Reference Standards

Improve Underground Storage Tank Compliance Monitoring with Restek CRMs

- Precisely prepared composite and single source standards.
- Extensive offering for state-specific methods.
- Produced in our ISO-accredited labs to satisfy requirements for certified reference materials (CRMs).

RESTEK Pure Chromatography www.restek.com

Improve Underground Storage Tanks Compliance Monitoring with Restek Certified Reference Materials (CRMs)

Monitoring underground storage tanks (UST) for leaks is an ongoing process. The deadline to upgrade older tanks to new federal requirements, as specified in 40 CFR 280, has long since passed. However, many tanks in the United States have yet to be upgraded or closed. Consequently, leaking underground storage tanks (LUST) remain an active area of research. Many states continue to modify existing analytical methods, with several states now using risk-based management of the compounds involved. These methods often pose challenges to the analyst and require unique mixtures for calibration and matrix spike samples.

Restek continues to track new developments in UST/LUST monitoring and to respond with calibration mixes to meet these needs. For a complete listing of all of our fuel standards, visit **www.restek.com**

Fuel Composite Standards

Unleaded Gasoline Composite Standard

- Unleaded gasoline composite standards are comprised of three separate sources each of 87, 89, and 93 octane blended in equal portions.
- Gasoline standards may exhibit lot-to-lot variation.

Unleaded gasoline composite (8006-61-9)

2,500 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30081 (ea.)
50,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30205 (ea.)
50,000 µg/mL in P&T methanol, 5 mL/ampul	cat.# 30206 (ea.)

NOTE: BTEX content of catalog numbers 30081, 30205, and 30206 is not measured. Certified BTEX gasoline standards are available as catalog numbers 30237 and 30485.

Diesel Fuel #2 Composite Standard

- Diesel Fuel composite standards are comprised of three separate sources blended in equal portions.
- Diesel Fuel standards may exhibit lot-to-lot variation.

Diesel fuel #2 composite (68334-30-5)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31093 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31258 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31259 (ea.)

NOTE: A Certified PAH in Diesel standard is available as catalog number 31673.

Certified reference materials (CRMs) manufactured and QC-tested in ISO-accredited labs satisfy your ISO requirements.

Kerosene Composite Standard

- Kerosene composite standards are comprised of three separate sources blended in equal portions.
- Kerosene standards may exhibit lot-to-lot variation.

Kerosene composite (84742-81-0)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31094 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31256 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31257 (ea.)

Motor Oil Composite Standards

Motor Oil Composite Standard

- Prepared from an equal-volume blend of 5W30, 10W30, 10W40, and 20W50 motor oils. After blending, a precisely weighed amount of the composite is added to a volumetric flask to produce the standard.
- Motor Oil standards may exhibit lot-to-lot variation.

Motor oil composite (64742-65-0)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31464 (ea.)

Used Motor Oil Composite Standard

- Prepared from an equal-volume blend from five gasoline-powered vehicles (belonging to Restek employees). After blending, a precisely weighed amount of the composite is added to a volumetric flask to produce the standard.
- Motor Oil standards may exhibit lot-to-lot variation.

Used motor oil composite (64742-65-0)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31465 (ea.)

Single Source Fuels

Unleaded Gasoline Standard

Prepared from a single-source (one-refinery) product.

Unleaded gasoline: unweathered (8006-61-9)

5,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30096 (ea.)

Kerosene Standard

Prepared from a single-source (one-refinery) product.

Kerosene: unweathered (84742-81-0)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31229 (ea.)

Diesel Fuel #2 Standard

Prepared from a single-source (one-refinery) product.

Diesel fuel #2: unweathered (68334-30-5)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31233 (ea.)

Fuel Oil #4 Standard

Fuel oil #4 is typically used in limited applications in which the fuel cannot be preheated prior to burning. The fuel is a blend of distillate (fuel oil #2) and residual (fuel oil #6).

Fuel oil #4 (68476-31-3)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31216 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31244 (ea.)

