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Alaska Method Determination of Gasoline Range Organic (GRO) Hydrocarbons

<p>Normal Alkane Standard - GRO Defining Mixture</p> <p>AK-101.0-NAS-10X AK-101.0-NAS-10X-PAK 2.0 mg/mL each in MeOH</p> <p><i>n</i>-Hexane <i>n</i>-Heptane <i>n</i>-Octane</p> <p><i>n</i>-Nonane <i>n</i>-Decane</p>	<p>1 x 1 mL 5 x 1 mL 5 comps.</p>	<p>Technical Note</p> <p>Laboratory Control Standard The Gasoline Laboratory Control Standard was taken from an ASTM selected fuel set and a source independent of what is being used in the Gasoline Composite Mix.</p> <p>Simultaneous BTEX / Gasoline QA/QC AccuStandard's QA/QC Department has certified the benzene, toluene, ethyl benzene and xylene concentrations in our unleaded gasoline standard (GA-001-20X-BTEX & in AK-101.0-GCS-BTEX). Use of either standard allows the analytical chemist in a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.</p> <p>Since formulating the standards for the Alaskan method, and because of numerous laboratory requests, we have added a new multi source certified BTEX in gasoline composite mix (AK-101.0-GCS-BTEX). The BTEX values for this multi-source calibration standard have been determined through in-house analysis against a BTEX multi level calibration curve, and are listed in the Certificate.</p> <p>AccuStandard continues to look for innovative approaches to save the analytical laboratory time and money.</p>
<p>Laboratory Control Standard</p> <p>AK-101.0-LCS AK-101.0-LCS-PAK 5.0 mg/mL in MeOH</p> <p>Gasoline - Regular, unleaded</p>	<p>1 x 1 mL 5 x 1 mL</p>	
<p>Certified BTEX in Unleaded Gasoline (Single Source)</p> <p>GA-001-20X-BTEX 10.0 mg/mL in MeOH</p> <p>Gasoline - Regular, unleaded</p>	<p>1 x 1 mL</p>	
<p>Certified BTEX in Gasoline Composite Mix (Multi Source) see Technical Note</p> <p>AK-101.0-GCS-BTEX 5 mg/mL total in MeOH</p> <p>Gasoline - Premium (1.66 mg/mL) Gasoline - Regular, leaded (1.67 mg/mL) Gasoline - Regular, unleaded (1.67 mg/mL)</p>	<p>1 x 1 mL 3 comps.</p>	
<p>Surrogate Control Standard</p> <p>AK-101.0-SS AK-101.0-SS-PAK 50 µg/mL each in MeOH</p> <p>AK-101.0-SS-10X AK-101.0-SS-10X-PAK 500 µg/mL each in MeOH</p> <p>AK-101.0-SS-100X AK-101.0-SS-100X-PAK 5,000 µg/mL each in MeOH</p> <p><i>p</i>-Bromofluorobenzene a,a,a-Trifluorotoluene</p>	<p>1 x 1 mL 5 x 1 mL 1 x 1 mL 5 x 1 mL 1 x 1 mL 5 x 1 mL 2 comps.</p>	<p>Gasoline Calibration Composite Mixture</p> <p>AK-101.0-GCS AK-101.0-GCS-PAK Total 5.0 mg/mL in MeOH</p> <p>Gasoline - Premium (1.66 mg/mL) Gasoline - Regular, leaded (1.67 mg/mL) Gasoline - Regular, unleaded (1.67 mg/mL)</p> <p>Gasoline Calibration Mix Version 4/02</p> <p>AK-101-GSC-R1 AK-101-GSC-R1-PAK Equal parts by weight of each</p> <p>Gasoline - Regular, unleaded Gasoline - Plus, unleaded Gasoline - Premium, unleaded</p> <p>Internal Standard</p> <p>AK-101.0-IS-10X AK-101.0-IS-10X-PAK 2.0 mg/mL in MeOH</p> <p>1-Chloro-4-fluorobenzene</p>



Alaska Method Determination of Aromatic & Aliphatic Hydrocarbons in Gasoline Range Organics

<p>AK101AA Aromatics Mix</p> <p>AK-101AA-ARO AK-101AA-ARO-PAK 2000 µg/mL each in MeOH</p> <p>Benzene Toluene Ethylbenzene <i>m</i>-Xylene</p> <p><i>p</i>-Xylene <i>o</i>-Xylene 1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene</p> <p>1,3,5-Trimethylbenzene Isopropylbenzene <i>m</i>-Ethyltoluene</p> <p><i>p</i>-Ethyltoluene <i>o</i>-Ethyltoluene <i>n</i>-Propylbenzene</p>	<p>1 x 1 mL 5 x 1 mL 14 comps.</p>
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LUFT/LUST Standards

State Methods

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Alaska



Alaska Method

Determination of Diesel Range Organic (DRO) Hydrocarbons

Diesel Calibration Composite Mixture (low sulfur)

AK-102.0-DCS 1 x 1 mL
AK-102.0-DCS-PAK 5 x 1 mL
 Total 5.0 mg/mL in CH₂Cl₂ 3 comps.
 Diesel Fuel, Arctic (1.66 mg/mL) #2 Diesel - extra Low Sulfur (1.67 mg/mL)
 #1 Diesel - Low Sulfur (1.67 mg/mL)

AK-102.0-DCS-10X 1 x 1 mL
AK-102.0-DCS-10X-PAK 5 x 1 mL
 Total 50.0 mg/mL in CH₂Cl₂ 3 comps.
 Diesel Fuel, Arctic (16.6 mg/mL) #2 Diesel - extra Low Sulfur (16.7 mg/mL)
 #1 Diesel - Low Sulfur (16.7 mg/mL)

Laboratory Control Standard (low sulfur)

AK-102.0-LCS 1 x 1 mL
AK-102.0-LCS-PAK 5 x 1 mL
 5.0 mg/mL in Acetone
AK-102.0-LCS-10X 1 x 1 mL
AK-102.0-LCS-10X-PAK 5 x 1 mL
 50.0 mg/mL in Acetone
 #2 Diesel - extra Low Sulfur

Stock Concentrate Diesel Calibration Composite Mixture

AK-102.0-DCS-R1-10X 1 x 1 mL
AK-102.0-DCS-R1-10X-PAK 5 x 1 mL
 Total 50.0 mg/mL in CH₂Cl₂ 3 comps.
 Diesel Fuel, Arctic (16.6 mg/mL) #2 Diesel - Conventional (16.7 mg/mL)
 #1 Diesel - Low Sulfur (16.7 mg/mL)

Laboratory Control Standard

AK-102.0-LCS-R1-10X 1 x 1 mL
AK-102.0-LCS-R1-10X-PAK 5 x 1 mL
 50.0 mg/mL in Acetone
 #2 Diesel - Conventional

Technical Note

The Laboratory Control Standard was prepared from an independent source of material than what was used in the Diesel Calibration Composite mix.

Technical Note

AccuStandard originally formulated the Diesel Calibration Composite Mix and Laboratory Control Standard using two independent sources of #2 Diesel as required by the Alaskan method. Unfortunately, the chromatographic patterns for the #2 diesel sources (conventional & extra low sulfur) are different.

We have actively sought out and obtained independent sources of each type of #2 diesel to insure similar chromatographic patterns. We recommend that when a customer is analyzing the Diesel Calibration Composite and Laboratory Control standard that the client orders **AK-102.0-DCS** & **AK-102.0-LCS** products together to obtain similar chromatographic patterns for #2 diesel extra low sulfur patterns and **AK-102.0-DCS-R1-10X** & **AK-102.0-LCS-R1-10X** products to obtain similar chromatographic patterns for #2 Diesel conventional patterns.

We believe most laboratories performing the Alaskan DRO analysis will find the #2 Diesel conventional chromatographic pattern more closely resembles typical Diesel samples drawn from environmental sites.

Normal Alkane Standard - DRO Defining Mixture

AK-102.0-NAS-10X 1 x 1 mL
AK-102.0-NAS-10X-PAK 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂ 16 comps.

<i>n</i> -Decane	<i>n</i> -Octadecane
<i>n</i> -Undecane	<i>n</i> -Nonadecane
<i>n</i> -Dodecane	<i>n</i> -Eicosane
<i>n</i> -Tridecane	<i>n</i> -Heneicosane
<i>n</i> -Tetradecane	<i>n</i> -Docosane
<i>n</i> -Pentadecane	<i>n</i> -Tricosane
<i>n</i> -Hexadecane	<i>n</i> -Tetracosane
<i>n</i> -Heptadecane	<i>n</i> -Pentacosane

Surrogate Standards

AK-102.0-SS 1 x 1 mL
AK-102.0-SS-PAK 5 x 1 mL
 200 µg/mL in Acetone
AK-102.0-SS-10X 1 x 1 mL
AK-102.0-SS-10X-PAK 5 x 1 mL
 2.0 mg/mL in Acetone
o-Terphenyl

Internal Standard

AK-102.0-IS 1 x 1 mL
AK-102.0-IS-PAK 5 x 1 mL
 1.0 mg/mL in CH₂Cl₂
 5-alpha Androstane

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Alaska Method Determination of Aromatic & Aliphatic Hydrocarbons in Diesel Range Organics

AK102AA DRO Standard	AK102/103AA Retention Time Marker Standard	AK102/103AA Surrogate Standard
AK-102AA-DRO AK-102AA-DRO-PAK 2000 µg/mL each in CH ₂ Cl ₂	AK-102/103AA-RT AK-102/103AA-RT-PAK 50 µg/mL each in CH ₂ Cl ₂	AK-102/103AA-SS AK-102/103AA-SS-PAK 1000 µg/mL each in CH ₂ Cl ₂
1 x 1 mL 5 x 1 mL 10 comps.	1 x 1 mL 5 x 1 mL 3 comps.	1 x 1 mL 5 x 1 mL 3 comps.
<i>n</i> -Undecane <i>n</i> -Pentadecane <i>n</i> -Heptadecane <i>n</i> -Octadecane <i>n</i> -Tetracosane	Naphthalene Acenaphthene Fluorene Pyrene Anthracene	Squalane <i>o</i> -Terphenyl 5,6,7,8-Tetrahydro-1-naphthol

Alaska Method Determination of Residual Range Organics (RRO) Hydrocarbon

Residual Composite Mixtures	Laboratory Control Standard
AK-103.0-RCS AK-103.0-RCS-PAK Total 5.0 mg/mL in CH ₂ Cl ₂	AK-103.0-LCS AK-103.0-LCS-PAK 5.0 mg/mL in Acetone
SAE 30W Motor Oil (1.66 mg) SAE 40W Motor Oil (1.67 mg) SAE 50W Motor Oil (1.67 mg)	AK-103.0-LCS-5X AK-103.0-LCS-5X-PAK 25.0 mg/mL in Acetone: CH ₂ Cl ₂ (1:1) SAE 40W Motor Oil
AK-103.0-RCS-10X AK-103.0-RCS-10X-PAK Total 50.0 mg/mL in CH ₂ Cl ₂	Surrogate Control Standard AK-103.0-SS AK-103.0-SS-PAK 500 µg/mL in Acetone
SAE 30W Motor Oil (16.6 mg) SAE 40W Motor Oil (16.7 mg) SAE 50W Motor Oil (16.7 mg)	AK-103.0-SS-10X AK-103.0-SS-10X-PAK 5.0 mg/mL in THF : Acetone (1:3) <i>n</i> -Triacosane-d ₃₂

Alaska Method Determination of Aromatic and Aliphatic Hydrocarbons in Residual Range Organics

