

US State Underground Storage Tank Methods and Petrochemical Standards

Each state has developed analytical protocols for dealing with the problem of leaking underground storage tanks. Although there is a great deal of overlap among these methods, each state's protocol takes their unique conditions and requirements into account.

ULTRA Scientific has prepared a number of reference standards for the state and federal underground storage tank (UST) methods, as well as standards for petrochemical analysis, including the fast developing field of biodiesel fuels. Each component in a reference standard is pre-analyzed, with most analytes being >99% pure, and the solvents are of the highest quality available. All solutions are gravimetrically prepared to a precision of $\pm 0.5\%$. A certificate showing the actual weight of each analyte is supplied with the standard.

If you cannot find the specific mixture you require listed under your state method, examine some of the other methods. The standard you need may appear listed under one of the other states.



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Underground Storage Tank (UST) Standards

B.T.E.X. Mixtures

6 Analytes

benzene
ethylbenzene
toluene
o-xylene
m-xylene
p-xylene

@ 100 µg/mL in Methanol

BTX-100 4 x 1 mL ***
BTX-100-1 1 x 1 mL ***

@ 200 µg/mL in Methanol

BTX-110 4 x 1 mL ***
BTX-110-1 1 x 1 mL ***

@ 2000 µg/mL in Methanol

BTX-2000N-4 4 x 1 mL ***
BTX-2000N 1 x 1 mL ***

B.T.E.X. in Unleaded Gasoline

This is composite unleaded gasoline for which the BTEX components have been analyzed. The concentrations of the components are certified by ULTRA Scientific.

7 Analytes

benzene
ethylbenzene
toluene
xylenes (total)
isopropylbenzene
naphthalene
methyl *tert*-butyl ether (MTBE)

Concentrations Certified on Accompanying Certificate

BTX-3000 4 x 1 mL ***
BTX-3000-1 1 x 1 mL ***

Diesel/Motor Oil Standard

2 Analytes

diesel fuel
SAE 10W30 motor oil

@ 50,000 µg/mL in Hexane

RG0-730 4 x 1 mL ***
RG0-730-1 1 x 1 mL ***

Fuel Oil Degradation Mixture

4 Analytes

n-heptadecane (C₁₇)
n-octadecane (C₁₈)
phytane
pristane

@ 2000 µg/mL in Methylene Chloride

UST-310 4 x 1 mL ***
UST-310-1 1 x 1 mL ***

Gasoline Additives

4 Analytes

dibromomethane
1,2-dichloroethane
ethylene dibromide
methyl *tert*-butyl ether

@ 200 µg/mL in Methanol

HCM-620 4 x 1 mL ***
HCM-620-1 1 x 1 mL ***

GRO Mixture (EPA)

9 Analytes

benzene 500 µg/mL
ethylbenzene 500 µg/mL
n-heptane 500 µg/mL
2-methylpentane 1500 µg/mL
toluene 1500 µg/mL
1,2,4-trimethylbenzene 1000 µg/mL
2,2,4-trimethylpentane 1500 µg/mL
o-xylene 1000 µg/mL
m-xylene 1000 µg/mL

in Methanol

UST-110 4 x 1 mL ***
UST-110-1 1 x 1 mL ***

GRO Mixture

9 Analytes

benzene
ethylbenzene
3-methylpentane
naphthalene
toluene
1,2,4-trimethylbenzene
2,2,4-trimethylpentane (*isooctane*)
o-xylene
m-xylene

@ 1000 µg/mL in Methanol

UST-120 4 x 1 mL ***
UST-120-1 1 x 1 mL ***

LUST Retention Time Standard

7 Analytes

n-hexane (C₆)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-tetracosane (C₂₄)
n-octacosane (C₂₈)
n-triacontane (C₃₀)
n-tetracontane (C₄₀)

@ 25 µg/mL in Methylene Chloride

UST-300 4 x 1 mL ***
UST-300-1 1 x 1 mL ***

Alaska – Methods AK 101, AK 102, and AK 103

GRO Aliphatic Calibration Mix (AK)

5 Analytes

n-hexane (C₆)
n-heptane (C₇)
n-octane (C₈)
n-nonane (C₉)
n-decane (C₁₀)

@ 2000 µg/mL in Methanol

SAK-100	4 x 1 mL	***
SAK-100-1	1 x 1 mL	***

GRO Aromatic Calibration Mix (AK)

14 Analytes

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

@ 2000 µg/mL in Methanol

SAK-120	4 x 1 mL	***
SAK-120-1	1 x 1 mL	***

DRO Aliphatic Calibration Mix (AK)

16 Analytes

n-decane (C₁₀)
n-undecane (C₁₁)
n-dodecane (C₁₂)
n-tridecane (C₁₃)
n-tetradecane (C₁₄)
n-pentadecane (C₁₅)
n-hexadecane (C₁₆)
n-heptadecane (C₁₇)
n-octadecane (C₁₈)
n-nonadecane (C₁₉)
n-eicosane (C₂₀)
n-heneicosane (C₂₁)
n-docosane (C₂₂)
n-tricosane (C₂₃)
n-tetracosane (C₂₄)
n-pentacosane (C₂₅)

@ 1000 µg/mL in Methylene Chloride

UST-210	4 x 1 mL	***
UST-210-1	1 x 1 mL	***

Retention Time Marker Mix (AK)

3 Analytes

n-decane (C₁₀)
n-pentacosane (C₂₅)
n-hexatriacontane (C₃₆)

@ 50 µg/mL in Methylene Chloride

SAK-200	4 x 1 mL	***
SAK-200-1	1 x 1 mL	***

GRO Retention Time Marker Mix (AK)

2 Analytes

n-hexane (C₆)
n-decane (C₁₀)

@ 1000 µg/mL in Methylene Chloride

SAK-201	4 x 1 mL	***
SAK-201-1	1 x 1 mL	***

DRO Retention Time Marker Mix (AK)

2 Analytes

n-decane (C₁₀)
n-pentacosane (C₂₅)

@ 2000 µg/mL in Methylene Chloride

SAK-202	4 x 1 mL	***
SAK-202-1	1 x 1 mL	***

RRO Aliphatic Calibration Mix (AK)

5 Analytes

n-hexacosane (C₂₆)
n-octacosane (C₂₈)
n-triacontane (C₃₀)
n-dotriacontane (C₃₂)
n-tetratriacontane (C₃₄)

@ 1000 µg/mL in Hexane

SAK-210	4 x 1 mL	***
SAK-210-1	1 x 1 mL	***

Composite Motor Oil Standard

2 Analytes

SAE 10W30 motor oil
SAE 10W40 motor oil

@ 25,000 µg/mL in Methylene Chloride

RGO-724	4 x 1 mL	***
RGO-724-1	1 x 1 mL	***

Arizona – Method 8015AZ

Retention Time Verification Mixture (AZ)

3 Analytes

n-decane (C₁₀)
n-docosane (C₂₂)
n-dotriacontane (C₃₂)

@ 1000 µg/mL in Methylene Chloride

SAZ-100 4 x 1 mL ***
SAZ-100-1 1 x 1 mL ***



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Individual Petrochemical Standards for UST Testing – AK & AZ

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 5000 µg/mL in Methylene Chloride</i>						
unleaded regular gasoline (oxygenate free)	RGO-608	***	RGO-608-1	***		
unleaded premium gasoline (oxygenate free)	RGO-609	***	RGO-609-1	***		
diesel fuel	RGO-611	***	RGO-611-1	***		
<i>All @ 1000 µg/mL in Methylene Chloride</i>						
SAE 10W30 motor oil	RGO-722	***	RGO-722-1	***		
SAE 10W40 motor oil	RGO-723	***	RGO-723-1	***		

Internal and Surrogate Standards for UST Testing – AK & AZ

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		9 or More Ampules	
<i>All @ 2000 µg/mL in Methanol</i>						
4-bromofluorobenzene	STS-110N	***	STS-110N-1	***		
1-chloro-4-fluorobenzene	STS-570	***	STS-570-1	***		
α,α,α-trifluorotoluene	STS-220N	***	STS-220N-1	***		
<i>All @ 2000 µg/mL in Methylene Chloride</i>						
5-α-androstane	IST-500	***	IST-500-1	***		
squalane	IST-670	***	IST-670-1	***		
o-terphenyl	IST-480	***	IST-480-1	***		
<i>n</i> -triacontane-d ₆₂	IST-720	***	IST-720-1	***		

Florida – Method FL-PRO

TRPH Standard (FL)

17 Analytes

n-octane (C₈)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-tetradecane (C₁₄)
n-hexadecane (C₁₆)
n-octadecane (C₁₈)
n-eicosane (C₂₀)
n-docosane (C₂₂)
n-tetracosane (C₂₄)
n-hexacosane (C₂₆)
n-octacosane (C₂₈)
n-triacontane (C₃₀)
n-dotriacontane (C₃₂)
n-tetratriacontane (C₃₄)
n-hexatriacontane (C₃₆)
n-octatriacontane (C₃₈)
n-tetracontane (C₄₀)

@ 500 µg/mL in Hexane

SFL-601	4 x 1 mL	***
SFL-601-1	1 x 1 mL	***

TPRH Surrogate Standards (FL)

n-nonatriacontane (C₃₉)

@ 2000 µg/mL in Carbon Disulfide

IST-680	4 x 1 mL	***
IST-680-1	1 x 1 mL	***

o-terphenyl

@ 2000 µg/mL in Methylene Chloride

IST-480	4 x 1 mL	***
IST-480-1	1 x 1 mL	***

PAH Standard (FL)

18 Analytes

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

@ 2000 µg/mL in

Methylene Chloride/Benzene (1:1)

SFL-610	4 x 1 mL	***
SFL-610-1	1 x 1 mL	***

Custom Standards

Do you require a standard not cataloged by ULTRA? We catalog over 5500 different standards, but if you can't find the specific standard you need, we will be happy to prepare it for you on a custom basis. Our custom organic and inorganic standards are a fast, economical way to address your unique applications. Simply fax us a copy of the form found on page 399, or log on to www.ultrasci.com and use our convenient quotation request web page. You will receive a quote within 24 hours.

