentration	Total Vol.	Part No.
Tetracosane-d_{50}	1,000 µg/mL, in methylene chloride	1 x 1 mL	IST-730-1
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
1-Chlorooctadecane			IST-470-1
o-Terphenyl			IST-480-1

New York – STARS compounds

VOA Mixture (NY)

Description	Analytes				Total Vol.	Part No.
16 analytes, at 2,000 µg/mL, in methanol	Benzene *n*-Butylbenzene *sec*-Butylbenzene *tert*-Butylbenzene	Ethylbenzene Isopropylbenzene *p*-Isopropyltoluene Methyl *tert*-butyl ether (MTBE)	Naphthalene *n*-Propylbenzene Toluene 1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene *o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	SNY-100-1

PAH Mixture (NY)

Description	Analytes				Total Vol.	Part No.
16 analytes, at 2,000 µg/mL, in methylene chloride/ benzene (1:1)	Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene	Benzo[*b*]fluoranthene Benzo[*k*]fluoranthene Benzo[*ghi*]perylene Benzo[*a*]pyrene	Chrysene Dibenz[*a,h*]anthracene Fluoranthene Fluorene	Indeno[1,2,3-*cd*]pyrene Naphthalene Phenanthrene Pyrene	1 x 1 mL	US-106N-1

Pennsylvania – GRO and PAH

GRO Mixture (PA)

Description	Analytes				Total Vol.	Part No.
11 analytes, at 2,000 µg/mL, in methanol	Benzene 1,2-Dibromoethane 1,2-Dichloroethane	Ethylbenzene Isopropylbenzene Methyl *tert*-butyl ether (MTBE)	Naphthalene Toluene *o*-Xylene	*m*-Xylene *p*-Xylene	1 x 1 mL	SPA-100-1

VPH Mixture (PA)

Description	Analytes and Concentration				Total Vol.	Part No.
9 analytes, in methanol	Benzene Ethylbenzene Methyl *tert*-butyl ether Naphthalene Isopropylbenzene	1,000 µg/mL 1,000 µg/mL 2,000 µg/mL 1,000 µg/mL 1,000 µg/mL	Toluene *o*-Xylene *m*-Xylene *p*-Xylene	1,000 µg/mL 1,000 µg/mL 1,000 µg/mL 1,000 µg/mL	1 x 1 mL	SPA-110-1

Tennessee – GRO and DRO

GRO Mixture (TN)

Description	Analytes and Concentration				Total Vol.	Part No.
10 analytes, in methanol	Benzene Ethylbenzene *n*-Heptane 2-Methylpentane Toluene	500 µg/mL 500 µg/mL 500 µg/mL 1,500 µg/mL 1,500 µg/mL	1,2,4-Trimethylbenzene 2,2,4-Trimethylpentane *o*-Xylene *m*-Xylene *p*-Xylene	1,000 µg/mL 1,500 µg/mL 1,000 µg/mL 1,000 µg/mL 1,000 µg/mL	1 x 1 mL	UST-111-1

DRO Aliphatic Calibration Mix (TN)

Description	Analytes				Total Vol.	Part No.
16 analytes, at 1,000 µg/mL, in methylene chloride	*n*-Decane (C_{10}) *n*-Undecane (C_{11}) *n*-Dodecane (C_{12}) *n*-Tridecane (C_{13})	*n*-Tetradecane (C_{14}) *n*-Pentadecane (C_{15}) *n*-Hexadecane (C_{16}) *n*-Heptadecane (C_{17})	*n*-Octadecane (C_{18}) *n*-Nonadecane (C_{19}) *n*-Eicosane (C_{20}) *n*-Heneicosane (C_{21})	*n*-Docosane (C_{22}) *n*-Tricosane (C_{23}) *n*-Tetracosane (C_{24}) *n*-Pentacosane (C_{25})	1 x 1 mL	UST-210-1

Internal and Surrogate Standards for UST Testing – TN

Standards	Concentration	Total Vol.	Part No.
4-Isopropyltoluene	5,000 µg/mL, in methylene chloride	1 x 1 mL	EPA-1039-1
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
o-Terphenyl			IST-480-1

Texas – TNRCC Method 1005, 1006

TNRCC Method 1005 Window Defining Hydrocarbon Standard (TX)

Description	Analytes		Total Vol.	Part No.
4 analytes, at 200 µg/mL, in pentane	*n*-Hexane (C_6) *n*-Dodecane (C_{12})	*n*-Octacosane (C_{28}) *n*-Pentatriacontane (C_{35})	1 x 1 mL	STX-110-1

TNRCC Method 1005 and 1006 Marker Standard (TX)

Description	Analytes		Total Vol.	Part No.
7 analytes, at 200 µg/mL, in pentane	*n*-Hexane (C_6) *n*-Octane (C_8) *n*-Decane (C_{10}) *n*-Dodecane (C_{12})	*n*-Hexadecane (C_{16}) *n*-Heneicosane (C_{21}) *n*-Pentatriacontane (C_{35})	1 x 1 mL	STX-120-1

TNRCC Method 1005 Window Defining Hydrocarbon Standard (TX)

Description	Analytes		Total Vol.	Part No.
3 analytes, at 200 µg/mL, in pentane	*n*-Hexane (C_6) *n*-Decane (C_{10})	*n*-Octacosane (C_{28})	1 x 1 mL	STX-100-1