AK103AA RRO Standard	AK102/103AA Retention Time Marker Standard	AK102/103AA Surrogate Standard
AK-103AA-RRO AK-103AA-RRO-PAK 50 µg/mL each in CH ₂ Cl ₂	AK-102/103AA-RT AK-102/103AA-RT-PAK 50 µg/mL each in CH ₂ Cl ₂	AK-102/103AA-SS AK-102/103AA-SS-PAK 1000 µg/mL each in CH ₂ Cl ₂
1 x 1 mL 5 x 1 mL 9 comps.	1 x 1 mL 5 x 1 mL 3 comps.	1 x 1 mL 5 x 1 mL 3 comps.
<i>n</i> -Hexacosane <i>n</i> -Octacosane <i>n</i> -Triacosane <i>n</i> -Dotriacontane <i>n</i> -Tetracontane	Benzo[b]fluoranthene Benzo[a]pyrene Benzo[g,h,i]perylene Dibenz[a,h]anthracene	Squalane <i>o</i> -Terphenyl 5,6,7,8-Tetrahydro-1-naphthol

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Arizona Method Determination of Diesel Range and Oil Range Organic Hydrocarbons

<p>Diesel & Oil Range Standard AZ-8015-DRO/ORO AZ-8015-DRO/ORO-PAK 2000 µg/mL each in CH₂Cl₂</p> <p><i>n</i>-Decane <i>n</i>-Dodecane <i>n</i>-Docosane <i>n</i>-Dotriacontane</p> <p><i>n</i>-Eicosane <i>n</i>-Hexacosane <i>n</i>-Hexadecane <i>n</i>-Octacosane</p> <p><i>n</i>-Octadecane <i>n</i>-Tetracosane <i>n</i>-Tetradecane <i>n</i>-Triacontane</p> <p>1 x 1 mL 5 x 1 mL 12 comps.</p>	<p>Retention Time Verification Standard AZ-8015-RTV AZ-8015-RTV-PAK 2000 µg/mL each in CH₂Cl₂</p> <p><i>n</i>-Decane <i>n</i>-Docosane</p> <p><i>n</i>-Dotriacontane</p> <p>1 x 1 mL 1 x 1 mL 3 comps.</p>
<p>Surrogate Standards AK-102.0-SS-10X AK-102.0-SS-10X-PAK 2.0 mg/mL in Acetone</p> <p><i>o</i>-Terphenyl</p> <p>1 x 1 mL 5 x 1 mL</p>	<p>Stock Calibration Standard AZ-8015-SCS AZ-8015-SCS-PAK 10000 µg/mL each in CH₂Cl₂</p> <p>#2 Diesel 10W 30 Motor Oil</p> <p>1 x 1 mL 1 x 1 mL 2 comps.</p>

California Method

<p>California - Gasoline Range Hydrocarbons S-603A-10X S-603A-10X-PAK 2.0 mg/mL each in MeOH</p> <p>Benzene Ethylbenzene Methyl t-butyl ether</p> <p>Toluene <i>o</i>-Xylene</p> <p><i>m</i>-Xylene <i>p</i>-Xylene</p> <p>SAVE 25%</p> <p>1 x 1 mL 5 x 1 mL 7 comps.</p>	<p>Oxygenate Gasoline Additive Standard OGAD-001 OGAD-001-PAK At stated conc. in MeOH</p> <p>MtBE (2000 µg/mL) ETBE (2000 µg/mL) Isopropyl ether (2000 µg/mL)</p> <p>TAME (2000 µg/mL) t-Butanol (10000 µg/mL)</p> <p>1 x 1 mL 5 x 1 mL 5 comps.</p>
<p>LA County Well Investigation & Monitoring Program Purgeable Aromatics - Gasoline ID M-602-GAS-10X 2.0 mg/mL each in MeOH</p> <p>Benzene Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene</p> <p>1,4-Dichlorobenzene Ethylbenzene Toluene <i>o</i>-Xylene</p> <p><i>p</i>-Xylene <i>m</i>-Xylene MtBE</p> <p>1 x 1 mL 11 comps.</p>	<p>Ethanol M-8015B/5031-11 10 mg/mL in Water</p> <p>1 x 1 mL</p> <p>Methanol M-8015B/5031-17 10 mg/mL in Water</p> <p>1 x 1 mL</p>

Connecticut Method Extractable Total Petroleum Hydrocarbon

<p>CT ETPH Alkane Standard DRH-009S DRH-009S-PAK 1000 µg/mL in CH₂Cl₂</p> <p><i>n</i>-Nonane <i>n</i>-Decane <i>n</i>-Dodecane <i>n</i>-Tetradecane <i>n</i>-Hexadecane</p> <p><i>n</i>-Octadecane <i>n</i>-Eicosane <i>n</i>-Docosane <i>n</i>-Tetracosane <i>n</i>-Hexacosane</p> <p><i>n</i>-Octacosane <i>n</i>-Triacontane <i>n</i>-Dotriacontane <i>n</i>-Tetracontane <i>n</i>-Hexatriacontane</p> <p>1 x 1 mL 5 x 1 mL 15 comps.</p>	<p>Surrogate Standard GRH-SS GRH-SS-PAK 2.0 mg/mL in Acetone</p> <p><i>o</i>-Terphenyl (OTP)</p> <p>1 x 1 mL 5 x 1 mL</p>
<p>Technical Note</p> <p>Proficiency Test Samples required for the ETPH method and individual fuels are available as standard products. Custom formulations can be quoted and manufactured to meet your specific application.</p>	<p>Internal Standard GRH-IS GRH-IS-PAK 1.0 mg/mL in CH₂Cl₂</p> <p>5-alpha Androstane</p> <p>1 x 1 mL 5 x 1 mL</p>

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Florida Method Total Recoverable Petroleum Hydrocarbon (FTRPH) Standard & Surrogates

Calibration/Window Defining Hydrocarbon Standard

DRH-004S-5X					1 x 1 mL
DRH-004S-5X-PAK					5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂ : CS ₂ (1:1)					
17 comps.					
Octane	C ₈	Eicosane	C ₂₀	Dotriacontane	C ₃₂
Decane	C ₁₀	Docosane	C ₂₂	Tetracontane	C ₃₄
Dodecane	C ₁₂	Tetracosane	C ₂₄	Hexatriacontane	C ₃₆
Tetradecane	C ₁₄	Hexacosane	C ₂₆	Octatriacontane	C ₃₈
Hexadecane	C ₁₆	Octacosane	C ₂₈	Tetracontane	C ₄₀
Octadecane	C ₁₈	Triacosane	C ₃₀		

FTRPH Surrogate Standard

DRH-FL-SS-3X	1 x 1 mL
DRH-FL-SS-3X-PAK	5 x 1 mL
3.0 mg/mL in Carbon disulfide	
DRH-FL-SS	1 x 1 mL
DRH-FL-SS-PAK	5 x 1 mL
1.0 mg/mL in Carbon disulfide	
Nonatriacontane	

FTRPH Calibration / Window Defining Standard

DRH-FTRPH	1 x 1 mL	
DRH-FTRPH-PAK	5 x 1 mL	
500 µg/mL each in Hexane		
17 comps.		
<i>n</i> -Octane	<i>n</i> -Eicosane	<i>n</i> -Dotriacontane
<i>n</i> -Decane	<i>n</i> -Docosane	<i>n</i> -Tetracontane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane	<i>n</i> -Hexatriacontane
<i>n</i> -Tetradecane	<i>n</i> -Hexacosane	<i>n</i> -Octatriacontane
<i>n</i> -Hexadecane	<i>n</i> -Octacosane	<i>n</i> -Tetracontane
<i>n</i> -Octadecane	<i>n</i> -Triacosane	

FTRPH Combined Surrogate Standard

DRH/GRH-FL-SS	1 x 1 mL
DRH/GRH-FL-SS-PAK	5 x 1 mL
5.0 mg/mL in Carbon disulfide	
2 comps.	
Nonatriacontane	<i>o</i> -Terphenyl (OTP)

Technical Note

The above FTRPH Calibration/Window Defining Standard was formulated at a lower concentration to insure solubility of the analytes & eliminate the odor caused by the introduction of Carbon disulfide as a cosolvent.

Technical Note

The above FTRPH Surrogate Standard was formulated at a higher concentration for combined DRH & GRH analysis. This standard has proven useful for those laboratories performing gasoline & diesel analysis simultaneously.

DRH/GRH-FL-SS-R2		1 x 1 mL
DRH/GRH-FL-SS-R2-PAK		5 x 1 mL
At stated conc. in Carbon disulfide		
2 comps.		
Nonatriacontane (6000 µg/mL)	<i>o</i> -Terphenyl (OTP) (1500 µg/mL)	

Technical Note

Items in Carbon disulfide cannot ship by Air. Whenever possible we try to find an alternate solvent, however some long chain hydrocarbon will not go in solution or any other solvent.

Internal Standard

GRH-IS	1 x 1 mL
GRH-IS-PAK	5 x 1 mL
1.0 mg/mL in CH ₂ Cl ₂	
5- α Androstane	

Surrogate Standards

DRH-SS	1 x 1 mL	GRH-SS	1 x 1 mL
DRH-SS-PAK	5 x 1 mL	GRH-SS-PAK	5 x 1 mL
5.0 mg/mL in THF		2.0 mg/mL in Acetone	
<i>n</i> -Triacosane-d ₆₂		<i>o</i> -Terphenyl (OTP)	

Mississippi / Tennessee Method

DRO Defining Mix

AK-102.0-NAS-10X			1 x 1 mL
AK-102.0-NAS-10X-PAK			5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂			
16 comps.			
<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane	
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane	
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane	
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane	
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane	
<i>n</i> -Pentadecane			

Multi-State Method Hydrocarbon Window Defining

DRH-008S-R2				1 x 1 mL
DRH-008S-R2-PAK				5 x 1 mL
500 µg/mL each in Chloroform				
35 comps.				
Octane	Heptadecane	Tetracosane	Tritriacontane	
Nonane	Pristane	Pentacosane	Tetracontane	
Decane	Octadecane	Hexacosane	Pentatriacontane	
Undecane	Phytane	Heptacosane	Hexatriacontane	
Dodecane	Nonadecane	Octacosane	Heptatriacontane	
Tridecane	Eicosane	Nonacosane	Octatriacontane	
Tetradecane	Heneicosane	Triacosane	Nonatriacontane	
Pentadecane	Docosane	<i>n</i> -Hentriacontane	Tetracontane	
Hexadecane	Tricosane	Dotriacontane		

Technical Note

AccuStandard offers a hydrocarbon window defining standard with the C₉ to C₄₀ odd and even alkanes. Use of this one standard should meet the numerous state-to-state variations for hydrocarbon validation and reporting. As an added benefit, AccuStandard has included Pristane and Phytane in the formulation. Again, use of this one standard can meet numerous LUFT/LUST programs requiring that the C₁₇ (Pristane) and C₁₈ (Phytane) ratio be used to estimate subsurface degradation of fuel oil spills.

LUFT/LUST Standards

State Methods - Ready-to-Inject Working Level EPH Standards

LUFT/LUST
Massachusetts



Massachusetts Method Determination of Extractable Petroleum Hydrocarbons (EPH)

Aromatic Hydrocarbons Calibration Set

DRH-006-CAL-SET 5 x 1 mL
At stated conc. in CH₂Cl₂ 18 comps.