Validation choices available:

Gravimetric Validation: All standards are manufactured under ULTRA's ISO 9001 registered quality system. Each analyte is guaranteed to be within the tolerance limits of ±0.2% nominal for inorganic analytes and ±0.5% nominal for organic analytes. A Certificate of Analysis accompanies each custom standard.

Quantitative Validation: The method employed is identical to that used for all ULTRA cataloged standards and involves extensive instrumental analysis. All quantitative customs are provided with a DATApak® and Certificate of Analysis.



Iowa – Methods OA-1 and OA-2

B.T.E.X. Mixtures*6 Analytes*

benzene
ethylbenzene
toluene
o-xylene
m-xylene
p-xylene

@ 100 µg/mL in Methanol

BTX-100 4 x 1 mL ***
BTX-100-1 1 x 1 mL ***

@ 200 µg/mL in Methanol

BTX-110 4 x 1 mL ***
BTX-110-1 1 x 1 mL ***

@ 2000 µg/mL in Methanol

BTX-2000N-4 4 x 1 mL ***
BTX-2000N 1 x 1 mL ***

B.T.E.X. in Unleaded Gasoline

This is composite unleaded gasoline for which the BTEX components have been analyzed. The component concentrations are certified by ULTRA Scientific on the accompanying certificate.

7 Analytes

benzene
ethylbenzene
toluene
xylenes (total)
isopropylbenzene
naphthalene
methyl *tert*-butyl ether (*MTBE*)

in Unleaded Gasoline

BTX-3000 4 x 1 mL ***
BTX-3000-1 1 x 1 mL ***

Individual Petrochemical Standards for UST Testing – IA

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 5000 µg/mL in Methylene Chloride</i>						
unleaded regular gasoline (oxygenate free)	RG0-608	***	RG0-608-1	***		
unleaded premium gasoline (oxygenate free)	RG0-609	***	RG0-609-1	***		
diesel fuel	RG0-611	***	RG0-611-1	***		
kerosene	RG0-621	***	RG0-621-1	***		
mineral spirits	RG0-701	***	RG0-701-1	***		

All @ 1000 µg/mL in Methylene Chloride

SAE 10W30 motor oil	RG0-722	***	RG0-722-1	***		
SAE 10W40 motor oil	RG0-723	***	RG0-723-1	***		

Internal and Surrogate Standards for UST Testing – IA

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 2000 µg/mL in Methanol</i>						
4-bromofluorobenzene	STS-110N	***	STS-110N-1	***		
α,α,α-trifluorotoluene	STS-220N	***	STS-220N-1	***		

Maine – Methods 4.1.25 and 4.2.17

GRO Mixture (ME)

10 Analytes

benzene
ethylbenzene
methyl *tert*-butyl ether (MTBE)
naphthalene
toluene
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
o-xylene
m-xylene
p-xylene

@ 1000 µg/mL in Methanol

UST-100 4 x 1 mL ***
UST-100-1 1 x 1 mL ***

GRO Mixture (ME)

9 Analytes

benzene 500 µg/mL
ethylbenzene 500 µg/mL
n-heptane 500 µg/mL
2-methylpentane 1500 µg/mL
toluene 1500 µg/mL
1,2,4-trimethylbenzene 1000 µg/mL
2,2,4-trimethylpentane 1500 µg/mL
o-xylene 1000 µg/mL
m-xylene 1000 µg/mL

in Methanol

UST-110 4 x 1 mL ***
UST-110-1 1 x 1 mL ***

DRO Mixture (ME)

10 Analytes

n-decane (C₁₀)
n-dodecane (C₁₂)
n-tetradecane (C₁₄)
n-hexadecane (C₁₆)
n-octadecane (C₁₈)
n-eicosane (C₂₀)
n-docosane (C₂₂)
n-tetracosane (C₂₄)
n-hexacosane (C₂₆)
n-octacosane (C₂₈)

@ 2000 µg/mL in Methylene Chloride

UST-200 4 x 1 mL ***
UST-200-1 1 x 1 mL ***

Internal and Surrogate Standards for UST Testing – ME

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules	20 or More Ampules
<i>All @ 2000 µg/mL in Methanol</i>				
4-bromofluorobenzene	STS-110N	***	STS-110N-1	***
α,α,α-trifluorotoluene	STS-220N	***	STS-220N-1	***

<i>All @ 2000 µg/mL in Methylene Chloride</i>				
5-α-androstane	IST-500	***	IST-500-1	***
<i>o</i> -terphenyl	IST-480	***	IST-480-1	***
<i>p</i> -terphenyl	IST-490	***	IST-490-1	***



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Massachusetts – Volatile Petroleum Hydrocarbons (VPH) Method

Primary VPH Dilution Standard (MA)

16 Analytes

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)

@ 1000 µg/mL in Methanol

SMA-101	4 x 1 mL	***
SMA-101-1	1 x 1 mL	***

Primary VPH Dilution Standard, no Surrogate (MA)

15 Analytes

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

@ 1000 µg/mL in Methanol

SMA-121	4 x 1 mL	***
SMA-121-1	1 x 1 mL	***

VPH Matrix Spiking Solution (MA)

16 Analytes

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)

@ 50 µg/mL in Methanol

SMA-111	4 x 1 mL	***
SMA-111-1	1 x 1 mL	***

VPH Surrogate Spiking Solution (MA)

2,5-dibromotoluene

@ 5000 µg/mL in Methanol

STS-550	4 x 1 mL	***
STS-550-1	1 x 1 mL	***

Gasoline Standard

unleaded gasoline

@ 5000 µg/mL in Methanol

RGO-601	4 x 1 mL	***
RGO-601-1	1 x 1 mL	***



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Primary VPH Dilution Standard (MA)

14 Analytes

<i>n</i> -pentane	1000 µg/mL
2-methylpentane	1500 µg/mL
methyl <i>tert</i> -butyl ether	1500 µg/mL
2,2,4-trimethylpentane	1500 µg/mL
benzene	500 µg/mL
toluene	1500 µg/mL
<i>n</i> -nonane	1000 µg/mL
ethylbenzene	500 µg/mL
<i>m</i> -xylene	1000 µg/mL
<i>p</i> -xylene	1000 µg/mL
<i>o</i> -xylene	1000 µg/mL
1,2,4-trimethylbenzene	1000 µg/mL
naphthalene	1000 µg/mL
2,5-dibromotoluene (surr)	1000 µg/mL

in Methanol

SMA-100	4 x 1 mL	***
SMA-100-1	1 x 1 mL	***

Primary VPH Dilution Standard, no Surrogate (MA)

13 Analytes

<i>n</i> -pentane	1000 µg/mL
2-methylpentane	1500 µg/mL
methyl <i>tert</i> -butyl ether	1500 µg/mL
2,2,4-trimethylpentane	1500 µg/mL
benzene	500 µg/mL
toluene	1500 µg/mL
<i>n</i> -nonane	1000 µg/mL
ethylbenzene	500 µg/mL
<i>m</i> -xylene	1000 µg/mL
<i>p</i> -xylene	1000 µg/mL
<i>o</i> -xylene	1000 µg/mL
1,2,4-trimethylbenzene	1000 µg/mL
naphthalene	1000 µg/mL

in Methanol

SMA-120	4 x 1 mL	***
SMA-120-1	1 x 1 mL	***

VPH Matrix Spiking Solution (MA)

14 Analytes

<i>n</i> -pentane
2-methylpentane
methyl <i>tert</i> -butyl ether (MTBE)
2,2,4-trimethylpentane (<i>isooctane</i>)
benzene
toluene
<i>n</i> -nonane
ethylbenzene
<i>m</i> -xylene
<i>p</i> -xylene
<i>o</i> -xylene
1,2,4-trimethylbenzene
naphthalene
2,5-dibromotoluene (surrogate)

@ 50 µg/mL in Methanol

SMA-110	4 x 1 mL	***
SMA-110-1	1 x 1 mL	***

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Massachusetts – Extractable Petroleum Hydrocarbons (EPH) Method

EPH Aromatic Hydrocarbon Standard (MA)

17 Analytes

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

@ 1000 µg/mL in Methylene Chloride

SMA-300 4 x 1 mL ***
SMA-300-1 1 x 1 mL ***

EPH Surrogate Spiking Solution (MA)

2 Analytes

o-terphenyl (OTP)
 1-chlorooctadecane (COD)

@ 2000 µg/mL in Acetone

ISM-580 4 x 1 mL ***
ISM-580-1 1 x 1 mL ***

EPH Aliphatic Hydrocarbon Standard (MA)

14 Analytes

n-nonane (C₉)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-tetradecane (C₁₄)
n-hexadecane (C₁₆)
n-octadecane (C₁₈)
n-nonadecane (C₁₉)
n-eicosane (C₂₀)
n-docosane (C₂₂)
n-tetracosane (C₂₄)
n-hexacosane (C₂₆)
n-octacosane (C₂₈)
n-triacontane (C₃₀)
n-hexatriacontane (C₃₆)

@ 1000 µg/mL in Hexane

SMA-310 4 x 1 mL ***
SMA-310-1 1 x 1 mL ***

EPH Fractionation Surrogate Standard Mixture (MA)