Petroleum Product Standard

Description	Analytes	Total Vol.	Part No.
2 analytes, at 5,000 µg/mL, in methanol	Unleaded gasoline Diesel fuel 2	1 x 1 mL	RGO-740-1

Internal and Surrogate Standards for UST Testing – TX

Standards	Concentration	Total Vol.	Part No.
1-Chlorooctane	2,000 µg/mL, in methanol	1 x 1 mL	STS-490-1
α,α,α-Trifluorotoluene			STS-220N-1
1-Chlorooctadecane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-470-1
2-Fluorobiphenyl			ATS-140-1
o-Terphenyl			IST-480-1

Washington – Volatile Petroleum Hydrocarbons (VPH) method

Primary VPH Stock Standard (WA)

Description	Analytes		Total Vol.	Part No.
15 analytes, at 20,000 µg/mL, in methanol	*n*-Pentane (C_5) *n*-Hexane (C_6) Methyl *tert*-butyl ether (MTBE) Benzene Toluene *n*-Octane (C_8) Ethylbenzene *o*-Xylene	*m*-Xylene *p*-Xylene 1,2,3-Trimethylbenzene *n*-Decane (C_{10}) Naphthalene *n*-Dodecane (C_{12}) 1-Methylnaphthalene	1 x 1 mL	SWA-101-1

Primary VPH Dilution Standard (WA)

Description	Analytes		Total Vol.	Part No.
15 analytes, at 1,000 µg/mL, in methanol	*n*-Pentane (C_5) *n*-Hexane (C_6) Methyl *tert*-butyl ether (MTBE) Benzene Toluene *n*-Octane (C_8) Ethylbenzene *o*-Xylene	*m*-Xylene *p*-Xylene 1,2,3-Trimethylbenzene *n*-Decane (C_{10}) Naphthalene *n*-Dodecane (C_{12}) 1-Methylnaphthalene	1 x 1 mL	SWA-100-1

VPH Matrix Spiking Solution (WA)

Description	Analytes		Total Vol.	Part No.
15 analytes, at 50 µg/mL, in methanol	*n*-Pentane (C_5) *n*-Hexane (C_6) Methyl *tert*-butyl ether (MTBE) Benzene Toluene *n*-Octane (C_8) Ethylbenzene *o*-Xylene	*m*-Xylene *p*-Xylene 1,2,3-Trimethylbenzene *n*-Decane (C_{10}) Naphthalene *n*-Dodecane (C_{12}) 1-Methylnaphthalene	1 x 1 mL	SWA-110-1

VPH Surrogate Spiking Solution (WA)

Description	Solution	Concentration	Total Vol.	Part No.
1 solution, in methanol	2,5-Dibromotoluene	5,000 µg/mL	1 x 1 mL	STS-550-1
		10,000 µg/mL	1 x 5 mL	SKS-101

Tips and tools

To view our entire portfolio of over 7,000 standards, all manufactured under ISO 17025 Guide 34, visit **www.agilent.com/chem/standards**

Washington – Extractable Petroleum Hydrocarbons (EPH) method

EPH Aromatic Hydrocarbon Standard (WA)

Description	Analytes		Total Vol.	Part No.
6 analytes, at 1,000 µg/mL, in methylene chloride	Acenaphthene Benzo[*ghi*]perylene Naphthalene	Pyrene Toluene 1,2,3-Trimethylbenzene	1 x 1 mL	SWA-300-1

PH Aliphatic Hydrocarbon Standard (WA)

Description	Analytes		Total Vol.	Part No.
6 analytes, at 1,000 µg/mL, in hexane	*n*-Octane (C_8) *n*-Decane (C_{10}) *n*-Dodecane (C_{12})	*n*-Hexadecane (C_{16}) *n*-Heneicosane (C_{21}) *n*-Tetratriacontane (C_{34})	1 x 1 mL	SWA-310-1

EPH Fractionation Check Solution (WA)

Description	Analytes		Total Vol.	Part No.
22 analytes, at 25 µg/mL, in hexane	*n*-Octane (C_8) *n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Hexadecane (C_{16}) *n*-Heneicosane (C_{21}) *n*-Tetratriacontane (C_{34}) Acenaphthene Acenaphthylene Anthracene Benz[*a*]anthracene Benzo[*a*]pyrene	Benzo[*b*]fluoranthene Benzo[*ghi*]perylene Benzo[*k*]fluoranthene Chrysene Dibenz[*a,h*]anthracene Fluoranthene Fluorene Indeno[1,2,3-*cd*]pyrene Naphthalene Phenanthrene Pyrene	1 x 1 mL	SWA-330-1

EPH Surrogate Spiking Solution (WA)

Description	Analytes		Total Vol.	Part No.
2 analytes, at 2,000 µg/mL, in acetone	*o*-Terphenyl (OTP)	1-Chlorooctadecane (COD)	1 x 1 mL	ISM-580-1

EPH Matrix Spike Standard Shooter (WA)

Description	Analytes		Total Vol.	Part No.
10 analytes, at 25 µg/mL, in acetone	*n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Hexadecane (C_{16}) *n*-Heneicosane (C_{21}) Acenaphthene	Anthracene Benzo[*ghi*]perylene Benzo[*a*]pyrene Naphthalene Pyrene	1 x 100 mL	SWA-320X

Internal and Surrogate Standards for UST Testing – WA EPH

Standards	Concentration	Total Vol.	Part No.
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
1-Chlorooctadecane			IST-470-1
o-Terphenyl			IST-480-1