Cat. No.	DRH-006-CAL-1X DRH-006-CAL-4X DRH-006-CAL-10X DRH-006-CAL-20X DRH-006-CAL-40X				
	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
Acenaphthene	5	20	50	100	200
Acenaphthylene	5	20	50	100	200
Anthracene	5	20	50	100	200
Benz[a]anthracene	5	20	50	100	200
Benzo[a]pyrene	5	20	50	100	200
Benzo[b]fluoranthene	5	20	50	100	200
Benzo[g,h,i]perylene	5	20	50	100	200
Benzo[k]fluoranthene	5	20	50	100	200
Chrysene	5	20	50	100	200
Dibenz[a,h]anthracene	5	20	50	100	200
Fluoranthene	5	20	50	100	200
Fluorene	5	20	50	100	200
Indeno[1,2,3-cd]pyrene	5	20	50	100	200
2-Methylnaphthalene	5	20	50	100	200
Naphthalene	5	20	50	100	200
Phenanthrene	5	20	50	100	200
Pyrene	5	20	50	100	200
o-Terphenyl (Surrogate)	5	20	50	100	200

DEP (MA) - Aromatic Hydrocarbons

DRH-006S 1 x 1 mL
DRH-006S-PAK 5 x 1 mL
1.0 mg/mL each in CH₂Cl₂ 17 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benz[a]anthracene	Indeno[1,2,3-cd]pyrene
Benzo[a]pyrene	2-Methylnaphthalene
Benzo[b]fluoranthene	Naphthalene
Benzo[g,h,i]perylene	Phenanthrene
Benzo[k]fluoranthene	Pyrene
Chrysene	

Technical Note

High Concentrates

AccuStandard formulated two high concentration EPH stocks for laboratories that prepare in-house working level solutions.

CCC Working Level In addition, AccuStandard received numerous requests to formulate **Ready-to-Use** working level aromatic and aliphatic calibration sets. AccuStandard's Product Development Team designed the two listed Calibration sets to meet those requests.

Custom/Bulk Packaging

Larger volumes of Daily Continuing Calibration solution can be purchased by contacting our Technical Service Department.

Aliphatic Hydrocarbons Calibration Set

DRH-007-CAL-SET 5 x 1 mL
At stated conc. in CH₂Cl₂ 15 comps.

Cat. No.	DRH-007-CAL-1X DRH-007-CAL-4X DRH-007-CAL-10X DRH-007-CAL-20X DRH-007-CAL-40X				
	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
n-Nonane	5	20	50	100	200
n-Decane	5	20	50	100	200
n-Dodecane	5	20	50	100	200
n-Tetradecane	5	20	50	100	200
n-Hexadecane	5	20	50	100	200
n-Octadecane	5	20	50	100	200
n-Nonadecane	5	20	50	100	200
n-Eicosane	5	20	50	100	200
n-Docosane	5	20	50	100	200
n-Tetracosane	5	20	50	100	200
n-Hexacosane	5	20	50	100	200
n-Octacosane	5	20	50	100	200
n-Triacontane	5	20	50	100	200
n-Hexatriacontane	5	20	50	100	200
1-Chlorooctadecane (Surrogate)	5	20	50	100	200

DEP (MA) - Aliphatic Hydrocarbons

DRH-007S 1 x 1 mL
DRH-007S-PAK 5 x 1 mL
1.0 mg/mL each in CH₂Cl₂ : Hexane (1:1) 14 comps.

n-Nonane	n-Eicosane
n-Decane	n-Docosane
n-Dodecane	n-Tetracosane
n-Tetradecane	n-Hexacosane
n-Hexadecane	n-Octacosane
n-Octadecane	n-Triacontane
n-Nonadecane	n-Hexatriacontane

Aliphatic Surrogate

DRH-007-SS 1 x 1 mL
DRH-007-SS-PAK 5 x 1 mL

1.0 mg/mL in Hexane

1-Chlorooctadecane

EPH Matrix Spike

DRH-MA-MS 25 µg/mL in Acetone 1 x 1 mL
DRH-MA-MS-PAK 25 µg/mL in Acetone 5 x 1 mL

DRH-MA-MS-10X 250 µg/mL in Acetone 1 x 1 mL
DRH-MA-MS-10X-PAK 250 µg/mL in Acetone 5 x 1 mL

DRH-MA-MS-40X 1,000 µg/mL in Acetone 1 x 1 mL
DRH-MA-MS-40X-PAK 1,000 µg/mL in Acetone 5 x 1 mL

10 comps.

EPH Surrogate Spike

DRH-MA-SS 20 µg/mL each in Acetone 1 x 1 mL

DRH-MA-SS-10X 200 µg/mL each in Acetone 1 x 1 mL

DRH-MA-SS-100X 2,000 µg/mL each in Acetone 1 x 1 mL

DRH-MA-SS-100X-PAK 2,000 µg/mL each in Acetone 5 x 1 mL

1-Chlorooctadecane

o-Terphenyl

2 comps.

Acenaphthene	Naphthalene	n-Octacosane
Anthracene	n-Nonadecane	Pyrene
Chrysene	n-Nonane	n-Tetradecane
n-Eicosane		



Massachusetts Method Determination of Extractable Petroleum Hydrocarbons (EPH) (Continued)

<p>DEP (MA) - Fractionation Surrogate Spike</p> <p>DRH-MA-FSS-10ML 40 µg/mL in Hexane 1 x 10 mL</p> <p>DRH-MA-FSS-50X 2.0 mg/mL in Hexane 1 x 1 mL</p> <p>DRH-MA-FSS-50X-PAK 2.0 mg/mL in Hexane 5 x 1 mL</p> <p>2-Fluorobiphenyl 2-Bromonaphthalene 2 comps.</p>		<p>Combined Aromatic/Aliphatic Matrix Spike Standard</p> <p>DRH-MS-ASL 1 x 1 mL</p> <p>DRH-MS-ASL-PAK 5 x 1 mL</p> <p>25 µg/mL each in Hexane 31 comps.</p>	
<p>Aromatic Surrogate</p> <p>DRH-006-SS 1 x 1 mL</p> <p>DRH-006-SS-PAK 5 x 1 mL</p> <p>1.0 mg/mL in CH₂Cl₂</p> <p><i>o</i>-Terphenyl</p>		<p>Acenaphthene <i>n</i>-Hexacosane</p> <p>Acenaphthylene <i>n</i>-Hexadecane</p> <p>Anthracene <i>n</i>-Hexatriacontane</p> <p>Benz[a]anthracene Indeno[1,2,3-cd]pyrene</p> <p>Benzo[a]pyrene 2-Methylnaphthalene</p> <p>Benzo[b]fluoranthene Naphthalene</p> <p>Benzo[g,h,i]perylene <i>n</i>-Nonadecane</p> <p>Benzo[k]fluoranthene <i>n</i>-Nonane</p> <p>Chrysene <i>n</i>-Octacosane</p> <p><i>n</i>-Decane <i>n</i>-Octadecane</p> <p>Dibenz[a,h]anthracene Phenanthrene</p> <p><i>n</i>-Docosane Pyrene</p> <p><i>n</i>-Dodecane <i>n</i>-Tetracosane</p> <p><i>n</i>-Eicosane <i>n</i>-Tetradecane</p> <p>Fluoranthene <i>n</i>-Triacontane</p> <p>Fluorene</p>	
<p>Internal Standard</p> <p>GRH-IS 1,000 µg/mL in CH₂Cl₂ 1 x 1 mL</p> <p>GRH-IS-PAK 1,000 µg/mL in CH₂Cl₂ 5 x 1 mL</p> <p>GRH-IS-10X 10.0 mg/mL in CH₂Cl₂ 1 x 1 mL</p> <p>5-alpha Androstane</p>			

Massachusetts Method Determination of Volatile Petroleum Hydrocarbons (VPH)

<p>Stock Concentrate</p> <p>Volatile Petroleum Hydrocarbon Mix</p> <p>GRH-004S-10X 1 x 1 mL</p> <p>GRH-004S-10X-PAK 5 x 1 mL</p> <p>At stated conc. in MeOH 13 comps.</p>		<p>Volatile Petroleum Hydrocarbons with Surrogate Standard</p> <p>GRH-004S/SS 1 x 1 mL</p> <p>GRH-004S/SS-PAK 5 x 1 mL</p> <p>At stated conc. in MeOH 14 comps.</p>	
<p>Benzene (5.0 mg/mL) <i>n</i>-Pentane (10.0 mg/mL)</p> <p>Ethylbenzene (5.0 mg/mL) Toluene (15.0 mg/mL)</p> <p>Isooctane (15.0 mg/mL) 1,2,4-Trimethylbenzene (10.0 mg/mL)</p> <p>2-Methylpentane (15.0 mg/mL) <i>o</i>-Xylene (10.0 mg/mL)</p> <p>MtBE (15.0 mg/mL) <i>m</i>-Xylene (10.0 mg/mL)</p> <p>Naphthalene (10.0 mg/mL) <i>p</i>-Xylene (10.0 mg/mL)</p> <p><i>n</i>-Nonane (10.0 mg/mL)</p>		<p>Benzene (500 µg/mL) <i>n</i>-Nonane (1,000 µg/mL)</p> <p>2,5-Dibromotoluene(Surrogate) (1,000 µg/mL) <i>n</i>-Pentane (1,000 µg/mL)</p> <p>Ethylbenzene (500 µg/mL) Toluene (1,500 µg/mL)</p> <p>Isooctane (1,500 µg/mL) 1,2,4-Trimethylbenzene (1,000 µg/mL)</p> <p>2-Methylpentane (1,500 µg/mL) <i>o</i>-Xylene (1,000 µg/mL)</p> <p>MtBE (1,500 µg/mL) <i>m</i>-Xylene (1,000 µg/mL)</p> <p>Naphthalene (1,000 µg/mL) <i>p</i>-Xylene (1,000 µg/mL)</p>	
<p>DEP (MA)-VPH Surrogate Standard</p> <p>GRH-004-SS 1 x 1 mL</p> <p>GRH-004-SS-PAK 5 x 1 mL</p> <p>50 µg/mL in MeOH</p> <p>GRH-004-SS-10X 1 x 1 mL</p> <p>GRH-004-SS-10X-PAK 5 x 1 mL</p> <p>500 µg/mL in MeOH</p> <p>GRH-004-SS-100X 1 x 1 mL</p> <p>GRH-004-SS-100X-PAK 5 x 1 mL</p> <p>5,000 µg/mL in MeOH</p> <p>2,5-Dibromotoluene</p>		<p>Certified BTEX in Unleaded Gasoline</p> <p>GA-001-20X-BTEX 1 x 1 mL</p> <p>10.0 mg/mL in MeOH</p> <p>Gasoline - Regular, unleaded</p>	
<p>VPH Matrix Spike</p> <p>GRH-004-MS 1 x 1 mL</p> <p>GRH-004-MS-PAK 5 x 1 mL</p> <p>50 µg/mL each in MeOH 8 comps.</p> <p>GRH-004-MS-10X 1 x 1 mL</p> <p>GRH-004-MS-10X-PAK 5 x 1 mL</p> <p>500 µg/mL each in MeOH 8 comps.</p> <p>GRH-004-MS-100X 1 x 1 mL</p> <p>GRH-004-MS-100X-PAK 5 x 1 mL</p> <p>5,000 µg/mL each in MeOH 8 comps.</p> <p>Benzene Naphthalene <i>m</i>-Xylene</p> <p>Ethylbenzene Toluene <i>p</i>-Xylene</p> <p>MtBE <i>o</i>-Xylene</p>		<p>Technical Note</p> <p>Calibration Curve Analytical chemists can easily develop the VPH Calibration Curve using one AccuStandard primary dilution standard that includes the surrogate.</p> <p>Simultaneous BTEX / Gasoline QA/QC AccuStandard's QA/QC department has certified the benzene, toluene, ethyl benzene and xylene concentrations in our unleaded gasoline standard (GA-001-20X-BTEX). Use of this standard allows the analytical chemist in a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as the gasoline.</p> <p>AccuStandard's Product Development Team continues to look for innovative approaches to save the analytical laboratory time and money.</p>	