2 Analytes

2-bromonaphthalene
 2-fluorobiphenyl

@ 2000 µg/mL in Methylene Chloride

ISM-650 4 x 1 mL ***
ISM-650-1 1 x 1 mL ***

EPH Matrix Spike Standard (MA)

31 Analytes

acenaphthene
 acenaphthylene
 anthracene
 benz[a]anthracene
 benzo[a]pyrene
 benzo[b]fluoranthene
 benzo[ghi]perylene
 benzo[k]fluoranthene
 chrysene
n-decane (C₁₀)
 dibenz[a,h]anthracene
n-docosane (C₂₂)
n-dodecane (C₁₂)
n-eicosane (C₂₀)
 fluoranthene
 fluorene
n-hexacosane (C₂₆)
n-hexadecane (C₁₆)
n-hexatriacontane (C₃₆)
 indeno[1,2,3-cd]pyrene
 2-methylnaphthalene
 naphthalene
n-nonadecane (C₁₉)
n-nonane (C₉)
n-octacosane (C₂₈)
n-octadecane (C₁₈)
 phenanthrene
 pyrene
n-tetracosane (C₂₄)
n-tetradecane (C₁₄)
n-triacontane (C₃₀)

@ 25 µg/mL in Hexane

SMA-330 4 x 1 mL ***
SMA-330-1 1 x 1 mL ***

@ 100 µg/mL in Acetone

SMA-331 4 x 1 mL ***
SMA-331-1 1 x 1 mL ***

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 ampules, follow the EPA protocols for storage and stability checking of working standards. Refer to the EPA method you are using for the specific protocol.

EPH Matrix Spike Standard Shooter™ (MA)

10 Analytes

acenaphthene
anthracene
chrysene
naphthalene
pyrene
n-eicosane (C₂₀)
n-nonadecane (C₁₉)
n-nonane (C₉)
n-octacosane (C₂₈)
n-tetradecane (C₁₄)

@ 50 µg/mL in Acetone

SMA-322X 1 x 100 mL ***

EPH Fractionation Surrogate Standard Mixture Shooter™ (MA)

2 Analytes

2-bromonaphthalene
2-fluorobiphenyl

@ 40 µg/mL in Hexane

ISM-651X 1 x 100 mL ***

EPH Surrogate Spiking Solution Shooter™ (MA)

2 Analytes

o-terphenyl (OTP)
1-chlorooctadecane (COD)

@ 40 µg/mL in Acetone

ISM-581X 1 x 100 mL ***

Internal and Surrogate Standards for UST Testing – MA EPH

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 2000 µg/mL in Methylene Chloride</i>						
5- α -androstane	IST-500	***	IST-500-1	***		
2-bromonaphthalene	IST-551	***	IST-551-1	***		
1-chlorooctadecane	IST-470	***	IST-470-1	***		
2-fluorobiphenyl	ATS-140	***	ATS-140-1	***		
<i>o</i> -terphenyl	IST-480	***	IST-480-1	***		



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Michigan – GRO and PNA

PNA Standard (MI)

17 Analytes

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

@ 1000 µg/mL in Methylene Chloride

SMA-300	4 x 1 mL	***
SMA-300-1	1 x 1 mL	***

Mississippi – GRO, DRO, and PAH

GRO Mixture (MS)

10 Analytes

benzene	500 µg/mL
ethylbenzene	500 µg/mL
<i>n</i> -heptane	500 µg/mL
2-methylpentane	1500 µg/mL
toluene	1500 µg/mL
1,2,4-trimethylbenzene	1000 µg/mL
2,2,4-trimethylpentane	1500 µg/mL
<i>o</i> -xylene	1000 µg/mL
<i>m</i> -xylene	1000 µg/mL
<i>p</i> -xylene	1000 µg/mL

in Methanol

UST-111	4 x 1 mL	***
UST-111-1	1 x 1 mL	***

DRO Aliphatic Calibration Mix (MS)

16 Analytes

n-decane (C₁₀)
n-undecane (C₁₁)
n-dodecane (C₁₂)
n-tridecane (C₁₃)
n-tetradecane (C₁₄)
n-pentadecane (C₁₅)
n-hexadecane (C₁₆)
n-heptadecane (C₁₇)
n-octadecane (C₁₈)
n-nonadecane (C₁₉)
n-eicosane (C₂₀)
n-heneicosane (C₂₁)
n-docosane (C₂₂)
n-tricosane (C₂₃)
n-tetracosane (C₂₄)
n-pentacosane (C₂₅)

@ 1000 µg/mL in Methylene Chloride

UST-210	4 x 1 mL	***
UST-210-1	1 x 1 mL	***

PAH Standard (MS)

17 Analytes

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

@ 1000 µg/mL in Methylene Chloride

SMA-300	4 x 1 mL	***
SMA-300-1	1 x 1 mL	***

New Jersey – OQA-QAM-025

TRPH Standard (NJ)

35 Analytes

<i>n</i> -octane (C ₈)	<i>n</i> -hexacosane (C ₂₆)
<i>n</i> -nonane (C ₉)	<i>n</i> -heptacosane (C ₂₇)
<i>n</i> -decane (C ₁₀)	<i>n</i> -octacosane (C ₂₈)
<i>n</i> -undecane (C ₁₁)	<i>n</i> -nonacosane (C ₂₉)
<i>n</i> -dodecane (C ₁₂)	<i>n</i> -triacontane (C ₃₀)
<i>n</i> -tridecane (C ₁₃)	<i>n</i> -hentriacontane (C ₃₁)
<i>n</i> -tetradecane (C ₁₄)	<i>n</i> -dotriacontane (C ₃₂)
<i>n</i> -pentadecane (C ₁₅)	<i>n</i> -tritriacontane (C ₃₃)
<i>n</i> -hexadecane (C ₁₆)	<i>n</i> -tetratriacontane (C ₃₄)
<i>n</i> -heptadecane (C ₁₇)	<i>n</i> -pentatriacontane (C ₃₅)
<i>n</i> -octadecane (C ₁₈)	<i>n</i> -hexatriacontane (C ₃₆)
<i>n</i> -nonadecane (C ₁₉)	<i>n</i> -heptatriacontane (C ₃₇)
<i>n</i> -eicosane (C ₂₀)	<i>n</i> -octatriacontane (C ₃₈)
<i>n</i> -heneicosane (C ₂₁)	<i>n</i> -nonatriacontane (C ₃₉)
<i>n</i> -docosane (C ₂₂)	<i>n</i> -tetracontane (C ₄₀)
<i>n</i> -tricosane (C ₂₃)	phytane
<i>n</i> -tetracosane (C ₂₄)	pristane
<i>n</i> -pentacosane (C ₂₅)	

@ 200 µg/mL in Methylene Chloride /Carbon Disulfide (9:1)

SNJ-200	4 x 1 mL ULTRApak®	***
SNJ-200-1	1 x 1 mL	***

TRPH Column Resolution Standard (NJ)

4 Analytes

<i>n</i> -heptadecane (C ₁₇)
<i>n</i> -octadecane (C ₁₈)
phytane
pristane

@ 2000 µg/mL in Methylene Chloride

UST-310	4 x 1 mL	***
UST-310-1	1 x 1 mL	***

Individual Petrochemical Standards for UST Testing – NJ

@ 5000 µg/mL in Methylene Chloride

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules
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diesel fuel	RGO-611	***	RGO-611-1	***
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All @ 1000 µg/mL in Methylene Chloride

SAE 10W30 motor oil	RGO-722	***	RGO-722-1	***
SAE 10W40 motor oil	RGO-723	***	RGO-723-1	***

Internal and Surrogate Standards for UST Testing – NJ

@ 1000 µg/mL in Methylene Chloride

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		9 or More Ampules
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tetracosane-d₅₀	IST-730	***	IST-730-1	***
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All @ 2000 µg/mL in Methylene Chloride

5-α-androstane	IST-500	***	IST-500-1	***
1-chlorooctadecane	IST-470	***	IST-470-1	***
o-terphenyl	IST-480	***	IST-480-1	***

New York – STARS Compounds

VOA Mixture (NY)

16 Analytes

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

@ 2000 µg/mL in Methanol

SNY-100 4 x 1 mL ***
SNY-100-1 1 x 1 mL ***

PAH Mixture (NY)

16 Analytes

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

@ 2000 µg/mL in

Methylene Chloride/Benzene (1:1)

US-106N-4 4 x 1 mL ***
US-106N 1 x 1 mL ***

Pennsylvania – GRO and PAH

GRO Mixture (PA)

11 Analytes

benzene
 1,2-dibromoethane
 1,2-dichloroethane
 ethylbenzene
 isopropylbenzene
 methyl *tert*-butyl ether (MTBE)
 naphthalene
 toluene
o-xylene
m-xylene
p-xylene

@ 2000 µg/mL in Methanol

SPA-100 4 x 1 mL ***
SPA-100-1 1 x 1 mL ***

VPH Mixture (PA)

9 Analytes

benzene 1000 µg/mL
 ethylbenzene 1000 µg/mL
 methyl *tert*-butyl ether 2000 µg/mL
 naphthalene 1000 µg/mL
 isopropylbenzene 1000 µg/mL
 toluene 1000 µg/mL
o-xylene 1000 µg/mL
m-xylene 1000 µg/mL
p-xylene 1000 µg/mL

in Methanol

SPA-110 4 x 1 mL ***
SPA-110-1 1 x 1 mL ***

Tennessee - GRO and DRO

GRO Mixture (TN)