Washington and Oregon – Total Petroleum Hydrocarbons (NWTPH) methods

NWTPH-HCID Retention Time Standard

Description	Analytes		Total Vol.	Part No.
3 analytes, 2,500 µg/mL, in methylene chloride	Toluene *n*-Dodecane (C_{12})	*n*-Tetracosane (C_{24})	1 x 1 mL	SWA-500-1

NWTPH-HCID Surrogate Standard

Description	Analytes		Total Vol.	Part No.
2 analytes, 5,000 µg/mL, in methylene chloride	4-Bromofluorobenzene	*n*-Pentacosane (C_{25})	1 x 1 mL	ISM-660-1

NWTPH-Gx Surrogate Standard

Description	Analytes		Total Vol.	Part No.
2 analytes, at 2,500 µg/mL, in methanol	4-Bromofluorobenzene	1,4-Difluorobenzene	1 x 1 mL	STM-560-1

Maine – GRO and DRO

PVOC/GRO Mixture (WI)

Description	Analytes		Total Vol.	Part No.
10 analytes, at 1,000 µg/mL, in methanol	Benzene Ethylbenzene Methyl *tert*-butyl ether (MTBE) Naphthalene Toluene	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene *o*-Xylene *m*-Xylene *p*-Xylene	1 x 1 mL	UST-100-1

DRO Mixture (WI)

Description	Analytes		Total Vol.	Part No.
10 analytes, at 2,000 µg/mL, in methylene chloride	*n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16}) *n*-Octadecane (C_{18})	*n*-Eicosane (C_{20}) *n*-Docosane (C_{22}) *n*-Tetracosane (C_{24}) *n*-Hexacosane (C_{26}) *n*-Octacosane (C_{28})	1 x 1 mL	UST-200-1

Internal and surrogate standards for UST testing

Internal and Surrogate Standards for UST Testing

Standards	Concentration	Total Vol.	Part No.
4-Bromofluorobenzene	2,000 µg/mL, in methanol	1 x 1 mL	STS-110N-1
1-Chloro-4-fluorobenzene			STS-570-1
1-Chlorooctane			STS-490-1
α,α,α-Trifluorotoluene			STS-220N-1
Tetracosane-d_{50}	1,000 µg/mL, in methylene chloride	1 x 1 mL	IST-730-1
5-α-Androstane	2,000 µg/mL, in methylene chloride	1 x 1 mL	IST-500-1
2-Bromonaphthalene			IST-551-1
1-Chlorooctadecane			IST-470-1
2-Fluorobiphenyl			ATS-140-1
Squalane			IST-670-1
o-Terphenyl			IST-480-1
p-Terphenyl			IST-490-1
n-Triacontane-d_{62}			IST-720-1

ASTM Surrogate Base Gasoline

Description	Component and Volume				Total Vol.	Part No.
13 components	Benzene	1%	*n*-Octane (C_8)	15%	1 x 1 mL	RGO-711-1
	n-Decane (C_{10})	10%	1,2,4,5-Tetramethylbenzene (wt %)	5%		
	n-Dodecane (C_{12})	5%	Toluene	9%		
	Ethylbenzene	5%	1,2,4-Trimethylbenzene	5%		
	n-Heptane (C_7)	15%	*o*-Xylene	5%		
	n-Hexane (C_6)	10%	*m*-Xylene	5%		
	Isooctane	10%				

B.T.E.X. in unleaded gasoline

This is composite unleaded gasoline for which the B.T.E.X. components have been analyzed. The concentrations of the components are certified by Agilent.

B.T.E.X. in Unleaded Gasoline

Description	Analytes		Total Vol.	Part No.
7 analytes	Benzene	Isopropylbenzene	1 x 1 mL	BTX-3000-1*
	Ethylbenzene	Naphthalene		
	Toluene	Methyl *tert*-butyl ether (MTBE)		
	Xylenes (total)			

*Concentrations certified on accompanying certificate

Diesel/Motor Oil Standard

Description	Analytes		Total Vol.	Part No.
2 analytes, at 50,000 µg/mL, in hexane	Diesel fuel	SAE 10W30 motor oil	1 x 1 mL	RGO-730-1

EPA Method 1664A

Oil and grease, and total petroleum hydrocarbons

Method 1664A is a gravimetric method for the determination of n-hexane extractable material (HEM) in surface and saline waters, and in industrial and domestic aqueous wastes. Extractable materials that may be determined are relatively nonvolatile hydrocarbons, vegetable oils, animal fats, waxes, soaps, greases, and related materials.

EPA Method 1664A Precision, Accuracy, and Recovery Standard

Description	Analytes	Total Vol.	Part No. 2,000 µg/mL in Acetone	Part No. 4,000 µg/mL in Acetone
2 analytes	*n*-Hexadecane Stearic acid	1 x 100 mL	RGO-102X	RGO-101X

EPA Method 418.1

Oil and grease, and total petroleum hydrocarbons

Method 418.1 is a method for determining TPH using a freon (CFC-113) as the extraction solvent. After extraction, polar components are removed by adsorption on silica gel, and the remaining components are measured by infrared spectrometry (IR). Method 418.1 was withdrawn by the EPA due to the use of a fluorocarbon extraction solvent. Although Method 418.1 is no longer an approved EPA method, Agilent continues to offer this standard for your convenience.