Pennsylvania Method Storage Tank Site Closure & Monitoring Petroleum Standards

PA Extractable PAH Standard

DRH-PA-001 DRH-PA-001-PAK 2000 µg/mL each in CH ₂ Cl ₂	1 x 1 mL 5 x 1 mL 5 comps.
Benz[a]anthracene	Naphthalene
Benzo[a]pyrene	Phenanthrene
Fluorene	

PA Volatile Petroleum Standard

GRH-PA-001 GRH-PA-001-PAK At stated conc. in MeOH	1 x 1 mL 5 x 1 mL 9 comps.
Benzene (1000 µg/mL)	<i>o</i> -Xylene (1000 µg/mL)
Ethylbenzene (1000 µg/mL)	<i>m</i> -Xylene (1000 µg/mL)
MtBE (2000 µg/mL)	<i>p</i> -Xylene (1000 µg/mL)
Naphthalene (1000 µg/mL)	Isopropylbenzene (1000 µg/mL)
Toluene (1000 µg/mL)	

Texas Method Storage Tank (PST) Division - TX Method 1005 Standards

Gasoline & Diesel Calibration Set

DRH-TX-002-D-SET Each mix contains: Regular, Unleaded Gasoline & #2 Diesel Fuel	8 x 1 mL
Cat. No.	Conc.
DRH-TX-002-D-0.01X	5 µg/mL
DRH-TX-002-D-0.04X	20 µg/mL
DRH-TX-002-D-0.1X	50 µg/mL
DRH-TX-002-D-0.2X	100 µg/mL
DRH-TX-002-D-0.4X	200 µg/mL
DRH-TX-002-D-1X	500 µg/mL
DRH-TX-002-D-2X	1000 µg/mL
DRH-TX-002-D-10X	5000 µg/mL
	Solvent
	CH ₂ Cl ₂

Stock Hydrocarbon Calibration Standard

DRH-TX-001-10X DRH-TX-001-10X-PAK 2000 µg/mL each in <i>n</i> -Pentane	1 x 1 mL 5 x 1 mL 12 comps.	
<i>n</i> -Hexane	<i>n</i> -Tetradecane	<i>n</i> -Docosane
<i>n</i> -Octane	<i>n</i> -Hexadecane	<i>n</i> -Tetracosane
<i>n</i> -Decane	<i>n</i> -Octadecane	<i>n</i> -Hexacosane
<i>n</i> -Dodecane	<i>n</i> -Eicosane	<i>n</i> -Octacosane

Gasoline/Diesel Calibration/Matrix Spike Solution

DRH-TX-002-10X DRH-TX-002-10X-PAK 5000 µg/mL each in MeOH	1 x 1 mL 5 x 1 mL 2 comps.
Gasoline - Regular, unleaded	#2 Diesel Fuel

Gasoline/Diesel Continuing Calibration Solution

DRH-TX-002-D-0.4X-10ML 200 µg/mL each in CH ₂ Cl ₂	1 x 10 mL 2 comps.
Gasoline - Regular, unleaded	#2 Diesel Fuel

Stock Gasoline/Diesel Calibration Solution

DRH-TX-002-D-40X DRH-TX-002-D-40X-PAK 20,000 µg/mL each in CH ₂ Cl ₂	1 x 1 mL 5 x 1 mL 2 comps.
Gasoline - Regular, unleaded	#2 Diesel Fuel

Technical Note

Texas Method 1005 Rev. 03 and 1006

Over 22,000 notifications of leaking petroleum storage tanks have been received by the Texas Natural Resource Conservation Commission. At least 8000 of these leaks have affected groundwater resulting in the testing and monitoring of the site. The capability to test for TPH concentration and identify the petrochemical product offers analytical laboratories additional sources of revenue.

New State specific methods have been proposed and promulgated to determine the Total concentration of Petroleum Hydrocarbons (TPH). AccuStandard continues to support the analytical community by developing these new formulations to meet both TNRC method 1005 Rev. 3.0 and 1006. Additionally, QA/QC and Proficiency Testing samples are now available to monitor sample handling/testing procedures or to receive certification to perform TPH analysis.

These new standards are in ready to use calibration curves, cost effective bulk quantities, and convenient concentrations to simplify the instrument calibration procedures.

Gasoline & Diesel Calibration Curve

DRH-TX-003-SET Each mix contains: Regular, Unleaded Gasoline & #2 Diesel Fuel	8 x 1 mL
Cat. No.	Conc.
DRH-TX-003-0.04X	20 µg/mL
DRH-TX-003-0.2X	100 µg/mL
DRH-TX-003-0.5X	250 µg/mL
DRH-TX-003-1X	500 µg/mL
DRH-TX-003-1.5X	750 µg/mL
DRH-TX-003-2X	1000 µg/mL
DRH-TX-003-10X	5000 µg/mL
DRH-TX-003-20X	10000 µg/mL
	Solvent
	Pentane

Aromatic Fractionation Check Standard

DRH-TX-003-FCS DRH-TX-003-FCS-PAK 20 µg/mL each in Pentane	1 x 10 mL 5 x 10 mL 24 comps.	
Acenaphthene	Benzo[e]pyrene	Naphthalene
Acenaphthylene	Benzo[g,h,i]perylene	Phenanthrene
Anthracene	Chrysene	Pyrene
Benzene	Dibenz[a,h]anthracene	Toluene
Benzo[a]anthracene	Ethylbenzene	1,2,3-Trimethylbenzene
Benzo[b]fluoranthene	Fluoranthene	<i>m</i> -Xylene
Benzo[k]fluoranthene	Fluorene	<i>p</i> -Xylene
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	<i>o</i> -Xylene

Surrogate Standard

DRH-TX-003-SS1 DRH-TX-003-SS1-PAK 10 mg/mL each in Pentane	1 x 5 mL 5 x 5 mL 2 comps.
1-Chlorooctadecane	1-Chlorooctane

Carbon Number Distribution Maker

DRH-TX-003-CNM DRH-TX-003-CNM-PAK 2000 µg/mL each in Pentane	1 x 1 mL 5 x 1 mL 9 comps.	
<i>n</i> -Decane	<i>n</i> -Heptane	<i>n</i> -Octacosane
<i>n</i> -Dodecane	<i>n</i> -Hexadecane	<i>n</i> -Octane
<i>n</i> -Heneicosane	<i>n</i> -Hexane	<i>n</i> -Pentatriacontane



LUFT/LUST Standards

State Methods

Washington Method Determination of Volatile Petroleum Hydrocarbons (VPH)

<p>VPH Solution</p> <p>WA-VPH 1 x 1 mL WA-VPH-PAK 5 x 1 mL <i>200 µg/mL each in MeOH</i> 15 comps.</p> <p>Benzene <i>n</i>-Hexane Ethylbenzene <i>n</i>-Octane Toluene <i>n</i>-Decane <i>o</i>-Xylene <i>n</i>-Dodecane <i>m</i>-Xylene 1-Methylnaphthalene <i>p</i>-Xylene Naphthalene MtBE 1,2,3-Trimethylbenzene <i>n</i>-Pentane</p>	<p>VPH Primary Dilution Standard with Surrogate</p> <p>WA-VPH-10X-SS 1 x 1 mL WA-VPH-10X-SS-PAK 5 x 1 mL <i>2,000 µg/mL each in MeOH</i> 16 comps.</p> <p>Benzene <i>n</i>-Octane Ethylbenzene <i>n</i>-Decane Toluene <i>n</i>-Dodecane <i>o</i>-Xylene 1-Methylnaphthalene <i>m</i>-Xylene Naphthalene <i>p</i>-Xylene 1,2,3-Trimethylbenzene MtBE 2,5-Dibromotoluene (surrogate) <i>n</i>-Pentane <i>n</i>-Hexane</p>	<p>Stock Concentrate VPH Solutions</p> <p>WA-VPH-10X 1 x 1 mL WA-VPH-10X-PAK 5 x 1 mL <i>2,000 µg/mL each in MeOH</i> 15 comps.</p> <p>WA-VPH-100X 1 x 1 mL WA-VPH-100X-PAK 5 x 1 mL <i>20.0 mg/mL each in MeOH</i> 15 comps.</p> <p>Benzene <i>n</i>-Hexane Ethylbenzene <i>n</i>-Octane Toluene <i>n</i>-Decane <i>o</i>-Xylene <i>n</i>-Dodecane <i>m</i>-Xylene 1-Methylnaphthalene <i>p</i>-Xylene Naphthalene MtBE 1,2,3-Trimethylbenzene <i>n</i>-Pentane</p>
<p>VPH Matrix Spike</p> <p>WA-VPH-MS 1 x 1 mL WA-VPH-MS-PAK 5 x 1 mL <i>Varied conc. in MeOH</i> 11 comps.</p> <p>Benzene (60 µg/mL) Ethylbenzene (60 µg/mL) MtBE (180 µg/mL) Naphthalene (360 µg/mL) <i>n</i>-Nonane (200 µg/mL) <i>n</i>-Pentane (600 µg/mL) Toluene (60 µg/mL) 1,2,3-Trimethylbenzene (60 µg/mL) <i>m</i>-Xylene (60 µg/mL) <i>p</i>-Xylene (60 µg/mL) <i>o</i>-Xylene (60 µg/mL)</p>	<p>VPH Surrogate Standard</p> <p>GRH-004-SS 1 x 1 mL GRH-004-SS-PAK 5 x 1 mL <i>50 µg/mL in MeOH</i></p> <p>GRH-004-SS-10X 1 x 1 mL GRH-004-SS-10X-PAK 5 x 1 mL <i>500 µg/mL in MeOH</i></p> <p>GRH-004-SS-100X 1 x 1 mL GRH-004-SS-100X-PAK 5 x 1 mL <i>5,000 µg/mL in MeOH</i></p> <p>2,5-Dibromotoluene</p>	<p>VPH Retention Time Marker</p> <p>WA-VPH-RT 1 x 1 mL WA-VPH-RT-PAK 5 x 1 mL <i>2,000 µg/mL each in MeOH</i> 6 comps.</p> <p><i>n</i>-Pentane <i>n</i>-Decane <i>n</i>-Hexane <i>n</i>-Dodecane <i>n</i>-Octane <i>n</i>-Tridecane</p> <p>1,2,3-Trimethylbenzene Standard</p> <p>V-028S-D-10X 1 x 1 mL V-028S-D-10X-PAK 5 x 1 mL <i>1000 µg/mL each in CH₂Cl₂</i></p> <p>1,2,3-Trimethylbenzene</p>
<p>Certified BTEX in Unleaded Gasoline (Single Source)</p> <p>GA-001-20X-BTEX 1 x 1 mL <i>10.0 mg/mL in MeOH</i></p> <p>Gasoline - Regular, unleaded</p>	<p>Technical Note</p> <p>Simultaneous BTEX / Gasoline QA/QC</p> <p>AccuStandard's QA/QC department has certified the benzene, toluene, ethyl benzene and xylene concentrations in our unleaded gasoline Standard. (GA-001-20X-BTEX and in AK-101.0-GCS-BTEX). Use of either standard allows the analytical chemist in a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.</p> <p>Since formulating the Standards for the TPH methods and because of numerous laboratory requests, we have added a new multi source certified BTEX in gasoline composite mix (AK-101.0-GCS-BTEX). The BTEX values for this multi source calibration standard have been determined through in-house analysis against a BTEX multi level calibration curve.</p> <p>AccuStandard's Product Development Team continues to look for innovative approaches to save the analytical laboratory time and money.</p>	
<p>Certified BTEX in Gasoline Composite Mix (Multi Source)</p> <p>AK-101.0-GCS-BTEX 1 x 1 mL <i>5 mg/mL each in MeOH</i> 3 comps.</p> <p>Gasoline - Premium (1.66 mg/mL) Gasoline - Regular, leaded (1.67 mg/mL) Gasoline - Regular, unleaded (1.67 mg/mL)</p>		