10 Analytes

benzene	500 µg/mL
ethylbenzene	500 µg/mL
<i>n</i> -heptane	500 µg/mL
2-methylpentane	1500 µg/mL
toluene	1500 µg/mL
1,2,4-trimethylbenzene	1000 µg/mL
2,2,4-trimethylpentane	1500 µg/mL
<i>o</i> -xylene	1000 µg/mL
<i>m</i> -xylene	1000 µg/mL
<i>p</i> -xylene	1000 µg/mL

in Methanol

UST-111	4 x 1 mL	***
UST-111-1	1 x 1 mL	***



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DRO Aliphatic Calibration Mix (TN)

16 Analytes

<i>n</i> -decane (C ₁₀)
<i>n</i> -undecane (C ₁₁)
<i>n</i> -dodecane (C ₁₂)
<i>n</i> -tridecane (C ₁₃)
<i>n</i> -tetradecane (C ₁₄)
<i>n</i> -pentadecane (C ₁₅)
<i>n</i> -hexadecane (C ₁₆)
<i>n</i> -heptadecane (C ₁₇)
<i>n</i> -octadecane (C ₁₈)
<i>n</i> -nonadecane (C ₁₉)
<i>n</i> -eicosane (C ₂₀)
<i>n</i> -heneicosane (C ₂₁)
<i>n</i> -docosane (C ₂₂)
<i>n</i> -tricosane (C ₂₃)
<i>n</i> -tetracosane (C ₂₄)
<i>n</i> -pentacosane (C ₂₅)

@ 1000 µg/mL in Methylene Chloride

UST-210	4 x 1 mL	***
UST-210-1	1 x 1 mL	***

Internal and Surrogate Standards for UST Testing – TN

4 x 1 mL ULTRApaks® 1 x 1 mL Ampules 20 or More Ampules

@ 5000 µg/mL in Methylene Chloride

4-isopropyltoluene	-	-	EPA-1039	***
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All @ 2000 µg/mL in Methylene Chloride

5-α-androstane	IST-500	***	IST-500-1	***
<i>o</i>-terphenyl	IST-480	***	IST-480-1	***

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Texas – TNRCC Methods 1005 and 1006

TNRCC Method 1005 Window Defining Hydrocarbon Standard (TX)

4 Analytes

n-hexane (C₆)
n-dodecane (C₁₂)
n-octacosane (C₂₈)
n-pentatriacontane (C₃₅)

@ 200 µg/mL in Pentane

STX-110 4 x 1 mL ***
STX-110-1 1 x 1 mL ***

TNRCC Method 1005 and 1006 Marker Standard (TX)

7 Analytes

n-hexane (C₆)
n-octane (C₈)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-hexadecane (C₁₆)
n-heneicosane (C₂₁)
n-pentatriacontane (C₃₅)

@ 200 µg/mL in Pentane

STX-120 4 x 1 mL ***
STX-120-1 1 x 1 mL ***

TNRCC Method 1005 Window Defining Hydrocarbon Standard (TX)

3 Analytes

n-hexane (C₆)
n-decane (C₁₀)
n-octacosane (C₂₈)

@ 200 µg/mL in Pentane

STX-100 4 x 1 mL ***
STX-100-1 1 x 1 mL ***

Petroleum Product Standard

2 Analytes

unleaded gasoline
diesel fuel

@ 5000 µg/mL in Methanol

RGO-740 4 x 1 mL ***
RGO-740-1 1 x 1 mL ***

Internal and Surrogate Standards for UST Testing – TX

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 2000 µg/mL in Methanol</i>						
1-chlorooctane	STS-490	***	STS-490-1	***		
α,α,α-trifluorotoluene	STS-220N	***	STS-220N-1	***		
<i>All @ 2000 µg/mL in Methylene Chloride</i>						
1-chlorooctadecane	IST-470	***	IST-470-1	***		
2-fluorobiphenyl	ATS-140	***	ATS-140-1	***		
α-terphenyl	IST-480	***	IST-480-1	***		



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Washington – Volatile Petroleum Hydrocarbons (VPH) Method

Primary VPH Stock Standard (WA)

15 Analytes

n-pentane (C₅)
n-hexane (C₆)
 methyl *tert*-butyl ether (MTBE)
 benzene
 toluene
n-octane (C₈)
 ethylbenzene
o-xylene
m-xylene
p-xylene
 1,2,3-trimethylbenzene
n-decane (C₁₀)
 naphthalene
n-dodecane (C₁₂)
 1-methylnaphthalene

@ 20,000 µg/mL in Methanol

SWA-101	4 x 1 mL	***
SWA-101-1	1 x 1 mL	***

Primary VPH Dilution Standard (WA)

15 Analytes

n-pentane (C₅)
n-hexane (C₆)
 methyl *tert*-butyl ether (MTBE)
 benzene
 toluene
n-octane (C₈)
 ethylbenzene
o-xylene
m-xylene
p-xylene
 1,2,3-trimethylbenzene
n-decane (C₁₀)
 naphthalene
n-dodecane (C₁₂)
 1-methylnaphthalene

@ 1000 µg/mL in Methanol

SWA-100	4 x 1 mL	***
SWA-100-1	1 x 1 mL	***

VPH Matrix Spiking Solution (WA)

15 Analytes

n-pentane (C₅)
n-hexane (C₆)
 methyl *tert*-butyl ether (MTBE)
 benzene
 toluene
n-octane (C₈)
 ethylbenzene
o-xylene
m-xylene
p-xylene
 1,2,3-trimethylbenzene
n-decane (C₁₀)
 naphthalene
n-dodecane (C₁₂)
 1-methylnaphthalene

@ 50 µg/mL in Methanol

SWA-110	4 x 1 mL	***
SWA-110-1	1 x 1 mL	***

VPH Surrogate Spiking Solution (WA)

2,5-dibromotoluene

@ 5000 µg/mL in Methanol

STS-550	4 x 1 mL	***
STS-550-1	1 x 1 mL	***

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Washington – Extractable Petroleum Hydrocarbons (EPH) Method

EPH Aromatic Hydrocarbon Standard (WA)

6 Analytes

acenaphthene
benzo[ghi]perylene
naphthalene
pyrene
toluene
1,2,3-trimethylbenzene

@ 1000 µg/mL in Methylene Chloride

SWA-300 4 x 1 mL ***
SWA-300-1 1 x 1 mL ***

PH Aliphatic Hydrocarbon Standard (WA)

6 Analytes

n-octane (C₈)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-hexadecane (C₁₆)
n-heneicosane (C₂₁)
n-tetratriacontane (C₃₄)

@ 1000 µg/mL in Hexane

SWA-310 4 x 1 mL ***
SWA-310-1 1 x 1 mL ***

EPH Fractionation Check Solution (WA)

22 Analytes

n-octane (C₈)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-hexadecane (C₁₆)
n-heneicosane (C₂₁)
n-tetratriacontane (C₃₄)

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

@ 25 µg/mL in Hexane

SWA-330 4 x 1 mL ***
SWA-330-1 1 x 1 mL ***

EPH Surrogate Spiking Solution (WA)

2 Analytes

o-terphenyl (OTP)
1-chlorooctadecane (COD)

@ 2000 µg/mL in Acetone

ISM-580 4 x 1 mL ***
ISM-580-1 1 x 1 mL ***

EPH Matrix Spike Standard Shooter™ (WA)

10 Analytes

n-decane (C₁₀)
n-dodecane (C₁₂)
n-hexadecane (C₁₆)
n-heneicosane (C₂₁)
acenaphthene
anthracene
benzo[ghi]perylene
benzo[a]pyrene
naphthalene
pyrene

@ 25 µg/mL in Acetone

SWA-320X 1 x 100 mL ***

Internal and Surrogate Standards for UST Testing – WA EPH

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 2000 µg/mL in Methylene Chloride</i>						
5-α-androstane	IST-500	***	IST-500-1	***		
1-chlorooctadecane	IST-470	***	IST-470-1	***		
<i>o</i>-terphenyl	IST-480	***	IST-480-1	***		

Washington and Oregon – Total Petroleum Hydrocarbons (NWTPH) Methods

NWTPH-HCID Retention Time Standard

3 Analytes

toluene
n-dodecane (C₁₂)
n-tetracosane (C₂₄)

@ 2500 µg/mL in Methylene Chloride

SWA-500 4 x 1 mL ***
SWA-500-1 1 x 1 mL ***

NWTPH-HCID Surrogate Standard

2 Analytes

4-bromofluorobenzene
n-pentacosane (C₂₅)

@ 5000 µg/mL in Methylene Chloride

ISM-660 4 x 1 mL ***
ISM-660-1 1 x 1 mL ***

NWTPH-Gx Surrogate Standard

2 Analytes

4-bromofluorobenzene
 1,4-difluorobenzene

@ 2500 µg/mL in Methanol

STM-560 4 x 1 mL ***
STM-560-1 1 x 1 mL ***

Wisconsin – GRO and DRO

PVOC/GRO Mixture (WI)

10 Analytes

benzene
 ethylbenzene
 methyl *tert*-butyl ether (MTBE)
 naphthalene
 toluene
 1,2,4-trimethylbenzene
 1,3,5-trimethylbenzene
o-xylene
m-xylene
p-xylene

@ 1000 µg/mL in Methanol

UST-100 4 x 1 mL ***
UST-100-1 1 x 1 mL ***

DRO Mixture (WI)

10 Analytes

n-decane (C₁₀)
n-dodecane (C₁₂)
n-tetradecane (C₁₄)
n-hexadecane (C₁₆)
n-octadecane (C₁₈)
n-eicosane (C₂₀)
n-docosane (C₂₂)
n-tetracosane (C₂₄)
n-hexacosane (C₂₆)
n-octacosane (C₂₈)