EPA Method 418.1 Calibration Oil

Description	Component		Total Vol.	Part No.
3 components	*n*-Hexadecane Isooctane Chlorobenzene	37.50% 37.50% 25.00%	1 x 1 mL	RGO-100-1

Technical note

These standards often crystallize while standing. Always check for crystals before use. For best results, always equilibrate the standards in an ultrasonic bath to ensure complete dissolution.

Hydrocarbon fuel standards

Fuel Standards for UST Testing

Standards	Concentration	Total Vol.	Part No.
Unleaded gasoline	500 µg/mL, in methanol	1 x 1 mL	RGO-600-1
Diesel fuel 2			RGO-610-1
SAE 10W30 motor oil	1,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-722-1
SAE 10W40 motor oil			RGO-723-1
Composite unleaded gasoline *	2,500 µg/mL, in methanol	1 x 1 mL	RGO-605-1
100 octane aviation fuel			RGO-661-1
Composite diesel fuel *			RGO-615-1
Composite kerosene *			RGO-625-1
Commercial jet fuel A	5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-671-1
Fuel oil 4			RGO-631-1
Fuel oil 5			RGO-641-1
Fuel oil 6			RGO-651-1
Oxygenate free unleaded regular gasoline			RGO-608-1
Oxygenate free unleaded premium gasoline			RGO-609-1
JP-5 military fuel			RGO-691-1
Composite unleaded gasoline *	50,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-606-1
100 octane aviation fuel			RGO-662-1
Composite diesel fuel *			RGO-616-1
Composite kerosene *			RGO-626-1
Commercial jet fuel A			RGO-672-1
Fuel oil 4			RGO-632-1
Fuel oil 5			RGO-642-1
Fuel oil 6			RGO-652-1
JP-5 military fuel			RGO-692-1

* Composite standards are prepared from multiple sources of fuel. All other standards are single source samples.

Tips and tools

Find more EPA Method standards online at **www.agilent.com/chem/standards**

Weathered hydrocarbon fuel standards

Weathered fuels

The Agilent weathered fuel standards are designed to simulate the effects of exposures on hydrocarbon fuel samples. The standards are prepared by evaporation of the low boiling components of the fuel sample until the desired percentage reduction is achieved. Matrix effects have not been simulated.

Unleaded Gasoline Standards

Standards	Total Vol.	Part No. Unweathered	Part No. 25% Weathered	Part No. 50% Weathered	Part No. 75% Weathered
Unleaded gasoline, at 5,000 µg/mL, in methanol	1 x 1 mL	RGO-601-1	RGO-602-1	RGO-603-1	RGO-604-1

Diesel Fuel Standards

Standards	Total Vol.	Part No. Unweathered	Part No. 25% Weathered	Part No. 50% Weathered	Part No. 75% Weathered
Diesel fuel, at 5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-611-1	RGO-612-1	RGO-613-1	RGO-614-1

Kerosene Standards

Standards	Total Vol.	Part No. Unweathered	Part No. 25% Weathered	Part No. 50% Weathered	Part No. 75% Weathered
Kerosene, at 5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-621-1	RGO-622-1	RGO-623-1	RGO-624-1

Mineral Spirits Standards

Standards	Total Vol.	Part No. Unweathered	Part No. 25% Weathered	Part No. 50% Weathered	Part No. 75% Weathered
Mineral spirits, at 5,000 µg/mL, in methylene chloride	1 x 1 mL	RGO-701-1	RGO-702-1	RGO-703-1	RGO-704-1

Weathered Hydrocarbon Kits

Kits	Standards	Total Vol.	Part No.
Weathered gasoline	Unweathered hydrocarbon 25% weathered hydrocarbon 50% weathered hydrocarbon 75% weathered hydrocarbon	1 x 1 mL	RGK-601
Weathered diesel	Unweathered hydrocarbon 25% weathered hydrocarbon 50% weathered hydrocarbon 75% weathered hydrocarbon	1 x 1 mL	RGK-611
Weathered kerosene	Unweathered hydrocarbon 25% weathered hydrocarbon 50% weathered hydrocarbon 75% weathered hydrocarbon	1 x 1 mL	RGK-621
Weathered mineral spirits	Unweathered hydrocarbon 25% weathered hydrocarbon 50% weathered hydrocarbon 75% weathered hydrocarbon	1 x 1 mL	RGK-701

EN 14105:2003

Free and total glycerol and mono-, di-, tri-glyceride content

Method EN 14105 is used to determine glycerin and total glycerin in fatty acid methyl esters (FAME) used in biodiesel products. Samples are derivatized, then analyzed by high temperature gas chromatography (HTGC). This method is similar to ASTM D6584.