Washington EPH Standards on Next Page

LUFT/LUST

LUFT/LUST Standards

State Methods



Washington Method

Determination of Extractable Petroleum Hydrocarbons (EPH)

<p>EPH Aromatic/PAH Standard</p> <p>WA-EPH-10X 1 x 1 mL WA-EPH-10X-PAK 5 x 1 mL 1.0 mg/mL each in CH₂Cl₂ 18 comps.</p> <p>Acenaphthene Dibenz[a,h]anthracene Acenaphthylene Fluoranthene Anthracene Fluorene Benz[a]anthracene Indeno[1,2,3-cd]pyrene Benzo[a]pyrene 2-Methylnaphthalene Benzo[b]fluoranthene Naphthalene Benzo[g,h,i]perylene Phenanthrene Benzo[k]fluoranthene Pyrene Chrysene 1,2,3-Trimethylbenzene</p>	<p>EPH Aliphatic Check Mix</p> <p>WA-EPH-ALI 1 x 1 mL WA-EPH-ALI-PAK 5 x 1 mL 1.0 mg/mL each in CH₂Cl₂ 5 comps.</p> <p><i>n</i>-Octane <i>n</i>-Hexadecane <i>n</i>-Decane <i>n</i>-Heneicosane <i>n</i>-Dodecane</p>	<p>EPH Fractionation Check Solution</p> <p>WA-EPH-FCS 1 x 1 mL WA-EPH-FCS-PAK 5 x 1 mL 25 µg/mL each in Hexane 24 comps.</p> <p>Acenaphthene Indeno[1,2,3-cd]pyrene Acenaphthylene 2-Methylnaphthalene Anthracene Naphthalene Benz[a]anthracene Phenanthrene Benzo[a]pyrene Pyrene Benzo[b]fluoranthene <i>n</i>-Decane Benzo[g,h,i]perylene <i>n</i>-Dodecane Benzo[k]fluoranthene <i>n</i>-Tetradecane Chrysene <i>n</i>-Hexadecane Dibenz[a,h]anthracene <i>n</i>-Octadecane Fluoranthene <i>n</i>-Eicosane Fluorene <i>n</i>-Heneicosane</p>
<p>Internal Standard</p> <p>GRH-IS 1 x 1 mL 1,000 µg/mL in CH₂Cl₂ GRH-IS-PAK 5 x 1 mL 1,000 µg/mL in CH₂Cl₂ GRH-IS-10X 1 x 1 mL 10.0 mg/mL in CH₂Cl₂</p> <p>5-alpha Androstane</p>	<p>EPH Aromatic Check Mix</p> <p>WA-EPH-ARO 1 x 1 mL WA-EPH-ARO-PAK 5 x 1 mL 1.0 mg/mL each in CH₂Cl₂ 5 comps.</p> <p>Acenaphthene Pyrene Benzo[g,h,i]perylene 1,2,3-Trimethylbenzene Naphthalene</p>	<p>Revised EPH Fractionation Check Solution</p> <p>WA-EPH-FCS-R1 1 x 1 mL WA-EPH-FCS-R1-PAK 5 x 1 mL 25 µg/mL each in Hexane 23 comps</p> <p>Acenaphthene Indeno[1,2,3-cd]pyrene Acenaphthylene 2-Methylnaphthalene Anthracene Naphthalene Benz[a]anthracene Phenanthrene Benzo[a]pyrene Pyrene Benzo[b]fluoranthene <i>n</i>-Octane Benzo[g,h,i]perylene <i>n</i>-Decane Benzo[k]fluoranthene <i>n</i>-Dodecane Chrysene <i>n</i>-Hexadecane Dibenz[a,h]anthracene <i>n</i>-Heneicosane Fluoranthene <i>n</i>-Tetradecane Fluorene</p>
<p>EPH Surrogate Spike</p> <p>DRH-MA-SS 1 x 1 mL 20 µg/mL each in Acetone 2 comps. DRH-MA-SS-10X 1 x 1 mL 200 µg/mL each in Acetone 2 comps. DRH-MA-SS-100X 1 x 1 mL DRH-MA-SS-100X-PAK 5 x 1 mL 2,000 µg/mL each in Acetone 2 comps.</p> <p>1-Chlorooctadecane <i>o</i>-Terphenyl</p>	<p>Revised EPH Aliphatic Check Mix</p> <p>WA-EPH-ALI-R1 1 x 1 mL WA-EPH-ALI-R1-PAK 5 x 1 mL 1.0 mg/mL each in CH₂Cl₂ 6 comps.</p> <p><i>n</i>-Octane <i>n</i>-Hexadecane <i>n</i>-Decane <i>n</i>-Heneicosane <i>n</i>-Dodecane <i>n</i>-Tetradecane</p>	<p>1,2,3-Trimethylbenzene Standard</p> <p>V-028S-D-10X 1 x 1 mL V-028S-D-10X-PAK 5 x 1 mL 1000 µg/mL each in CH₂Cl₂</p> <p>1,2,3-Trimethylbenzene</p>
<p>EPH Matrix Spike</p> <p>WA-EPH-MS2-20ML 1 x 20 mL WA-EPH-MS2-20ML-PAK 5 x 20 mL 25 µg/mL each in Acetone 10 comps.</p> <p>Acenaphthene Anthracene Benzo[g,h,i]perylene Benzo[a]pyrene <i>n</i>-Decane <i>n</i>-Dodecane <i>n</i>-Hexadecane <i>n</i>-Heneicosane Naphthalene Pyrene</p>	<p>Revised EPH Aromatic Check Mix</p> <p>WA-EPH-ARO-R1 1 x 1 mL WA-EPH-ARO-R1-PAK 5 x 1 mL 1.0 mg/mL each in CH₂Cl₂ 6 comps.</p> <p>Acenaphthene Pyrene Benzo[g,h,i]perylene 1,2,3-Trimethylbenzene Naphthalene Toluene</p>	
	<p>Aliphatic Surrogate</p> <p>DRH-007-SS 1 x 1 mL DRH-007-SS-PAK 5 x 1 mL 1.0 mg/mL in Hexane</p> <p>1-Chlorooctadecane</p>	
	<p>Aromatic Surrogate</p> <p>DRH-006-SS 1 x 1 mL DRH-006-SS-PAK 5 x 1 mL 1.0 mg/mL in CH₂Cl₂</p> <p><i>o</i>-Terphenyl</p>	

Wisconsin Method

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S 1 x 1 mL	
GRH-003S-PAK 5 x 1 mL	
2.0 mg/mL each in MeOH 10 comps.	
Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	1,3,5-Trimethylbenzene
MtBE	<i>o</i> -Xylene
Naphthalene	<i>m</i> -Xylene
Toluene	<i>p</i> -Xylene

Complete Set of Total Petroleum Hydrocarbon (TPH) Pattern Recognition Standards

AccuStandard has assembled the following sets to identify specific petroleum product types found during LUFT/LUST investigations. The sets can be purchased using one convenient Cat. No. or as individuals.

TPH-SET 33 x 1 mL (includes TPH-001-SET, TPH-002-SET, TPH-003-SET, TPH-004-SET)								
Motor Fuels & Lubricating Oils Set TPH-001-SET 11 x 1 mL (Set includes Cat. No.'s listed in Bold)					Aviation Fuels & Oils Set TPH-003-SET 10 x 1 mL (Set includes Cat. No.'s listed in Bold)			
Description	Conc. (mg/mL)	Solv.	Cat. No.	1 mL Price	Description	Conc. (mg/mL)	Solv.	1 mL Price
Regular unleaded	0.5 20 20	MeOH MeOH CH ₂ Cl ₂	GA-001 GA-001-40X GA-001-D-40X		Aviation (gas) Grade 100 LL	0.5 20 20	MeOH MeOH CH₂Cl₂	GA-004 GA-004-40X GA-004-D-40X
Regular leaded	0.5 20 20	MeOH MeOH CH ₂ Cl ₂	GA-002 GA-002-40X GA-002-D-40X	10 20 20	JP-4 Fuel	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-010 FU-010-40X FU-010-D-40X
Premium	0.5 20 20	MeOH MeOH CH ₂ Cl ₂	GA-003 GA-003-40X GA-003-D-40X		JP-5 Fuel	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-012 FU-012-40X FU-012-D-40X
RFA Gasoline (oxygenate free)	0.5 20 20	MeOH MeOH CH ₂ Cl ₂	GA-005 GA-005-40X GA-005-D-40X	10 20 20	JP-7 Fuel	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-014 FU-014-40X FU-014-D-40X
#2 Diesel (conventional)	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-009 FU-009-40X FU-009-D-40X		JP-8 Fuel	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-015 FU-015-40X FU-015-D-40X
#1 Diesel (low sulfur)	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-013 FU-013-40X FU-013-D-40X	10 20 20	JP-10 Fuel (Cruise Missile)	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-022 FU-022-40X FU-022-D-40X
#2 Diesel (extra low sulfur)	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-017 FU-017-40X FU-017-D-40X		JP-TS	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-016 FU-016-40X FU-016-D-40X
Arctic Diesel	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-023 FU-023-40X FU-023-D-40X	10 20 20	Jet Fuel (type 1)	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-011 FU-011-40X FU-011-D-40X
SAE 30 W motor oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-018-H FU-018-H-40X FU-018-D-40X		Turbine (Jet A) Fuel	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-006 FU-006-40X FU-006-D-40X
SAE 40 W motor oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-019-H FU-019-H-40X FU-019-D-40X	10 20 20	Hydraulic oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-020-H FU-020-H-40X FU-020-D-40X
SAE 50 W motor oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-021-H FU-021-H-40X FU-021-D-40X		Household & Industrial Solvent Set TPH-004-SET 5 x 1 mL (Set includes Cat. No.'s listed in Bold)			
Heating Fuel Oils Set TPH-002-SET 7 x 1 mL (Set includes Cat. No.'s listed in Bold)					Description	Conc. (mg/mL)	Solv.	1 mL Price
#1 Fuel Oil	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-001 FU-001-40X FU-001-D-40X		Lacquer thinner	1 gram 0.5 20.0 20.0	Neat MeOH MeOH CH₂Cl₂	HS-001N HS-001S HS-001S-40X HS-001S-D-40X
#2 Fuel Oil	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-002 FU-002-40X FU-002-D-40X	10 20 20	Mineral spirits	1 gram 0.5 20.0 20.0	Neat MeOH MeOH CH₂Cl₂	HS-002N HS-002S HS-002S-40X HS-002S-D-40X
#3 Fuel Oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-003 FU-003-40X FU-003-D-40X		Naphtha	1 gram 0.5 20.0 20.0	Neat MeOH MeOH CH₂Cl₂	HS-003N HS-003S HS-003S-40X HS-003S-D-40X
#4 Fuel Oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-004 FU-004-40X FU-004-D-40X	10 20 20	Turpentine	1 gram 0.5 20.0 20.0	Neat MeOH MeOH CH₂Cl₂	HS-004N HS-004S HS-004S-40X HS-004S-D-40X
#5 Fuel Oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-007 FU-007-40X FU-007-D-40X		Stoddard	1 gram 0.5 20.0 20.0	Neat MeOH MeOH CH₂Cl₂	HS-005N HS-005S HS-005S-40X HS-005S-D-40X
#6 Fuel Oil	0.5 20 20	Hexane Hexane CH₂Cl₂	FU-008 FU-008-40X FU-008-D-40X	10 20 20	Motor Oil & Weathered Fuels Standards on Next Page			
Kerosene	0.5 20 20	MeOH MeOH CH₂Cl₂	FU-005 FU-005-40X FU-005-D-40X					