@ 2000 µg/mL in Methylene Chloride

UST-200 4 x 1 mL ***
UST-200-1 1 x 1 mL ***



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Internal and Surrogate Standards for Underground Storage Tank (UST) Testing

Internal and Surrogate Standards for UST Testing

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 2000 µg/mL in Methanol</i>						
4-bromofluorobenzene	STS-110N	***	STS-110N-1	***		
1-chloro-4-fluorobenzene	STS-570	***	STS-570-1	***		
1-chlorooctane	STS-490	***	STS-490-1	***		
α,α,α-trifluorotoluene	STS-220N	***	STS-220N-1	***		
<i>@ 1000 µg/mL in Methylene Chloride</i>						
tetracosane-d₅₀	IST-730	***	IST-730-1	***		
<i>All @ 2000 µg/mL in Methylene Chloride</i>						
5-α-androstane	IST-500	***	IST-500-1	***		
2-bromonaphthalene	IST-551	***	IST-551-1	***		
1-chlorooctadecane	IST-470	***	IST-470-1	***		
2-fluorobiphenyl	ATS-140	***	ATS-140-1	***		
squalane	IST-670	***	IST-670-1	***		
o-terphenyl	IST-480	***	IST-480-1	***		
p-terphenyl	IST-490	***	IST-490-1	***		
n-triacontane-d₆₂	IST-720	***	IST-720-1	***		

ASTM Surrogate Base Gasoline

13 Components

Component	Volume %		
benzene	1 %		
n-decane (C ₁₀)	10 %		
n-dodecane (C ₁₂)	5 %		
ethylbenzene	5 %		
n-heptane (C ₇)	15 %		
n-hexane (C ₆)	10 %		
isooctane	10 %		
n-octane (C ₈)	15 %		
1,2,4,5-tetramethylbenzene (wt %)	5 %		
toluene	9 %		
1,2,4-trimethylbenzene	5 %		
o-xylene	5 %		
m-xylene	5 %		
RGO-711	4 x 1 mL	***	
RGO-711-1	1 x 1 mL	***	

B.T.E.X. in Unleaded Gasoline

This is composite unleaded gasoline for which the BTEX components have been analyzed. The concentrations of the components are certified by ULTRA Scientific.

7 Analytes

benzene
ethylbenzene
toluene
xylenes (total)
isopropylbenzene
naphthalene
methyl *tert*-butyl ether (MTBE)

Concentrations Certified on Accompanying Certificate

BTX-3000	4 x 1 mL	***
BTX-3000-1	1 x 1 mL	***

Diesel/Motor Oil Standard

2 Analytes

diesel fuel
SAE 10W30 motor oil

@ 50,000 µg/mL in Hexane

RGO-730	4 x 1 mL	***
RGO-730-1	1 x 1 mL	***

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 non-volatile hydrocarbons, vegetable oils, animal fats, waxes, soaps, greases, and related materials.

To read the complete method, log onto our website at www.ultrasci.com.

EPA Method 1664A Precision, Accuracy, and Recovery Standard

2 Analytes

n-hexadecane
stearic acid

@ 4000 µg/mL in Acetone

RGO-101X **1 x 100 mL** *******

EPA Method 1664A Precision, Accuracy, and Recovery Standard

2 Analytes

n-hexadecane
stearic acid

@ 2000 µg/mL in Acetone

RGO-102X **1 x 100 mL** *******

Technical Note

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

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). The use of a fluorocarbon extraction solvent makes this method less preferred versus method 1664A.

EPA Method 418.1 Calibration Oil

3 Components

Component	% v/v
<i>n</i> -hexadecane	37.5 %
isooctane	37.5 %
chlorobenzene	25.0 %

RGO-100 **4 x 1 mL** *******

RGO-100-1 **1 x 1 mL** *******



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Hydrocarbon Fuel Standards

Fuel Standards for UST Testing

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 500 µg/mL in Methanol</i>						
Unleaded Gasoline	RG0-600	***	RG0-600-1	***		
Diesel Fuel	RG0-610	***	RG0-610-1	***		
<i>All @ 1000 µg/mL in Methylene Chloride</i>						
SAE 10W30 motor oil	RG0-722	***	RG0-722-1	***		
SAE 10W40 motor oil	RG0-723	***	RG0-723-1	***		
<i>All @ 2500 µg/mL in Methanol</i>						
Composite Unleaded Gasoline *	RG0-605	***	RG0-605-1	***		
100 Octane Aviation Fuel	RG0-661	***	RG0-661-1	***		
Composite Diesel Fuel *	RG0-615	***	RG0-615-1	***		
Composite Kerosene *	RG0-625	***	RG0-625-1	***		
<i>All @ 5000 µg/mL in Methylene Chloride</i>						
Commercial Jet Fuel A	RG0-671	***	RG0-671-1	***		
Fuel Oil #4	RG0-631	***	RG0-631-1	***		
Fuel Oil #5	RG0-641	***	RG0-641-1	***		
Fuel Oil #6	RG0-651	***	RG0-651-1	***		
Oxygenate Free Unleaded Regular Gasoline	RG0-608	***	RG0-608-1	***		
Oxygenate Free Unleaded Premium Gasoline	RG0-609	***	RG0-609-1	***		
JP-5 Military Fuel	RG0-691	***	RG0-691-1	***		
<i>All @ 50,000 µg/mL in Methylene Chloride</i>						
Composite Unleaded Gasoline *	RG0-606	***	RG0-606-1	***		
100 Octane Aviation Fuel	RG0-662	***	RG0-662-1	***		
Composite Diesel Fuel *	RG0-616	***	RG0-616-1	***		
Composite Kerosene *	RG0-626	***	RG0-626-1	***		
Commercial Jet Fuel A	RG0-672	***	RG0-672-1	***		
Fuel Oil #4	RG0-632	***	RG0-632-1	***		
Fuel Oil #5	RG0-642	***	RG0-642-1	***		
Fuel Oil #6	RG0-652	***	RG0-652-1	***		
JP-5 Military Fuel	RG0-692	***	RG0-692-1	***		

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

Weathered Hydrocarbon Fuel Standards

Weathered Fuels

ULTRA's 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.

Weathered Hydrocarbon Kits

Each kit contains four ampules:

1 x 1 mL of each of the following standards

- Unweathered Hydrocarbon
- 25% Weathered Hydrocarbon
- 50% Weathered Hydrocarbon
- 75% Weathered Hydrocarbon

Weathered Gasoline Kit

RGK-601 Kit ***

Weathered Diesel Kit

RGK-611 Kit ***

Weathered Kerosene Kit

RGK-621 Kit ***

Weathered Mineral Spirits Kit

RGK-701 Kit ***

Unleaded Gasoline Standards

unleaded gasoline

@ 5000 µg/mL in Methanol

Unweathered

RGO-601 4 x 1 mL ***

RGO-601-1 1 x 1 mL ***

25% Weathered

RGO-602 4 x 1 mL ***

RGO-602-1 1 x 1 mL ***

50% Weathered

RGO-603 4 x 1 mL ***

RGO-603-1 1 x 1 mL ***

75% Weathered

RGO-604 4 x 1 mL ***

RGO-604-1 1 x 1 mL ***

Diesel Fuel Standards

diesel fuel

@ 5000 µg/mL in Methylene Chloride

Unweathered

RGO-611 4 x 1 mL ***

RGO-611-1 1 x 1 mL ***

25% Weathered

RGO-612 4 x 1 mL ***

RGO-612-1 1 x 1 mL ***

50% Weathered

RGO-613 4 x 1 mL ***

RGO-613-1 1 x 1 mL ***

75% Weathered

RGO-614 4 x 1 mL ***

RGO-614-1 1 x 1 mL ***

Kerosene Standards

kerosene

@ 5000 µg/mL in Methylene Chloride

Unweathered

RGO-621 4 x 1 mL ***

RGO-621-1 1 x 1 mL ***

25% Weathered

RGO-622 4 x 1 mL ***

RGO-622-1 1 x 1 mL ***

50% Weathered

RGO-623 4 x 1 mL ***

RGO-623-1 1 x 1 mL ***

75% Weathered

RGO-624 4 x 1 mL ***

RGO-624-1 1 x 1 mL ***

Mineral Spirits Standards

mineral spirits

@ 5000 µg/mL in Methylene Chloride

Unweathered

RGO-701 4 x 1 mL ***

RGO-701-1 1 x 1 mL ***

25% Weathered

RGO-702 4 x 1 mL ***

RGO-702-1 1 x 1 mL ***

50% Weathered

RGO-703 4 x 1 mL ***

RGO-703-1 1 x 1 mL ***

75% Weathered

RGO-704 4 x 1 mL ***

RGO-704-1 1 x 1 mL ***

EN 14105:2003

Free and Total Glycerol and Mono-, Di-, Tri-Glyceride Content

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

EN 14105:2003 Standard #1

6 Analytes

1,2,4-butanetriol	80 µg/mL
diolein	50 µg/mL
glycerol (<i>glycerine</i>)	5 µg/mL
monoolein	250 µg/mL
tricaprin	800 µg/mL
triolein	50 µg/mL

in Pyridine

RGO-300	4 x 1 mL	***
RGO-300-1	1 x 1 mL	***

EN 14105:2003 Standard #2

6 Analytes

1,2,4-butanetriol	80 µg/mL
diolein	200 µg/mL
glycerol (<i>glycerine</i>)	20 µg/mL
monoolein	600 µg/mL
tricaprin	800 µg/mL
triolein	150 µg/mL

in Pyridine

RGO-301	4 x 1 mL	***
RGO-301-1	1 x 1 mL	***

Monoglyceride Stock Solution

3 Analytes

monoolein
monopalmitin
monostearin

@ 10,000 µg/mL in Pyridine

RGO-280	4 x 1 mL	***
RGO-280-1	1 x 1 mL	***

EN 14105:2003 Standard #3

6 Analytes

1,2,4-butanetriol	80 µg/mL
diolein	350 µg/mL
glycerol (<i>glycerine</i>)	35 µg/mL
monoolein	950 µg/mL
tricaprin	800 µg/mL
triolein	300 µg/mL

in Pyridine

RGO-302	4 x 1 mL	***
RGO-302-1	1 x 1 mL	***

EN 14105:2003 Standard #4

6 Analytes

1,2,4-butanetriol	80 µg/mL
diolein	500 µg/mL
glycerol (<i>glycerine</i>)	50 µg/mL
monoolein	1250 µg/mL
tricaprin	800 µg/mL
triolein	400 µg/mL

in Pyridine

RGO-303	4 x 1 mL	***
RGO-303-1	1 x 1 mL	***

Individual Standards for Biodiesel Testing

	Concentration	Catalog #	Unit Size	Price
<i>in Pyridine</i>				
glycerine	500 µg/mL	RGO-210	1 x 2 mL	***
monoolein	5000 µg/mL	RGO-220	1 x 2 mL	***
diolein	5000 µg/mL	RGO-230	1 x 2 mL	***
triolein	5000 µg/mL	RGO-240	1 x 2 mL	***
monopalmitin	5000 µg/mL	RGO-250	1 x 2 mL	***