EN 14105:2003 Standard 1

Description	Analytes and Concentration				Total Vol.	Part No.
6 analytes, in pyridine	1,2,4-Butanetriol Diolein Glycerol (glycerine)	80 µg/mL 50 µg/mL 5 µg/mL	Monoolein Tricaprin Triolein	250 µg/mL 800 µg/mL 50 µg/mL	1 x 1 mL	RGO-300-1

EN 14105:2003 Standard 2

Description	Analytes and Concentration				Total Vol.	Part No.
6 analytes, in pyridine	1,2,4-Butanetriol Diolein Glycerol (glycerine)	80 µg/mL 200 µg/mL 20 µg/mL	Monoolein Tricaprin Triolein	600 µg/mL 800 µg/mL 150 µg/mL	1 x 1 mL	RGO-301-1

EN 14105:2003 Standard 3

Description	Analytes and Concentration				Total Vol.	Part No.
6 analytes, in pyridine	1,2,4-Butanetriol Diolein Glycerol (glycerine)	80 µg/mL 350 µg/mL 35 µg/mL	Monoolein Tricaprin Triolein	950 µg/mL 800 µg/mL 300 µg/mL	1 x 1 mL	RGO-302-1

EN 14105:2003 Standard 4

Description	Analytes and Concentration				Total Vol.	Part No.
6 analytes, in pyridine	1,2,4-Butanetriol Diolein Glycerol (glycerine)	80 µg/mL 500 µg/mL 50 µg/mL	Monoolein Tricaprin Triolein	1,250 µg/mL 800 µg/mL 400 µg/mL	1 x 1 mL	RGO-303-1

Monoglyceride Stock Solution

Description	Analytes	Total Vol.	Part No.
3 analytes, at 10,000 µg/mL, in pyridine	Monoolein Monopalmitin Monostearin	1 x 1 mL	RGO-280-1

Individual Standards for Biodiesel Testing

Analytes	Concentration	Total Vol.	Part No.
Glycerine (in pyridine)	500 µg/mL	1 x 2 mL	RGO-210
Monoolein (in pyridine)	5,000 µg/mL		RGO-220
Diolein (in pyridine)	5,000 µg/mL		RGO-230
Triolein (in pyridine)	5,000 µg/mL		RGO-240
Monopalmitin (in pyridine)	5,000 µg/mL		RGO-250

ASTM Method D6584

Free and total glycerin in B-100 biodiesel methyl esters

Method D6584 covers the quantitative determination of free and total glycerin in B-100 methyl esters. Samples are derivatized, then analyzed by high temperature gas chromatography (HTGC). This method is similar to EN 14105.

ASTM D6584 Standard 1

Description	Analytes and Concentration		Total Vol.	Part No.
4 analytes, in pyridine	Diolein Glycerol (glycerine) Monoolein Triolein	50 µg/mL 5 µg/mL 100 µg/mL 50 µg/mL	1 x 1 mL	RGO-300-1

ASTM D6584 Standard 2

Description	Analytes and Concentration		Total Vol.	Part No.
4 analytes, in pyridine	Diolein Glycerol (glycerine) Monoolein Triolein	100 µg/mL 15 µg/mL 250 µg/mL 100 µg/mL	1 x 1 mL	RGO-311-1

ASTM D6584 Standard 3

Description	Analytes and Concentration		Total Vol.	Part No.
4 analytes, in pyridine	Diolein Glycerol (glycerine) Monoolein Triolein	200 µg/mL 25 µg/mL 500 µg/mL 200 µg/mL	1 x 1 mL	RGO-312-1

ASTM D6584 Standard 4

Description	Analytes and Concentration		Total Vol.	Part No.
4 analytes, in pyridine	Diolein Glycerol (glycerine) Monoolein Triolein	350 µg/mL 35 µg/mL 750 µg/mL 350 µg/mL	1 x 1 mL	RGO-302-1

ASTM D6584 Standard 5

Description	Analytes and Concentration		Total Vol.	Part No.
4 analytes, in pyridine	Diolein Glycerol (glycerine) Monoolein Triolein	500 µg/mL 50 µg/mL 1,000 µg/mL 500 µg/mL	1 x 1 mL	RGO-303-1

Internal Standards for Biodiesel Testing

Analytes	Concentration	Total Vol.	Part No.
1,2,4-Butanetriol (in pyridine)	1,000 µg/mL	1 x 5 mL	RGO-260
Tricaprin	8,000 µg/mL	1 x 5 mL	RGO-270

Derivatizing Agent–MSTFA

Analytes	Mass	Part No.
N-Methyl-*N*-(trimethylsilyl)trifluoroacetamide (MSTFA)	1 x 5 g	RGO-200

ASTM Method D1387

Saponification number (empirical) of synthetic and natural waxes

Method D1387 covers the determination of the saponification number of synthetic waxes and natural waxes.

ASTM E1387 Column Resolution Check Mixture

Description	Analytes		Total Vol.	Part No.
13 analytes, 2,000 µg/mL, in methylene chloride	*n*-Hexane (C_6) *n*-Octane (C_8) *n*-Decane (C_{10}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16}) *n*-Octadecane (C_{18})	*n*-Eicosane (C_{20}) Toluene 1,2,4-Trimethylbenzene 2-Ethyltoluene 3-Ethyltoluene *p*-Xylene	1 x 1 mL	ASTM-130-1

ASTM Method D2887

Boiling range distribution of petroleum fractions

Method D2887 covers the determination of the boiling range distribution of petroleum products. The test method is applicable to petroleum products and fractions with a final boiling point of 538 °C (1,000 °F) or lower at atmospheric pressure, as measured by this test method. The test method is limited to samples with a boiling range greater than 55 °C (100 °F), and with a vapor pressure low enough to permit sampling at ambient temperature.