LUFT/LUST Standards



Motor Oil Standards

Description	Conc. (mg/mL)	Solv.	Cat. No.	1 mL Price	Description	Conc. (mg/mL)	Solv.	Cat. No.	1 mL Price
SAE 5W 30 Motor Oil	0.5	Hexane	FU-025-H		SAE 10W 40 Motor Oil	0.5	Hexane	FU-027-H	
	20.0	Hexane	FU-025-H-40X			20.0	Hexane	FU-027-H-40X	
SAE 10W 30 Motor Oil	20.0	CH ₂ Cl ₂	FU-025-D-40X		SAE 20W 50 Motor Oil	20.0	CH ₂ Cl ₂	FU-027-D-40X	
	0.5	Hexane	FU-026-H			0.5	Hexane	FU-028-H	
	20.0	Hexane	FU-026-H-40X			20.0	Hexane	FU-028-H-40X	
	20.0	CH ₂ Cl ₂	FU-026-D-40X			20.0	CH ₂ Cl ₂	FU-028-D-40X	

Weathered LUFT/LUST Fuels

Petroleum Products contain many different chemicals, plus synthetic product additives. Typically, these petroleum products are subdivided into two groups based on their volatility: [a] gasoline related products (more volatile) and [b] fuel related products (less volatile such as kerosene, aviation fuels, diesel fuels and heating oils).

Most analytical methods for petroleum products focus on several items: the level of BTEX, the total petroleum hydrocarbon number (TPH), and the fingerprint of the petroleum product. Depending on the volatility of the petroleum product spilled, the nature of the contaminated soil, and the age of the spill, analysis becomes even more difficult. Weathering, evaporation, and the migration of the lighter volatiles at the contamination site can affect the fingerprint identification portion of the fuel products analysis.

AccuStandard designed the weathered fuel line to artificially mimic the weathering, evaporation, and migration process. Use of these standards can help in the identification of the fuel type if it has been present in the ground for some time, in a sandy type soil with possible evaporation loss, or has migrated from the plume point of origin.

Weathered Fuels

Weathered Gasoline Set

WGU-SET	4 x 1 mL		
Gasoline - Regular, unleaded	5.0 mg/mL in MeOH	GA-001-10X	1 x 1 mL
Gasoline - Regular, unleaded (25% Weathered)	5.0 mg/mL in MeOH	GA-W25-10X	1 x 1 mL
Gasoline - Regular, unleaded (50% Weathered)	5.0 mg/mL in MeOH	GA-W50-10X	1 x 1 mL
Gasoline - Regular, unleaded (75% Weathered)	5.0 mg/mL in MeOH	GA-W75-10X	1 x 1 mL

Weathered Kerosene Set

WFK-SET	4 x 1 mL		
Kerosene	5.0 mg/mL in CH ₂ Cl ₂	FU-005-D-10X	1 x 1 mL
Kerosene (25% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FK-W25-10X	1 x 1 mL
Kerosene (50% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FK-W50-10X	1 x 1 mL
Kerosene (75% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FK-W75-10X	1 x 1 mL

Weathered #2 Diesel (extra Low Sulfur Content) Set

WFD2-SET	4 x 1 mL		
#2 Diesel fuel (extra Low Sulfur)	5.0 mg/mL in CH ₂ Cl ₂	FU-017-D-10X	1 x 1 mL
#2 Diesel fuel (extra Low Sulfur) (25% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FD2-W25-10X	1 x 1 mL
#2 Diesel fuel (extra Low Sulfur) (50% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FD2-W50-10X	1 x 1 mL
#2 Diesel fuel (extra Low Sulfur) (75% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FD2-W75-10X	1 x 1 mL

Weathered #2 Diesel (Conventional) Set

WFD2-R1-SET	4 x 1 mL		
#2 Diesel fuel (Conventional)	5.0 mg/mL in CH ₂ Cl ₂	FU-009-D-10X	1 x 1 mL
#2 Diesel fuel (Conventional) (25% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FD2-W25-R1-10X	1 x 1 mL
#2 Diesel fuel (Conventional) (50% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FD2-W50-R1-10X	1 x 1 mL
#2 Diesel fuel (Conventional) (75% Weathered)	5.0 mg/mL in CH ₂ Cl ₂	FD2-W75-R1-10X	1 x 1 mL

Total Petroleum Hydrocarbon Pattern Recognition Standards

This book contains chromatography for the various petroleum products typically found during LUFT/LUST site investigations. The chromatography shows each fuel pattern in a 25 minute analytical run for early eluting petroleum products like gasoline to late eluting products like motor oil. In addition, an *n*-alkane standard (DRH-008S) analyzed under identical conditions has been overlaid on each petroleum product chromatogram. Use of the book will assist the chemist's identification of the fuel for pattern recognition.

The *n*-alkane standard (DRH-008S) overlay provides *n*-alkane reference points between the standard and the unknown sample. These beginning and ending *n*-alkane reference points can be used to establish gross hydrocarbon concentrations. By comparing the specific *n*-alkane range of the closest identified petroleum standard to that of the unknown sample, a reproducible gross hydrocarbon number can be achieved.

Motor Oil Composite Standard

MO-COMP-D-40X	1 x 1 mL
5000 µg/mL each in CH ₂ Cl ₂ , 4 comps.	
5w30 Motor oil	
10w30 Motor oil	
10w40 Motor oil	
20w50 Motor oil	

TOTAL PETROLEUM HYDROCARBON



PATTERN RECOGNITION STANDARDS

AccuStandard, Inc.

To Order:
TPH Book
BOOK-TPH

LUFT/LUST

LUFT/LUST Standards

Gasoline Range

Gasoline Range Hydrocarbon Analysis

EPA Method - Gasoline Range Hydrocarbons

Gasoline Standard

GRH-002S At stated conc. in MeOH			1 x 1 mL 10 comps.
2-Methylpentane (1.5 mg/mL)	Ethylbenzene (0.5 mg/mL)		
2,2,4-Trimethylpentane (1.5 mg/mL)	<i>m</i> -Xylene (1.0 mg/mL)		
Heptane (0.5 mg/mL)	<i>p</i> -Xylene (1.0 mg/mL)		
Benzene (0.5 mg/mL)	<i>o</i> -Xylene (1.0 mg/mL)		
Toluene (1.5 mg/mL)	1,2,4-Trimethylbenzene (1.0 mg/mL)		

Internal Standard

GARH-IS 1.0 mg/mL in CH ₂ Cl ₂	1 x 1 mL
Chloro-4-fluorobenzene	

Surrogate Standard

GARH-SS 2.5 mg/mL in Acetone	1 x 1 mL
4-Bromofluorobenzene	

Gasoline Additives

GAD-001 GAD-001-PAK 0.2 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 4 comps.
Dibromomethane	1,2-Dichloroethane
1,2-Dibromoethane	Methyl t-butyl ether

Technical Note

Simultaneous BTEX/Gasoline QA/QC

AccuStandard's QA/QC department has certified the benzene, toluene, ethyl benzene and xylene concentrations in our unleaded gasoline standard. Use of **GA-001-20X-BTEX** allows the analytical chemist in a single injection to verify that QA/QC requirements are being met for the BTEX analytes as well as the gasoline.

AccuStandard's Product Development Team continues to look for innovative approaches to save the analytical laboratory time and money.

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX 10.0 mg/mL in MeOH	1 x 1 mL
Regular unleaded gasoline	

Hexadecane Extraction Volatiles

CLP-BTEX CLP-BTEX-PAK 0.2 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 6 comps.
CLP-BTEX-10X CLP-BTEX-10X-PAK 2.0 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 6 comps.
Benzene	<i>o</i> -Xylene
Ethyl benzene	<i>m</i> -Xylene
Toluene	<i>p</i> -Xylene

California - Gasoline Range Hydrocarbons

S-603A-10X S-603A-10X-PAK 2.0 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 7 comps.
SAVE 25%	
Benzene	<i>o</i> -Xylene
Ethylbenzene	<i>m</i> -Xylene
Methyl t-butyl ether	<i>p</i> -Xylene
Toluene	

Los Angeles County Well Investigation and Monitoring Program

Purgeable Aromatics - Gasoline ID

M-602-GAS-10X 2.0 mg/mL each in MeOH	1 x 1 mL 11 comps.
Benzene	Toluene
Chlorobenzene	<i>o</i> -Xylene
1,2-Dichlorobenzene	<i>p</i> -Xylene
1,3-Dichlorobenzene	<i>m</i> -Xylene
1,4-Dichlorobenzene	MtBE
Ethylbenzene	

Oxygenate Gasoline Additive Standard

OGAD-001 OGAD-001-PAK At stated conc. in MeOH	1 x 1 mL 1 x 1 mL 5 comps.
MtBE (2000 µg/mL)	TAME (2000 µg/mL)
ETBE (2000 µg/mL)	t-Butanol (10000 µg/mL)
Isopropyl ether (2000 µg/mL)	

Ethanol

M-8015B/5031-11 10 mg/mL in Water	1 x 1 mL
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Methanol

M-8015B/5031-17 10 mg/mL in Water	1 x 1 mL
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Pennsylvania DER - Gasoline Range Hydrocarbons

GRH-001S GRH-001S-PAK 1.0 mg/mL each in MeOH	1 x 1 mL 1 x 1 mL 10 comps.
Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	2,2,4-Trimethylpentane
Heptane	<i>o</i> -Xylene
2-Methyl pentane	<i>m</i> -Xylene
Toluene	<i>p</i> -Xylene

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S GRH-003S-PAK 2.0 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 10 comps.
Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	1,3,5-Trimethylbenzene
MtBE	<i>o</i> -Xylene
Naphthalene	<i>m</i> -Xylene
Toluene	<i>p</i> -Xylene

LUFT/LUST Standards

Diesel Range

LUFT/LUST DRH



Diesel Range Hydrocarbon Analysis

EPA Method - Diesel Range Hydrocarbons

DRH-001S 1 x 1 mL
0.2 mg/mL each in CH₂Cl₂: Hexane (1:1) 10 comps.

DRH-001S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂: Hexane (1:1) 10 comps.

n-Decane C₁₀ *n*-Hexadecane C₁₆ *n*-Docosane C₂₂ *n*-Hexacosane C₂₆
n-Dodecane C₁₂ *n*-Octadecane C₁₈ *n*-Tetracosane C₂₄ *n*-Octacosane C₂₈
n-Tetradecane C₁₄ *n*-Eicosane C₂₀

Surrogate Standard

GRH-SS 1 x 1 mL
GRH-SS-PAK 5 x 1 mL

2.0 mg/mL in Acetone
o-Terphenyl (OTP)

Internal Standard

GRH-IS 1 x 1 mL
GRH-IS-PAK 5 x 1 mL

1.0 mg/mL in CH₂Cl₂
5-alpha Androstane

Calibration/Window Defining Hydrocarbon Standard

DRH-004S-5X 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂: CS₂ (1:1) 17 comps.