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). It is similar to EN 14105.

ASTM D6584 Standard #1

4 Analytes

diolein	50 µg/mL
glycerol (<i>glycerine</i>)	5 µg/mL
monoolein	100 µg/mL
triolein	50 µg/mL

in Pyridine

RGO-310	4 x 1 mL	***
RGO-310-1	1 x 1 mL	***

ASTM D6584 Standard #2

4 Analytes

diolein	100 µg/mL
glycerol (<i>glycerine</i>)	15 µg/mL
monoolein	250 µg/mL
triolein	100 µg/mL

in Pyridine

RGO-311	4 x 1 mL	***
RGO-311-1	1 x 1 mL	***

ASTM D6584 Standard #3

4 Analytes

diolein	200 µg/mL
glycerol (<i>glycerine</i>)	25 µg/mL
monoolein	500 µg/mL
triolein	200 µg/mL

in Pyridine

RGO-312	4 x 1 mL	***
RGO-312-1	1 x 1 mL	***

ASTM D6584 Standard #4

4 Analytes

diolein	350 µg/mL
glycerol (<i>glycerine</i>)	35 µg/mL
monoolein	750 µg/mL
triolein	350 µg/mL

in Pyridine

RGO-313	4 x 1 mL	***
RGO-313-1	1 x 1 mL	***

ASTM D6584 Standard #5

4 Analytes

diolein	500 µg/mL
glycerol (<i>glycerine</i>)	50 µg/mL
monoolein	1000 µg/mL
triolein	500 µg/mL

in Pyridine

RGO-314	4 x 1 mL	***
RGO-314-1	1 x 1 mL	***

Internal Standards for Biodiesel Testing

	Concentration	Catalog #	Unit Size	Price
<i>in Pyridine</i>				
1,2,4-butanetriol	1000 µg/mL	RGO-260	1 x 5 mL	***
tricaprin	8000 µg/mL	RGO-270	1 x 5 mL	***

Derivatizing Agent—MSTFA

N-methyl-N-(trimethylsilyl)trifluoroacetamide (MSTFA)		
RGO-200	1 x 5 gm	***



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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

13 Analytes

n-hexane (C₆)
n-octane (C₈)
n-decane (C₁₀)
n-dodecane (C₁₂)
n-tetradecane (C₁₄)
n-hexadecane (C₁₆)
n-octadecane (C₁₈)
n-eicosane (C₂₀)
 toluene
 1,2,4-trimethylbenzene
 2-ethyltoluene
 3-ethyltoluene
p-xylene

@ 2000 µg/mL in Methylene Chloride

ASTM-130 4 x 1 mL ***
ASTM-130-1 1 x 1 mL ***

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 having a final boiling point of 538°C (1000°F) or lower at atmospheric pressure as measured by this test method. The test method is limited to samples having a boiling range greater than 55°C (100°F), and having a vapor pressure sufficiently low to permit sampling at ambient temperature.

ASTM Method D2887 Column Test Mixture

2 Analytes

n-hexadecane (C₁₆)
n-octadecane (C₁₈)

@ 1 % (w/v) in *n*-Octane

ASTM-120 4 x 1 mL ***
ASTM-120-1 1 x 1 mL ***

ASTM Method D2887 Column Test Mixture

17 Components

Component	% w/w
<i>n</i> -hexane (C ₆)	6 %
<i>n</i> -heptane (C ₇)	6 %
<i>n</i> -octane (C ₈)	8 %
<i>n</i> -nonane (C ₉)	8 %
<i>n</i> -decane (C ₁₀)	12 %
<i>n</i> -undecane (C ₁₁)	12 %
<i>n</i> -dodecane (C ₁₂)	12 %
<i>n</i> -tetradecane (C ₁₄)	12 %
<i>n</i> -hexadecane (C ₁₆)	10 %
<i>n</i> -octadecane (C ₁₈)	5 %
<i>n</i> -eicosane (C ₂₀)	2 %
<i>n</i> -tetracosane (C ₂₄)	2 %
<i>n</i> -octacosane (C ₂₈)	1 %
<i>n</i> -dotriacontane (C ₃₂)	1 %
<i>n</i> -hexatriacontane (C ₃₆)	1 %
<i>n</i> -tetracontane (C ₄₀)	1 %
<i>n</i> -tetratetracontane (C ₄₄)	1 %

ASTM-110 4 x 1 mL ***
ASTM-110-1 1 x 1 mL ***



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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

16 Components

Component	%, v/v	Component	%, v/v
2-methylbutane	10 %	<i>p</i> -xylene	14 %
<i>n</i> -pentane (C ₅)	8 %	<i>n</i> -propylbenzene	5 %
2-methylpentane	6 %	<i>n</i> -decane (C ₁₀)	4 %
<i>n</i> -hexane (C ₆)	6 %	<i>n</i> -butylbenzene	4 %
2,4-dimethylpentane	6 %	<i>n</i> -dodecane (C ₁₂)	4 %
<i>n</i> -heptane (C ₇)	10 %	<i>n</i> -tridecane (C ₁₃)	2 %
toluene	12 %	<i>n</i> -tetradecane (C ₁₄)	2 %
<i>n</i> -octane (C ₈)	5 %	<i>n</i> -pentadecane (C ₁₅)	2 %

ASTM-100	4 x 1 mL ULTRApak®	***
ASTM-100-1	1 x 1 mL	***

ASTM Method D4815

MTBE, ETBE, TAME, DIPE, tertiary-Amyl Alcohol and C1 to C4 Alcohols in Gasoline

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

ASTM Method D4815 Quantitative Peak ID Mixture

16 Components

Component	Weight %
methylcyclopentane	4.0 %
methanol	7.3 %
ethanol	7.3 %
isopropanol	7.3 %
tert-butanol	7.3 %
<i>n</i> -propanol	7.3 %
methyl <i>tert</i> -butyl ether (MTBE)	4.0 %
<i>sec</i> -butanol	7.3 %
diisopropyl ether (DIPE)	4.0 %
isobutanol	7.3 %
ethyl <i>tert</i> -butyl ether (ETBE)	4.0 %
<i>tert</i> -pentanol	7.3 %
1,2-dimethoxyethane (DME)	6.0 %
<i>n</i> -butanol	7.3 %
benzene	5.0 %
<i>tert</i> -amyl methyl ether	7.3 %

RGO-422	4 x 1 mL	***
RGO-422-1	1 x 1 mL	***

ASTM Surrogate Base Gasoline

13 Components

Component	Volume %
benzene	1 %
<i>n</i> -decane (C ₁₀)	10 %
<i>n</i> -dodecane (C ₁₂)	5 %
ethylbenzene	5 %
<i>n</i> -heptane (C ₇)	15 %
<i>n</i> -hexane (C ₆)	10 %
isooctane	10 %
<i>n</i> -octane (C ₈)	15 %
1,2,4,5-tetramethylbenzene (<i>weight</i>)	5 %
toluene	9 %
1,2,4-trimethylbenzene	5 %
<i>o</i> -xylene	5 %
<i>m</i> -xylene	5 %

RGO-711	4 x 1 mL	***
RGO-711-1	1 x 1 mL	***

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)

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D5453 Standards Kit (Low) <i>in toluene</i>	1 each of ampules 1-6		PANAL0211	kit	***
Ampule 1	toluene	solvent blank	PANAL0211-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	1 mg/L	PANAL0211-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	2.5 mg/L	PANAL0211-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	5 mg/L	PANAL0211-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	7.5 mg/L	PANAL0211-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	10 mg/L	PANAL0211-6	1 x 2 mL	***
ASTM D5453 Standards Kit (Low) <i>in isooctane</i>	1 each of ampules 1-6		PANAL0214	kit	***
Ampule 1	isooctane	solvent blank	PANAL0214-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	1 mg/L	PANAL0214-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	2.5 mg/L	PANAL0214-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	5 mg/L	PANAL0214-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	7.5 mg/L	PANAL0214-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	10 mg/L	PANAL0214-6	1 x 2 mL	***

ASTM D5453–Total Sulfur Standards Kits (Medium Concentration)