ASTM Method D2887 Column Test Mixture

Description	Analytes		Total Vol.	Part No.
2 analytes, at 1% (w/v), in *n*-Octane	*n*-Hexadecane (C_{16})	*n*-Octadecane (C_{18})	1 x 1 mL	ASTM-120-1

ASTM Method D2887 Column Test Mixture

Description	Components	% w/w			Total Vol	Part No.
17 components	*n*-Hexane (C_6) *n*-Heptane (C_7) *n*-Octane (C_8) *n*-Nonane (C_9) *n*-Decane (C_{10}) *n*-Undecane (C_{11}) *n*-Dodecane (C_{12}) *n*-Tetradecane (C_{14}) *n*-Hexadecane (C_{16})	6 6 8 8 12 12 12 12 10	*n*-Octadecane (C_{18}) *n*-Eicosane (C_{20}) *n*-Tetracosane (C_{24}) *n*-Octacosane (C_{28}) *n*-Dotriacontane (C_{32}) *n*-Hexatriacontane (C_{36}) *n*-Tetracontane (C_{40}) *n*-Tetratetracontane (C_{44})	5 2 2 1 1 1 1 1	1 x 1 mL	ASTM-110-1

ASTM Method D3710

Boiling range distribution of gasoline and gasoline fractions

Method D3710 covers the determination of the boiling range distribution of gasoline and gasoline components. The test method is applicable to petroleum products and fractions with a final boiling point of 500 °F (260 °C) or lower.

ASTM Method D3710 Calibration Mixture

Description	Components	%, v/v			Total Vol.	Part No.
16 components	2-Methylbutane	10	*p*-Xylene	14	1 x 1 mL	ASTM-100-1
	n-Pentane (C_5)	8	*n*-Propylbenzene	5		
	2-Pethylpentane	6	*n*-Decane (C_{10})	4		
	n-Hexane (C_8)	6	*n*-Butylbenzene	4		
	2,4-Dimethylpentane	6	*n*-Dodecane (C_{12})	4		
	n-Heptane (C_7)	10	*n*-Tridecane (C_{13})	2		
	Toluene	12	*n*-Tetradecane (C_{14})	2		
	n-Octane (C_8)	5	*n*-Pentadecane (C_{15})	2		

ASTM Method D4815

MTBE, ETBE, TAME, DIPE, tertiary-amyl alcohol, and C_1 to C_4 alcohols in gasoline

Method D4815 covers the determination of ethers and alcohols in gasolines by gas chromatography.

ASTM Method D4815 Quantitative Peak ID Mixture

Description	Components	Weight %			Total Vol.	Part No.
16 components	Methylcyclopentane	4.0	Diisopropyl ether (DIPE)	4.0	1 x 1 mL	RGO-422-1
	Methanol	7.3	Isobutanol	7.3		
	Ethanol	7.3	Ethyl *tert*-butyl ether (ETBE)	4.0		
	Isopropanol	7.3	*tert*-Pentanol	7.3		
	tert-Butanol	7.3	1,2-Dimethoxyethane (DME)	6.0		
	n-Propanol	7.3	*n*-Butanol	7.3		
	Methyl *tert*-butyl ether (MTBE)	4.0	Benzene	5.0		
	sec-Butanol	7.3	*tert*-Amyl methyl ether	7.3		

ASTM Surrogate Base Gasoline

Description	Components	Volume %			Total Vol.	Part No.
13 components	Benzene	1	*n*-Octane (C_8)	15	1 x 1 mL	RGO-711-1
	n-Decane (C_{10})	10	1,2,4,5-Tetramethylbenzene (weight)	5		
	n-Dodecane (C_{12})	5	Toluene	9		
	Ethylbenzene	5	1,2,4-Trimethylbenzene	5		
	n-Heptane (C_7)	15	*o*-Xylene	5		
	n-Hexane (C_6)	10	*m*-Xylene	5		
	Isooctane	10				

ASTM Method D5453

Total sulfur in light hydrocarbons, spark ignition engine fuel, diesel engine fuel, and engine oil

Method D5453 covers the determination of total sulfur in light hydrocarbons, spark ignition engine fuel, diesel engine fuel, and engine oil by ultraviolet fluorescence.

ASTM D5453–Total Sulfur Standards Kits (Low Concentration)

ASTM D5453 Standards Kit (Medium)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in toluene	Toluene	Solvent blank	1 x 2 mL	PANAL0211-1	**PANAL0211**
Ampoule 2 in toluene	Butylsulfide (as S)	1 mg/L	1 x 2 mL	PANAL0211-2	
Ampoule 3 in toluene	Butylsulfide (as S)	2.5 mg/L	1 x 2 mL	PANAL0211-3	
Ampoule 4 in toluene	Butylsulfide (as S)	5 mg/L	1 x 2 mL	PANAL0211-4	
Ampoule 5 in toluene	Butylsulfide (as S)	7.5 mg/L	1 x 2 mL	PANAL0211-5	
Ampoule 6 in toluene	Butylsulfide (as S)	10 mg/L	1 x 2 mL	PANAL0211-6	

ASTM D5453 Standards Kit (Low)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0214-1	**PANAL0214**
Ampoule 2 in isooctane	Butylsulfide (as S)	1 mg/L	1 x 2 mL	PANAL0214-2	
Ampoule 3 in isooctane	Butylsulfide (as S)	2.5 mg/L	1 x 2 mL	PANAL0214-3	
Ampoule 4 in isooctane	Butylsulfide (as S)	5 mg/L	1 x 2 mL	PANAL0214-4	
Ampoule 5 in isooctane	Butylsulfide (as S)	7.5 mg/L	1 x 2 mL	PANAL0214-5	
Ampoule 6 in isooctane	Butylsulfide (as S)	10 mg/L	1 x 2 mL	PANAL0214-6	