Octane C₈ Octadecane C₁₈ Hexacosane C₂₆ Tetratriacontane C₃₄
Decane C₁₀ Eicosane C₂₀ Octacosane C₂₈ Hexatriacontane C₃₆
Dodecane C₁₂ Docosane C₂₂ Triacontane C₃₀ Octatriacontane C₃₈
Tetradecane C₁₄ Tetracosane C₂₄ Dotriacontane C₃₂ Tetracontane C₄₀
Hexadecane C₁₆

Surrogate Standard

DRH-SS 1 x 1 mL
DRH-SS-PAK 5 x 1 mL

5.0 mg/mL in THF
n-Triacontane-d₆₂

D-2887 Calibration Solution

Calibration Solution

DRH-002S 1 x 1 mL
At stated conc. in CS₂ 17 comps.

Hexane (600 µg/mL)	Dodecane (1,200 µg/mL)	Octacosane (100 µg/mL)
Heptane (600 µg/mL)	Tetradecane (1,200 µg/mL)	Dotriacontane (100 µg/mL)
Octane (800 µg/mL)	Hexadecane (1,000 µg/mL)	Hexatriacontane (100 µg/mL)
Nonane (800 µg/mL)	Octadecane (500 µg/mL)	Tetracontane (100 µg/mL)
Decane (1,200 µg/mL)	Eicosane (200 µg/mL)	Tetratetracontane (100 µg/mL)
Undecane (1,200 µg/mL)	Tetracosane (200 µg/mL)	

Column Test Mixture

ASTM-D2887 1 x 1 mL
1% v/v in *n*-Octane 2 comps.
n-Hexadecane *n*-Octadecane

Wisconsin Diesel Range Hydrocarbons

DRH-003S 1 x 1 mL
0.2 mg/mL each in Hexane 11 comps.

n-Decane C₁₀ *n*-Tetradecane C₁₄ *n*-Octadecane C₁₈
n-Undecane C₁₁ *n*-Pentadecane C₁₅ *n*-Nonadecane C₁₉
n-Dodecane C₁₂ *n*-Hexadecane C₁₆ *n*-Eicosane C₂₀
n-Tridecane C₁₃ *n*-Heptadecane C₁₇

Complete Hydrocarbon Analysis

Multi-State Hydrocarbon Window Defining Standard

DRH-008S-R2 1 x 1 mL
DRH-008S-R2-PAK 5 x 1 mL
500 µg/mL each in Chloroform 35 comps.

Octane	Heptadecane	Tetracosane	Tritriacontane
Nonane	Pristane	Pentacosane	Tetratriacontane
Decane	Octadecane	Hexacosane	Pentatriacontane
Undecane	Phytane	Heptacosane	Hexatriacontane
Dodecane	Nonadecane	Octacosane	Heptatriacontane
Tridecane	Eicosane	Nonacosane	Octatriacontane
Tetradecane	Heneicosane	Triacosane	Nonatriacontane
Pentadecane	Docosane	<i>n</i> -Hentriacontane	Tetracontane
Hexadecane	Tricosane	Dotriacontane	

Technical Note

AccuStandard offers a hydrocarbon window defining standard with the C₈ to C₃₀ odd and even Alkanes. Use of this one standard should meet the numerous State to State variations for hydrocarbon validation and reporting. As an added benefit AccuStandard included pristane and phytane in the formulation. Again, use of this one standard can meet numerous LUFT/LUST programs requiring that the C₁₇/pristane and C₁₇/phytane ratio be used to estimate subsurface degradation of fuel oil spills.

If you prefer, AccuStandard has also developed a fuel oil degradation mixture containing just the four required analytes to determine the C₁₇/pristane and C₁₈/phytane ratio.
Cat. No. DRH-005S-10X

Fuel Oil Degradation/Retention Time Mixture for quantification of C₁₇/Pristane and C₁₈/Phytane ratios

DRH-005S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂: CS₂ (1:1) 4 comps.

Heptadecane Phytane (2,6,10,14-Tetramethylhexadecane)
Octadecane Pristane (2,6,10,14-Tetramethylpentadecane)

Hydrocarbon Window Defining Standard Set

DRH-FTRPH-SET 2 x 1 mL
DRH-FTRPH-SET-PAK 5 (2 x 1 mL)
500 µg/mL each in Hexane

FTRPH Calibration/Window Defining Standard

DRH-FTRPH 1 x 1 mL
DRH-FTRPH-PAK 5 x 1 mL
500 µg/mL each in Hexane **SAVE 15%** 17 comps.

<i>n</i> -Octane	<i>n</i> -Octadecane	<i>n</i> -Octacosane	<i>n</i> -Hexatriacontane
<i>n</i> -Decane	<i>n</i> -Eicosane	<i>n</i> -Triacontane	<i>n</i> -Octatriacontane
<i>n</i> -Dodecane	<i>n</i> -Docosane	<i>n</i> -Dotriacontane	<i>n</i> -Tetracontane
<i>n</i> -Tetradecane	<i>n</i> -Tetracosane	<i>n</i> -Tetratriacontane	
<i>n</i> -Hexadecane	<i>n</i> -Hexacosane		

Hydrocarbon Window Defining Standard

DRH-FTRPH2 1 x 1 mL
DRH-FTRPH2-PAK 5 x 1 mL
500 µg/mL each in Hexane 18 comps.

<i>n</i> -Nonane	Pristane	<i>n</i> -Pentacosane	<i>n</i> -Tritriacontane
<i>n</i> -Undecane	Phytane	<i>n</i> -Heptacosane	<i>n</i> -Pentatriacontane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Nonacosane	<i>n</i> -Heptatriacontane
<i>n</i> -Pentadecane	<i>n</i> -Heneicosane	<i>n</i> -Hentriacontane	<i>n</i> -Nonatriacontane
<i>n</i> -Heptadecane	<i>n</i> -Tricosane		

LUFT/LUST

SUFFIX KEY
 "AS" = Formal PT Study
 "AT" = Pre-Test
 "AV" = Values Included

Petro PT Samples

New PT Samples Gasoline & Diesel

The new Gasoline PT sample allows laboratories to test for gasoline TPH. This sample can also be used to test for the BTEX concentrations so the lab can use this product for method 602, 8020, 8021 and 8015 modified. The sample can also be used to reduce analytical bias by using the recommended calibration standard listed with the PT sample when conducting PT studies. AccuStandard is the one ISO 9001 standard manufacturer capable of supplying not only the PT sample(s), but also a wide variety of calibration standards to meet your specific TPH Method requirement.

Oxygenate PT Sample

With MtBE contamination problems in drinking water, numerous states are now requiring certification for Oxygenate monitoring. Join AccuStandard's next study for Oxygenate analysis. Our timely PT schedule easily allows your lab to be proactive in new regulatory requirements. The analytes in the standard and the PT sample have been drawn from the California list of known prevalent oxygenates in gasoline. These new Oxygenate PT samples and standards allow your Lab to:

- Expand testing capabilities
- Generate new testing revenue
- Eliminate standard preparation
- Easily combine with other AccuStandard Volatile standards.

WS-PT Oxygenates

OPE-OXY-001-AS * 2 mL
 OPE-OXY-001-AT * 2 mL
 OPE-OXY-001-AV * 2 mL

Sample conc. after prep 5.0-50 µg/L
 Contains 4 analytes listed below

ETBE	MTBE
Diisopropylether	TAME

Suggested Calibration Standard

Oxygenate Gasoline Additive Standard

OGAD-001	1 x 1 mL
OGAD-001-PAK	5 x 1 mL
At stated conc. in MeOH	
MtBE (2000 µg/mL)	TAME (2000 µg/mL)
ETBE (2000 µg/mL)	t-Butanol (10000 µg/mL)
Isopropyl ether (2000 µg/mL)	

WP-PT Oil, Grease & TPH

IPE-OILG-001-AS * 5 mL
 IPE-OILG-001-AT * 5 mL
 IPE-OILG-001-AV * 5 mL
 Sample conc. after prep
 Contains 2 analytes listed below

Analyte List	Sample range
Total Oil & Grease †	5-100 mg/L
TPH	5-100 mg/L

Technical Note

This PT sample can be used by gravimetric oil and grease methods. In addition, it can also be used for TPH analysis by gravimetric methods including the EPA method 1664. The sample contains real world material commonly found at petroleum containment sites.

Suggested Calibration Standard

Oil and Grease

WC-OILG-10X-1 100 mL
 1000 µg/mL Total Oil and Grease in n-Propanol
 Contains 500 µg/mL vegetable oil and 500 µg/mL of petroleum oil.
 Shake well before use.

* Designed for NELAC/CA



† indicates these are included in the NVLAP Scope of Accreditation
 †† indicates kits. See individual Cat. No.s for Accreditation status of analytes

Method 1664 Oil, Grease & Total Petroleum Hydrocarbon Determination

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML	1 x 5 mL
M-1664-5ML-PAK	5 x 5 mL
4.0 mg/mL each in Acetone	2 comps.
M-1664-20ML	1 x 20 mL
M-1664-20ML-PAK	5 x 20 mL
4.0 mg/mL each in Acetone	2 comps.
Hexadecane	Stearic acid

Technical Note

AccuStandard's Precision and Recovery (PAR) Spiking Solution was developed for the new Method 1664. This performance based method was developed to replace previous gravimetric procedures which incorporated Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule conveniently sized for quality control of the analytical batch.

Method 413.2 & 418.1 Total Petroleum Hydrocarbon Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON	1 x 1 mL
% by volume	3 comps.
Chlorobenzene (25.0)	Hexadecane (37.5)
Isooctane (37.5)	

Oil, Grease and Petroleum Hydrocarbon Total Recoverable (IR Method)

M-418	1 x 1 mL
M-418-PAK	5 x 1 mL
Total 4.15 mg/mL in Freon 113, (Parts by volume)	3 comps.
Chlorobenzene (10.0)	Isooctane (15.0)
n-Hexadecane (15.0)	

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440	1 x 1 mL
M-8440-PAK	5 x 1 mL
At stated conc. in Tetrachloroethene	3 comps.
Chlorobenzene (0.10 w/w %)	Isooctane (0.15 w/w %)
n-Hexadecane (0.15 w/w %)	

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON	1 x 1 mL
M-8440-CON-PAK	5 x 1 mL
	3 comps.
Chlorobenzene (25.0 vol %)	Isooctane (37.5 vol %)
n-Hexadecane (37.5 vol %)	

Silica Gel Cleanup Calibration Solution

M-8440-SGC	1 x 1 mL
M-8440-SGC-PAK	5 x 1 mL
10.0 mg/mL in Tetrachloroethene	
Corn Oil	

Leaking Underground Storage Tank Retention Time Standard

This product can be used to screen a sample to determine what type of petroleum spill that may have caused the contamination.

Retention Time Standard

DRH-010S	1 x 1 mL	
DRH-010S-PAK	5 x 1 mL	
25 µg/mL each in CH ₂ Cl ₂	7 comps.	
n-Hexane	n-Tetracosane	n-Triacontane
n-Decane	n-Octacosane	n-Tetracontane
n-Dodecane		

Technical Note

A sample showing peaks in the C₆-C₁₀ range generally indicates a gasoline spill. Samples with the peaks in the C₂₄-C₁₂ range are indicative of a diesel spill while samples with the higher carbon numbers above C₂₄ are typically oils or lubricants. Once the initial screen is complete, more detailed work can be done to further identify the contaminant.