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D5453 Standards Kit (Medium) <i>in toluene</i>	1 each of ampules 1-6		PANAL0212	kit	***
Ampule 1	toluene	solvent blank	PANAL0212-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	5 mg/L	PANAL0212-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	25 mg/L	PANAL0212-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	50 mg/L	PANAL0212-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	100 mg/L	PANAL0212-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	200 mg/L	PANAL0212-6	1 x 2 mL	***
ASTM D5453 Standards Kit (Medium) <i>in isooctane</i>	1 each of ampules 1-6		PANAL0215	kit	***
Ampule 1	isooctane	solvent blank	PANAL0215-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	5 mg/L	PANAL0215-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	25 mg/L	PANAL0215-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	50 mg/L	PANAL0215-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	100 mg/L	PANAL0215-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	200 mg/L	PANAL0215-6	1 x 2 mL	***

ASTM D5453–Total Sulfur Standards Kits (High Concentration)

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D5453 Standards Kit (High) <i>in toluene</i>	1 each of ampules 1-6		PANAL0213	kit	***
Ampule 1	toluene	solvent blank	PANAL0213-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	100 mg/L	PANAL0213-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	250 mg/L	PANAL0213-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	500 mg/L	PANAL0213-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	750 mg/L	PANAL0213-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	1000 mg/L	PANAL0213-6	1 x 2 mL	***
ASTM D5453 Standards Kit (High) <i>in isooctane</i>	1 each of ampules 1-6		PANAL0216	kit	***
Ampule 1	isooctane	solvent blank	PANAL0216-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	100 mg/L	PANAL0216-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	250 mg/L	PANAL0216-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	500 mg/L	PANAL0216-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	750 mg/L	PANAL0216-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	1000 mg/L	PANAL0216-6	1 x 2 mL	***

ASTM Methods D3120, D3246 and 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 & D3961–Sulfur Standards Kit

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D3120, D3246 & D3961 Kit <i>in isooctane</i>	1 each of ampules 1-6		PANAL0217	kit	***
Ampule 1	isooctane	solvent blank	PANAL0217-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	1 mg/L	PANAL0217-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	10 mg/L	PANAL0217-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	40 mg/L	PANAL0217-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	75 mg/L	PANAL0217-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	100 mg/L	PANAL0217-6	1 x 2 mL	***

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

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D4629 Standards Kit (Low)					
<i>in isooctane</i>	1 each of ampules 1-6		PANAL0218	kit	***
Ampule 1	isooctane	solvent blank	PANAL0218-1	1 x 2 mL	***
Ampule 2	pyridine (as N)	1 mg/L	PANAL0218-2	1 x 2 mL	***
Ampule 3	pyridine (as N)	2 mg/L	PANAL0218-3	1 x 2 mL	***
Ampule 4	pyridine (as N)	5 mg/L	PANAL0218-4	1 x 2 mL	***
Ampule 5	pyridine (as N)	10 mg/L	PANAL0218-5	1 x 2 mL	***
Ampule 6	pyridine (as N)	20 mg/L	PANAL0218-6	1 x 2 mL	***
ASTM D4629 Standards Kit (Medium)					
<i>in isooctane</i>	1 each of ampules 1-6		PANAL0219	kit	***
Ampule 1	isooctane	solvent blank	PANAL0219-1	1 x 2 mL	***
Ampule 2	pyridine (as N)	50 mg/L	PANAL0219-2	1 x 2 mL	***
Ampule 3	pyridine (as N)	100 mg/L	PANAL0219-3	1 x 2 mL	***
Ampule 4	pyridine (as N)	200 mg/L	PANAL0219-4	1 x 2 mL	***
Ampule 5	pyridine (as N)	500 mg/L	PANAL0219-5	1 x 2 mL	***
Ampule 6	pyridine (as N)	1000 mg/L	PANAL0219-6	1 x 2 mL	***
ASTM D4629 Standards Kit (High)					
<i>in isooctane</i>	1 each of ampules 1-6		PANAL0220	kit	***
Ampule 1	isooctane	solvent blank	PANAL0220-1	1 x 2 mL	***
Ampule 2	pyridine (as N)	500 mg/L	PANAL0220-2	1 x 2 mL	***
Ampule 3	pyridine (as N)	1000 mg/L	PANAL0220-3	1 x 2 mL	***
Ampule 4	pyridine (as N)	2000 mg/L	PANAL0220-4	1 x 2 mL	***
Ampule 5	pyridine (as N)	5000 mg/L	PANAL0220-5	1 x 2 mL	***
Ampule 6	pyridine (as N)	10,000 mg/L	PANAL0220-6	1 x 2 mL	***

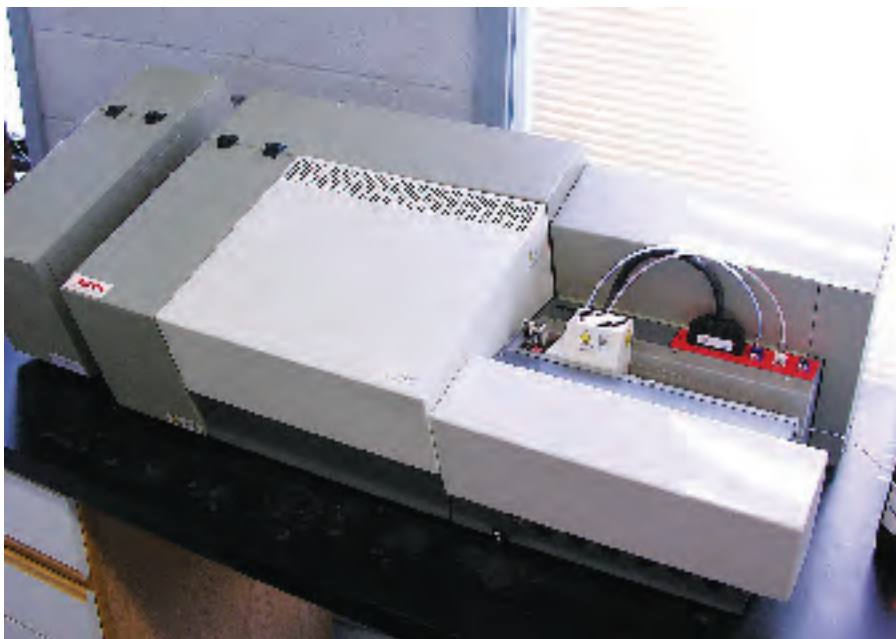
ASTM Method D5762

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

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D5762 Standards Kit <i>in toluene</i>	1 each of ampules 1-6		PANAL0221	kit	***
Ampule 1	toluene	solvent blank	PANAL0221-1	1 x 2 mL	***
Ampule 2	acridine (as N)	1 mg/L	PANAL0221-2	1 x 2 mL	***
Ampule 3	acridine (as N)	5 mg/L	PANAL0221-3	1 x 2 mL	***
Ampule 4	acridine (as N)	10 mg/L	PANAL0221-4	1 x 2 mL	***
Ampule 5	acridine (as N)	50 mg/L	PANAL0221-5	1 x 2 mL	***
Ampule 6	acridine (as N)	100 mg/L	PANAL0221-6	1 x 2 mL	***



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

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D4929 Standards Kit <i>in isooctane</i>	1 each of ampules 1-6		PANAL0223	kit	***
Ampule 1	isooctane	solvent blank	–	1 x 2 mL	–
Ampule 2	chlorobenzene (as Cl)	5 mg/L	–	1 x 2 mL	–
Ampule 3	chlorobenzene (as Cl)	10 mg/L	–	1 x 2 mL	–
Ampule 4	chlorobenzene (as Cl)	25 mg/L	–	1 x 2 mL	–
Ampule 5	chlorobenzene (as Cl)	50 mg/L	–	1 x 2 mL	–
Ampule 6	chlorobenzene (as Cl)	100 mg/L	–	1 x 2 mL	–

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

	Analyte	Concentration	Catalog #	Unit Size	Price
ASTM D5808 Standards Kit <i>in methanol</i>	1 each of ampules 1-6		PANAL0224	kit	***
Ampule 1	methanol	solvent blank	–	1 x 2 mL	–
Ampule 2	2,4,6-trichlorophenol (as Cl)	1 mg/L	–	1 x 2 mL	–
Ampule 3	2,4,6-trichlorophenol (as Cl)	5 mg/L	–	1 x 2 mL	–
Ampule 4	2,4,6-trichlorophenol (as Cl)	10 mg/L	–	1 x 2 mL	–
Ampule 5	2,4,6-trichlorophenol (as Cl)	15 mg/L	–	1 x 2 mL	–
Ampule 6	2,4,6-trichlorophenol (as Cl)	25 mg/L	–	1 x 2 mL	–

Elemental Combustion Analyzer Standards

Total Chlorine

See also ASTM D4929 and D5808 (opposite).