ASTM D5453–Total Sulfur Standards Kits (Medium Concentration)

ASTM D5453 Standards Kit (Medium)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1	Toluene	Solvent blank	1 x 2 mL	PANAL0212-1	**PANAL0212**
Ampoule 2	Butylsulfide (as S)	5 mg/L	1 x 2 mL	PANAL0212-2	
Ampoule 3	Butylsulfide (as S)	25 mg/L	1 x 2 mL	PANAL0212-3	
Ampoule 4	Butylsulfide (as S)	50 mg/L	1 x 2 mL	PANAL0212-4	
Ampoule 5	Butylsulfide (as S)	100 mg/L	1 x 2 mL	PANAL0212-5	
Ampoule 6	Butylsulfide (as S)	200 mg/L	1 x 2 mL	PANAL0212-6	

ASTM D5453 Standards Kit (Medium)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1	Isooctane	Solvent blank	1 x 2 mL	PANAL0215-1	**PANAL0215**
Ampoule 2	Butylsulfide (as S)	5 mg/L	1 x 2 mL	PANAL0215-2	
Ampoule 3	Butylsulfide (as S)	25 mg/L	1 x 2 mL	PANAL0215-3	
Ampoule 4	Butylsulfide (as S)	50 mg/L	1 x 2 mL	PANAL0215-4	
Ampoule 5	Butylsulfide (as S)	100 mg/L	1 x 2 mL	PANAL0215-5	
Ampoule 6	Butylsulfide (as S)	200 mg/L	1 x 2 mL	PANAL0215-6	

ASTM Method D5453 (continued)

ASTM D5453–Total Sulfur Standards Kits (High Concentration)

ASTM D5453 Standards Kit (High)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in toluene	Toluene	Solvent blank	1 x 2 mL	PANAL0213-1	**PANAL0213**
Ampoule 2 in toluene	Butylsulfide (as S)	100 mg/L	1 x 2 mL	PANAL0213-2	
Ampoule 3 in toluene	Butylsulfide (as S)	250 mg/L	1 x 2 mL	PANAL0213-3	
Ampoule 4 in toluene	Butylsulfide (as S)	500 mg/L	1 x 2 mL	PANAL0213-4	
Ampoule 5 in toluene	Butylsulfide (as S)	750 mg/L	1 x 2 mL	PANAL0213-5	
Ampoule 6 in toluene	Butylsulfide (as S)	1,000 mg/L	1 x 2 mL	PANAL0213-6	

ASTM D5453 Standards Kit (High)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0216-1	**PANAL0216**
Ampoule 2 in isooctane	Butylsulfide (as S)	100 mg/L	1 x 2 mL	PANAL0216-2	
Ampoule 3 in isooctane	Butylsulfide (as S)	250 mg/L	1 x 2 mL	PANAL0216-3	
Ampoule 4 in isooctane	Butylsulfide (as S)	500 mg/L	1 x 2 mL	PANAL0216-4	
Ampoule 5 in isooctane	Butylsulfide (as S)	750 mg/L	1 x 2 mL	PANAL0216-5	
Ampoule 6 in isooctane	Butylsulfide (as S)	1,000 mg/L	1 x 2 mL	PANAL0216-6	

ASTM Method D3120, D3246, D3961

Total sulfur petroleum hydrocarbons

Methods D3120, D3246, and D3961 cover the determination of total sulfur (including trace sulfur) in light petroleum products, and in related products and chemicals. ASTM D3961 was withdrawn in 2004.

ASTM D3120, D3246 and D3961–Sulfur Standards Kit

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0217-1	**PANAL0217**
Ampoule 2 in isooctane	Butylsulfide (as S)	1 mg/L	1 x 2 mL	PANAL0217-2	
Ampoule 3 in isooctane	Butylsulfide (as S)	10 mg/L	1 x 2 mL	PANAL0217-3	
Ampoule 4 in isooctane	Butylsulfide (as S)	40 mg/L	1 x 2 mL	PANAL0217-4	
Ampoule 5 in isooctane	Butylsulfide (as S)	75 mg/L	1 x 2 mL	PANAL0217-5	
Ampoule 6 in isooctane	Butylsulfide (as S)	100 mg/L	1 x 2 mL	PANAL0217-6	

ASTM Method D4629

Trace nitrogen in liquid petroleum hydrocarbons

Method D4629 covers the determination of trace total nitrogen in liquid petroleum hydrocarbons by syringe/inlet oxidative combustion and chemiluminescence detection.