Total Petroleum Hydrocarbon Pattern Recognition Standards

This book contains chromatography for the various petroleum products typically found during LUFT/LUST site investigations. The chromatography shows each fuel pattern in a 25 minute analytical run for early eluting petroleum products like gasoline to late eluting products like motor oil. In addition, an n-alkane standard (DRH-008S) analyzed under identical conditions has been overlaid on each petroleum product chromatogram. Use of the book will assist the chemist's identification of the fuel for pattern recognition.

The n-alkane standard (DRH-008S) overlay provides n-alkane reference points between the standard and the unknown sample. These beginning and ending n-alkane reference points can be used to establish gross hydrocarbon concentrations. By comparing the specific n-alkane range of the closest identified petroleum standard to that of the unknown sample a reproducible gross hydrocarbon number can be achieved. To Order, **BOOK-TPH**

TOTAL PETROLEUM HYDROCARBON



PATTERN RECOGNITION STANDARDS

AccuStandard, Inc.

LUFT/LUST

LUFT/LUST Standards

Automotive Engine Exhaust, Refinery Waste (Skinner List)

Alcohol Oxidation Products in Automotive Engine Exhaust by HPLC of DNPH derivatives

The California Air Resources Board, in conjunction with some of the larger automobile manufacturers, has developed an HPLC method in which the 2,4-Dinitrophenylhydrazine derivatives of the by-products are quantitated.

Method 1004 Carbonyl Compounds as DNPH deriv. by HPLC

Carbonyl Compounds as DNPH deriv. by HPLC California Air Resources Board Method 1004

M-1004	1 x 1 mL
At stated conc. in AcCN	13 comps.
M-1004-10X	1 x 1 mL
At 10 times the stated conc. in AcCN	13 comps.

	Carbonyl Compound	DNPH Derivative
Acetaldehyde	(3.0 µg/mL)	(15.3 µg/mL)
Acetone	(3.0 µg/mL)	(12.3 µg/mL)
Acrolein	(3.0 µg/mL)	(12.7 µg/mL)
Benzaldehyde	(3.0 µg/mL)	(8.1 µg/mL)
2-Butanone (MEK)	(3.0 µg/mL)	(10.5 µg/mL)
n-Butyraldehyde	(3.0 µg/mL)	(10.5 µg/mL)
Crotonaldehyde	(3.0 µg/mL)	(10.7 µg/mL)
Formaldehyde	(3.0 µg/mL)	(21.0 µg/mL)
Hexanal	(3.0 µg/mL)	(8.4 µg/mL)
Methacrolein	(3.0 µg/mL)	(10.7 µg/mL)
Propionaldehyde	(3.0 µg/mL)	(12.3 µg/mL)
m-Tolualdehyde	(3.0 µg/mL)	(7.5 µg/mL)
Valeraldehyde	(3.0 µg/mL)	(9.3 µg/mL)

CAR-DNPH	1 x 1 mL
At stated conc. in AcCN as DNPH derivatives	7 comps.

Acetaldehyde (1000 µg/mL)	Butyraldehyde (500 µg/mL)
Acetone (500 µg/mL)	Formaldehyde (1500 µg/mL)
Acrolein (500 µg/mL)	Propionaldehyde (500 µg/mL)
Benzaldehyde (500 µg/mL)	

Reference Gas Oil Sample

RGS-001	1 x 1 mL
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Hydrocarbon Mixture
(boiling point range 250-850 °F)

ASTM E-1387 Resolution Check Mix for Fire Debris Analysis

Resolution Check Mix

ASTM-E1387	1 x 1 mL
ASTM-E1387-PAK	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	13 comps.

Decane	Hexadecane	Tetradecane
Dodecane	Hexane	Toluene
Eicosane	Octadecane	1,2,4-Trimethylbenzene
2-Ethyltoluene	Octane	p-Xylene
3-Ethyltoluene		

ASTM E-1618 Resolution Check Mix for Fire Debris Analysis

Test Mix for Fire Debris Analysis

ASTM-E1618	1 x 1 mL
ASTM-E1618-PAK	5 x 1 mL
0.05% v/v (0.50 µL/mL) each in CH ₂ Cl ₂	13 comps.

n-Decane	n-Hexadecane	n-Tetradecane
n-Dodecane	n-Hexane	Toluene
n-Eicosane	n-Octadecane	1,2,4-Trimethylbenzene
o-Ethyltoluene	n-Octane	p-Xylene
m-Ethyltoluene		

Skinner List for Refinery Waste

Semi-Volatiles

Base/Neutral Extractables

M-005B	0.2 mg/mL each in CH ₂ Cl ₂	1 x 1 mL
M-005B-PAK	0.2 mg/mL each in CH ₂ Cl ₂	5 x 1 mL
M-005B-10X	2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL
M-005B-10X-PAK	2.0 mg/mL each in CH ₂ Cl ₂	5 x 1 mL
		27 comps.

Anthracene	7,12-Dimethylbenz[a]anthracene
Benzo[a]anthracene	Dimethyl phthalate
Benzo[b]fluoranthene	Di-n-butyl phthalate
Benzo[k]fluoranthene	Di-n-octyl phthalate
Benzo[a]pyrene	Indene
bis(2-Ethylhexyl)phthalate	Fluoranthene
Butyl benzyl phthalate	6-Methylchrysene
Chrysene	1-Methylnaphthalene
Dibenz[a,h]acridine	Naphthalene
Dibenz[a,h]anthracene	Phenanthrene
o-Dichlorobenzene	Pyrene
m-Dichlorobenzene	Pyridine
p-Dichlorobenzene	Quinoline
Diethyl phthalate	

Acid Extractables

M-005A	0.2 mg/mL each in CH ₂ Cl ₂	1 x 1 mL
M-005A-PAK	0.2 mg/mL each in CH ₂ Cl ₂	5 x 1 mL
M-005A-10X	2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL
M-005A-10X-PAK	2.0 mg/mL each in CH ₂ Cl ₂	5 x 1 mL
		8 comps.

o-Cresol	4-Nitrophenol
m-Cresol	Phenol
p-Cresol	Thiophenol
2,4-Dimethylphenol	
2,4-Dinitrophenol	

Volatiles

M-005V	0.2 mg/mL each in MeOH	1 x 1 mL
M-005V-PAK	0.2 mg/mL each in MeOH	5 x 1 mL
M-005V-10X	2.0 mg/mL each in MeOH	1 x 1 mL
M-005V-10X-PAK	2.0 mg/mL each in MeOH	5 x 1 mL
		14 comps.

Benzene	Ethylene dibromide
Carbon disulfide	Methyl ethyl ketone
Chlorobenzene	Styrene
Chloroform	Toluene
1,2-Dichloroethane	o-Xylene
1,4-Dioxane	m-Xylene
Ethyl benzene	p-Xylene

AK-101-GSC- R1:82	AK-102.0- IS:83	AK-103AA- RRO-PAK:84	001S:95 DRH-001S-	DRH-008S- R1:86, 95
AK-101-GSC- R1-PAK:82	AK-102.0-IS- PAK:83	AK102.0- LCS-10X:83	10X:95 DRH-	DRH-008S- R1-PAK:86, 95
AK-101.0- GCS:82	AK-102.0- LCS:83	AK102.0- LCS-10X-PAK:83	002S:95 DRH-	DRH- 009S:85
AK-101.0- GCS-BTEX:82, 90	AK-102.0- LCS-PAK:83	AK102.0- LCS-R1-10X:83	003S:95 DRH-004S-	DRH-009S- PAK:85
AK-101.0- GCS-PAK:82	AK-102.0- NAS-10X:83, 86	AK102.0- LCS-R1-10X- PAK:83	5X:86, 95 DRH-005S-	DRH- 010S:97
AK-101.0-IS- 10X:82	AK-102.0- NAS-10X-PAK:83, 86	AK102.0-SS- 10X:83	10X:95 DRH-006-	DRH-010S- PAK:97
AK-101.0-IS- 10X-PAK:82	AK-102.0- SS:83	AK102.0-SS- 10X-PAK:83	DRH-006- CAL-10X:87	DRH-FL- SS:86
AK-101.0- LCS:82	AK-102.0-SS- 10X:85	ASTM- D2887:95	CAL-1X:87 DRH-006-	DRH-FL-SS- 3X:86
AK-101.0- LCS-PAK:82	AK-102.0-SS- 10X-PAK:85	ASTM- E1387:98	CAL-20X:87 DRH-006-	DRH-FL-SS- 3X-PAK:86
AK-101.0- NAS-10X:82	AK-102.0-SS- PAK:83	ASTM- E1387-PAK:98	CAL-40X:87 DRH-006-	DRH-FL-SS- PAK:86
AK-101.0- NAS-10X-PAK:82	AK- 102/103AA-RT:84	ASTM- E1618:98	CAL-4X:87 DRH-006-	DRH- FTRPH:86, 95
AK-101.0- SS:82	AK- 102/103AA-RT- PAK:84	ASTM- E1618-PAK:98	CAL-SET:87 DRH-006-	DRH-FTRPH- PAK:86, 95
AK-101.0-SS- 100X:82	AK- 102/103AA-SS:84	AZ-8015- DRO/ORO:85	SS:88, 91 DRH-006-SS-	DRH-FTRPH- SET:95
AK-101.0-SS- 100X-PAK:82	AK- 102/103AA-SS- PAK:84	AZ-8015- DRO/ORO- PAK:85	PAK:88, 91 DRH-	DRH-FTRPH- SET-PAK:95
AK-101.0-SS- 10X:82	AK- 102/103AA-SS- PAK:84	AZ-8015- RTV:85	006S:87 DRH-006S-	DRH- FTRPH2:95
AK-101.0-SS- 10X-PAK:82	AK-102AA- DRO:84	AZ-8015- RTV-PAK:85	PAK:87 DRH-007-	DRH- FTRPH2-PAK:95
AK-101.0-SS- PAK:82	AK-102AA- DRO-PAK:84	AZ-8015- SCS:85	DRH-007- CAL-10X:87	DRH-MA- FSS-10ML:88
AK-101AA- ARO:82	AK-103.0- LCS:84	AZ-8015- SCS-PAK:85	DRH-007- CAL-1X:87	DRH-MA- FSS-50X:88
AK-101AA- ARO-PAK:82	AK-103.0- LCS-5X:84	BOOK- TPH:93	DRH-007- CAL-20X:87	DRH-MA- FSS-50X-PAK:88
AK-102.0- DCS:83	AK-103.0- LCS-5X-PAK:84	CAR- DNPH:98	DRH-007- CAL-40X:87	DRH-MA- MS:87
AK-102.0- DCS-10X:83	AK-103.0- LCS-PAK:84	CLP- BTEX:94	DRH-007- CAL-4X:87	DRH-MA-MS- 10X:87
AK-102.0- DCS-10X-PAK:83	AK-103.0- RCS:84	CLP-BTEX- 10X:94	DRH-007- CAL-SET:87	DRH-MA-MS- 10X-PAK:87
AK-102.0- DCS-PAK:83	AK-103.0- RCS-PAK:84	CLP-BTEX- 10X-PAK:94	DRH-007- SS:87, 91	DRH-MA-MS- 40X:87
AK-102.0- DCS-R1-10X:83	AK-103.0-SS- PAK:84	CLP-BTEX- PAK:94	DRH-007-SS- PAK:87, 91	DRH-MA-MS- 40X-PAK:87
AK-102.0- DCS-R1-10X- PAK:83	AK-103AA- RRO:84	DRH-	DRH- 007S:87	DRH-MA-MS- PAK:87
			DRH-007S- PAK:87	DRH-MA-