NaCl Standard

sodium chloride

@ 2 mmol/L in Water

PANAL0101 1 x 100 mL ***

Chlorine Combustion Analyzer Standards

	Concentration	Catalog #	Unit Size	Price
<i>in Toluene</i>				
chlorocyclohexane (as Cl)	0.05 %	PANAL0155	5 x 2 mL	***
chlorocyclohexane (as Cl)	0.10 %	PANAL0156	5 x 2 mL	***
chlorocyclohexane (as Cl)	0.50 %	PANAL0157	5 x 2 mL	***
chlorocyclohexane (as Cl)	1.0 %	PANAL0158	5 x 2 mL	***
chlorocyclohexane (as Cl)	3.0 %	PANAL0159	5 x 2 mL	***
<i>in Hexane</i>				
aldrin (as Cl)	10 mg/L	PANAL0230	5 x 2 mL	***
aldrin (as Cl)	50 mg/L	PANAL0096	5 x 2 mL	***
aldrin (as Cl)	100 mg/L	PANAL0131	5 x 2 mL	***

AOX Standard

4-chlorophenol (as Cl)

@ 200 mg/L in Water

PANAL0094 1 x 20 mL ***

POX Standard

methylene chloride (as Cl)

@ 100 mg/L in Ethanol

PANAL0102 1 x 10 mL ***



Chlorine Combustion Analyzer Standard Kits

	Analyte	Concentration	Catalog #	Unit Size	Price
Aldrin (as Cl) Standards Kit <i>in hexane</i>	1 each of ampules 1-4		PANAL0229	kit	***
Ampule 1	hexane	solvent blank	–	1 x 2 mL	–
Ampule 2	aldrin (as Cl)	0.1 mg/L	–	1 x 2 mL	–
Ampule 3	aldrin (as Cl)	0.5 mg/L	–	1 x 2 mL	–
Ampule 4	aldrin (as Cl)	1.0 mg/L	–	1 x 2 mL	–
Aldrin (as Cl) Standards Kit <i>in hexane</i>	5 each of ampules 1-2		PANAL0095	kit	***
Ampule 1	hexane	solvent blank	PANAL0097	5 x 2 mL	***
Ampule 2	aldrin (as Cl)	5 mg/L	–	5 x 2 mL	–

Elemental Combustion Analyzer Standards

Total Nitrogen

See also ASTM D4629 and D5762 (page 264).

Nitrogen Combustion Analyzer Standards

	Concentration	Catalog #	Unit Size	Price
<i>in Toluene</i>				
benzotrile (as N)	1 mg/L	PANAL0175	5 x 2mL	***
benzotrile (as N)	10 mg/L	PANAL0169	5 x 2mL	***
benzotrile (as N)	50 mg/L	PANAL0170	5 x 2mL	***
benzotrile (as N)	100 mg/L	PANAL0180	5 x 2mL	***
benzotrile (as N)	200 mg/L	PANAL0183	5 x 2mL	***
benzotrile (as N)	500 mg/L	PANAL0181	5 x 2mL	***
benzotrile (as N)	1000 mg/L	PANAL0179	5 x 2mL	***
benzotrile (as N)	2000 mg/L	PANAL0186	5 x 2mL	***
benzotrile (as N)	5000 mg/L	PANAL0187	5 x 2mL	***

Additional Nitrogen Combustion Analyzer Standard Kits

	Analyte	Concentration	Catalog #	Unit Size	Price
Benzonitrile (as N) Standards Kit (Low) <i>in toluene</i>	1 each of ampules 1-4		PANAL0237	kit	***
Ampule 1	toluene	solvent blank	–	1 x 2 mL	–
Ampule 2	benzotrile (as N)	1 mg/L	–	1 x 2 mL	–
Ampule 3	benzotrile (as N)	5 mg/L	–	1 x 2 mL	–
Ampule 4	benzotrile (as N)	10 mg/L	–	1 x 2 mL	–
Benzonitrile (as N) Standards Kit (High) <i>in toluene</i>	1 each of ampules 1-4		PANAL0238	kit	***
Ampule 1	benzotrile (as N)	100 mg/L	–	1 x 2 mL	–
Ampule 2	benzotrile (as N)	200 mg/L	–	1 x 2 mL	–
Ampule 3	benzotrile (as N)	500 mg/L	–	1 x 2 mL	–
Ampule 4	benzotrile (as N)	1000 mg/L	–	1 x 2 mL	–

Ultra Low Nitrogen Standards Kit

	Analyte	Concentration	Catalog #	Unit Size	Price
Ultra Low Nitrogen Standards Kit <i>in toluene</i>	1 each of ampules 1-6		PANAL0228	kit	***
Ampule 1	toluene	solvent blank	PANAL0228-1	1 x 2 mL	***
Ampule 2	pyridine (as N)	50 µg/L	PANAL0228-2	1 x 2 mL	***
Ampule 3	pyridine (as N)	100 µg/L	PANAL0228-3	1 x 2 mL	***
Ampule 4	pyridine (as N)	200 µg/L	PANAL0228-4	1 x 2 mL	***
Ampule 5	pyridine (as N)	500 µg/L	PANAL0228-5	1 x 2 mL	***
Ampule 6	pyridine (as N)	1000 µg/L	PANAL0228-6	1 x 2 mL	***

TN Water Applications Standards Kits

	Analyte	Concentration	Catalog #	Unit Size	Price
TN Water Standards Kit (Low)					
<i>in water</i>	1 each of ampules 1-6		PANAL0225	kit	***
Ampule 1	water	solvent blank	–	1 x 2 mL	–
Ampule 2	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	0.5 mg/L each	–	1 x 2 mL	–
Ampule 3	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	1.0 mg/L each	–	1 x 2 mL	–
Ampule 4	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	2.5 mg/L each	–	1 x 2 mL	–
Ampule 5	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	5.0 mg/L each	–	1 x 2 mL	–
Ampule 6	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	12.5 mg/L each	–	1 x 2 mL	–
TN Water Standards Kit (Medium)					
<i>in water</i>	1 each of ampules 1-6		PANAL0226	kit	***
Ampule 1	water	solvent blank	–	1 x 2 mL	–
Ampule 2	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	5.0 mg/L each	–	1 x 2 mL	–
Ampule 3	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	12.5 mg/L each	–	1 x 2 mL	–
Ampule 4	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	25.0 mg/L each	–	1 x 2 mL	–
Ampule 5	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	37.5 mg/L each	–	1 x 2 mL	–
Ampule 6	(NH ₄) ₂ SO ₄ (as N) + NaNO ₃ (as N)	50.0 mg/L each	–	1 x 2 mL	–

Elemental Combustion Analyzer Standards

Total Sulfur

See also ASTM D5453, D3120, D3246 and D3961 (page 262).

Additional Sulfur Combustion Analyzer Standards

	Concentration	Catalog #	Unit Size	Price
<i>in Xylene</i>				
Dibenzothiophene (as S)	1 mg/L	PANAL0194	1 x 10 mL	***
Dibenzothiophene (as S)	5 mg/L	PANAL0195	1 x 10 mL	***
Dibenzothiophene (as S)	10 mg/L	PANAL0196	1 x 10 mL	***

Ultra-Low Sulfur Standards Kit

	Analyte	Concentration	Catalog #	Unit Size	Price
Ultra-Low Sulfur Standards Kit					
<i>in toluene</i>	1 each of ampules 1-6		PANAL0227	kit	***
Ampule 1	toluene	solvent blank	PANAL0227-1	1 x 2 mL	***
Ampule 2	butylsulfide (as S)	50 µg/L	PANAL0227-2	1 x 2 mL	***
Ampule 3	butylsulfide (as S)	100 µg/L	PANAL0227-3	1 x 2 mL	***
Ampule 4	butylsulfide (as S)	200 µg/L	PANAL0227-4	1 x 2 mL	***
Ampule 5	butylsulfide (as S)	500 µg/L	PANAL0227-5	1 x 2 mL	***
Ampule 6	butylsulfide (as S)	1000 µg/L	PANAL0227-6	1 x 2 mL	***

Elemental Combustion Analyzer Standards

Total Nitrogen and Sulfur

Sulfur and Nitrogen Mixed Standards

	Analyte	Concentration	Catalog #	Unit Size	Price
Sulfur and Nitrogen Mixed Kit <i>in isooctane</i>	1 each of ampules 1-6		PANAL0222	kit	***
Ampule 1	isooctane	solvent blank	PANAL0222-1	1 x 2 mL	***
Ampule 2	pyridine (as N) + thiophene (as S)	1 mg/L each	PANAL0222-2	1 x 2 mL	***
Ampule 3	pyridine (as N) + thiophene (as S)	5 mg/L each	PANAL0222-3	1 x 2 mL	***
Ampule 4	pyridine (as N) + thiophene (as S)	10 mg/L each	PANAL0222-4	1 x 2 mL	***
Ampule 5	pyridine (as N) + thiophene (as S)	50 mg/L each	PANAL0222-5	1 x 2 mL	***
Ampule 6	pyridine (as N) + thiophene (as S)	100 mg/L each	PANAL0222-6	1 x 2 mL	***

Total Carbon

Carbon Combustion Analyzer Standards

potassium hydrogen phthalate (99.9+%)	sodium carbonate (99.9+%)	sodium hydrogen carbonate (99.9+%)
<i>Neat Standard</i>	<i>Neat Standard</i>	<i>Neat Standard</i>
PANAL0241 1 x 50 gm ***	PANAL0171 1 x 50 gm ***	PANAL0172 1 x 50 gm ***

Elemental Combustion Analyzer Reagents

Combustion Analyzer Reagents

Reagent	Concentration	Catalog #	Unit Size	Price
agar	99.9+%	PANAL0099	25 gm	***
ammonium sulfate	99.9+%	PANAL0167	50 gm	***
electrolyte Cl	75% (v/v)	PANAL0153	250 mL	***
electrolyte Cl	75% (v/v)	PANAL0133	1 L	***
electrolyte w/ClO ₄	75% (v/v)	PANAL0152	250 mL	***
KCl saturated w/ AgCl	3 mol/L	PANAL0013	250 mL	***
phosphoric acid	15 % (v/v)	PANAL0188	100 mL	***
potassium iodide	99.9+%	PANAL0103	25 gm	***
potassium nitrate	99.9+%	PANAL0100	50 gm	***
sodium azide	99.9+%	PANAL0104	25 gm	***
sodium hydroxide	99.9+%	PANAL0243	50 gm	***
sodium persulfate	99.9+%	PANAL0242	250 gm	***
sodium sulfate (anhydrous)	99.9+%	PANAL0084	25 gm	***