ASTM D4629–Trace Nitrogen Standards Kits

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0218-1	**PANAL0218**
Ampoule 2 in isooctane	Pyridine (as N)	1 mg/L	1 x 2 mL	PANAL0218-2	
Ampoule 3 in isooctane	Pyridine (as N)	2 mg/L	1 x 2 mL	PANAL0218-3	
Ampoule 4 in isooctane	Pyridine (as N)	5 mg/L	1 x 2 mL	PANAL0218-4	
Ampoule 5 in isooctane	Pyridine (as N)	10 mg/L	1 x 2 mL	PANAL0218-5	
Ampoule 6 in isooctane	Pyridine (as N)	20 mg/L	1 x 2 mL	PANAL0218-6	

ASTM D4629 Standards Kit (Medium)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0219-1	**PANAL0219**
Ampoule 2 in isooctane	Pyridine (as N)	50 mg/L	1 x 2 mL	PANAL0219-2	
Ampoule 3 in isooctane	Pyridine (as N)	100 mg/L	1 x 2 mL	PANAL0219-3	
Ampoule 4 in isooctane	Pyridine (as N)	200 mg/L	1 x 2 mL	PANAL0219-4	
Ampoule 5 in isooctane	Pyridine (as N)	500 mg/L	1 x 2 mL	PANAL0219-5	
Ampoule 6 in isooctane	Pyridine (as N)	1,000 mg/L	1 x 2 mL	PANAL0219-6	

ASTM D4629 Standards Kit (High)

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0220-1	**PANAL0220**
Ampoule 2 in isooctane	Pyridine (as N)	500 mg/L	1 x 2 mL	PANAL0220-2	
Ampoule 3 in isooctane	Pyridine (as N)	1,000 mg/L	1 x 2 mL	PANAL0220-3	
Ampoule 4 in isooctane	Pyridine (as N)	2,000 mg/L	1 x 2 mL	PANAL0220-4	
Ampoule 5 in isooctane	Pyridine (as N)	5,000 mg/L	1 x 2 mL	PANAL0220-5	
Ampoule 6 in isooctane	Pyridine (as N)	10,000 mg/L	1 x 2 mL	PANAL0220-6	

ASTM Method D5762

Nitrogen in petroleum and petroleum products

Method D5762 covers the determination of nitrogen in petroleum and petroleum products by boat-inlet chemiluminescence. For light hydrocarbons containing less than 100 µg/g nitrogen, Test Method D4629 can be more appropriate.

ASTM D5762–Nitrogen Standards Kit

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in toluene	Toluene	Solvent blank	1 x 2 mL	PANAL0221-1	**PANAL0221**
Ampoule 2 in toluene	Acridine (as N)	1 mg/L	1 x 2 mL	PANAL0221-2	
Ampoule 3 in toluene	Acridine (as N)	5 mg/L	1 x 2 mL	PANAL0221-3	
Ampoule 4 in toluene	Acridine (as N)	10 mg/L	1 x 2 mL	PANAL0221-4	
Ampoule 5 in toluene	Acridine (as N)	50 mg/L	1 x 2 mL	PANAL0221-5	
Ampoule 6 in toluene	Acridine (as N)	100 mg/L	1 x 2 mL	PANAL0221-6	

ASTM Method D4929

Organic chloride content in crude oil

Method D4929 covers the determination of organic chloride in crude oils, using either distillation and sodium biphenyl reduction or distillation and microcoulometry.

ASTM D4929–Organic Chloride Standards Kits

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in isooctane	Isooctane	Solvent blank	1 x 2 mL	PANAL0223-1	**PANAL0223**
Ampoule 2 in isooctane	Chlorobenzene (as Cl)	5 mg/L	1 x 2 mL	PANAL0223-2	
Ampoule 3 in isooctane	Chlorobenzene (as Cl)	10 mg/L	1 x 2 mL	PANAL0223-3	
Ampoule 4 in isooctane	Chlorobenzene (as Cl)	25 mg/L	1 x 2 mL	PANAL0223-4	
Ampoule 5 in isooctane	Chlorobenzene (as Cl)	50 mg/L	1 x 2 mL	PANAL0223-5	
Ampoule 6 in isooctane	Chlorobenzene (as Cl)	100 mg/L	1 x 2 mL	PANAL0223-6	

ASTM Method D5808

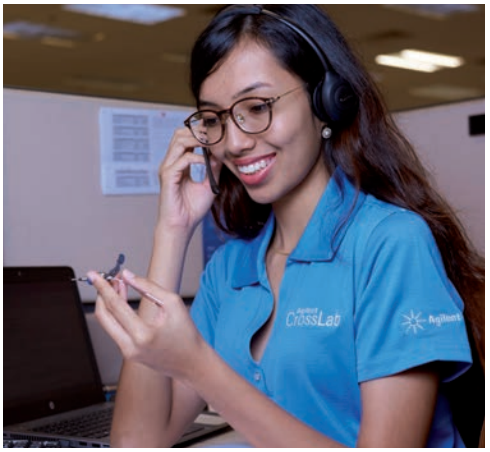
Organic chloride in aromatic hydrocarbons

Method D5808 covers the determination of organic chloride in aromatic hydrocarbons and related chemicals by microcoulometry.

ASTM D5808–Organic Chloride Standards Kits

Kit 1 each of ampoules 1-6	Analytes	Concentration	Volume	Part No.	Full Kit Part No.
Ampoule 1 in methanol	Methanol	Solvent blank	1 x 2 mL	–	**PANAL0224**
Ampoule 2 in methanol	2,4,6-Trichlorophenol (as Cl)	1 mg/L	1 x 2 mL	–	
Ampoule 3 in methanol	2,4,6-Trichlorophenol (as Cl)	5 mg/L	1 x 2 mL	–	
Ampoule 4 in methanol	2,4,6-Trichlorophenol (as Cl)	10 mg/L	1 x 2 mL	–	
Ampoule 5 in methanol	2,4,6-Trichlorophenol (as Cl)	15 mg/L	1 x 2 mL	–	
Ampoule 6 in methanol	2,4,6-Trichlorophenol (as Cl)	25 mg/L	1 x 2 mL	–	

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