Fuel Oil #6 Standard

A high-viscosity residual type of heavy fuel oil requiring pre-heating to 104–127 °C. This material is also known as residual fuel oil (RFO) or Bunker C.

Fuel oil #6 (68553-00-4)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31218 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31248 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31249 (ea.)

Diesel:Biodiesel (80:20) Blend Standard

The biodiesel component is methyl soyate.

Diesel:biodiesel (80:20) (67784-80-9)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31880 (ea.)

Aviation Gas Standard

100-octane, low-lead fuel used in piston-type aircraft.

Aviation gas (8006-69-1)

50,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30207 (ea.)

Jet Fuel A Standard

Jet fuel A (64742-47-8)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31215 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31242 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31243 (ea.)

Creosote Oil Standard

Creosote oil is a coal tar derived distillate.

- For total petroleum hydrocarbon pattern recognition of creosote oil.
- High concentration—50,000 µg/mL in methylene chloride.

Creosote oil (8001-58-9)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31838 (ea.)

Hydraulic Oil Standard

Hydraulic oil (64741-89-5)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31839 (ea.)

Military Fuels (Jet Propellant)

JP-4 Military Fuel Standard

JP-4 Military fuel (94114-58-6)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31219 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31250 (ea.)
50,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30472 (ea.)

JP-5 Military Fuel Standard

JP-5 Military fuel (8008-20-6)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31252 (ea.)

JP-8 Military Fuel Standard

JP-8 Military fuel (94114-58-6)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31254 (ea.)

Fuel Surrogates and Internal Standards

Gasoline Surrogate and Internal Standards

Volume is 1 mL/ampul. Concentration is µg/mL.

Compound	CAS #	Solvent	Conc.	cat.#
1-Bromo-4-fluorobenzene (BFB)	460-00-4	PTM	2,500	30067
1-Bromo-4-fluorobenzene (BFB)	460-00-4	PTM	10,000	30082
1-Chlorooctane	111-85-3	PTM	10,000	30084
α,α,α-Trifluorotoluene	98-08-8	PTM	2,500	30068
α,α,α-Trifluorotoluene	98-08-8	PTM	10,000	30083

Recommended Internal Standard (PID) for EPA GRO Method

Volume is 1 mL/ampul. Concentration is µg/mL.

Compound	CAS #	Solvent	Conc.	cat.#
1-Chloro-4-fluorobenzene	352-33-0	PTM	2,500	30066

PTM = Purge-and-trap grade methanol

Diesel Surrogate and Internal Standards

Volume is 1 mL/ampul. Concentration is µg/mL.

Compound	CAS #	Solvent	Conc.	cat.#
1-Chlorooctadecane	3386-33-2	D	10,000	31098
2-Fluorobiphenyl	321-60-8	D	10,000	31096
o-Terphenyl	84-15-1	D	10,000	31097
p-Terphenyl	92-94-4	D	10,000	31095

Recommended Internal Standards

Volume is 1 mL/ampul. Concentration is µg/mL.

Compound	CAS #	Solvent	Conc.	cat.#
5-α-Androstane	438-22-2	D	2,000	31065
o-Terphenyl	84-15-1	A	2,000	31066

A = acetone; D = methylene chloride

Diesel/Biodiesel Standard

Diesel:Biodiesel (80:20) Blend Standard

The biodiesel component is methyl soyate.

Diesel:biodiesel (80:20) (67784-80-9)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31880 (ea.)

did you know?

We have more than 4,000 pure, characterized, neat compounds in our inventory! If you do not see the EXACT mixture you need listed on any of these pages, call us or visit www.restek.com for more information.

Underground Storage Tank Monitoring (UST): State-Specific Methods

Restek carries hydrocarbon standards for these state methods:

- Alaska
- Arizona
- California/Los Angeles
- Connecticut
- Florida
- Massachusetts
- Mississippi
- Northwest (Oregon & Washington)
- Pennsylvania
- Tennessee/Mississippi
- Texas
- Washington
- Wisconsin

Alaska

Alaska Department of Environmental Conservation (ADEC) regulations indicate which products and indicator compounds are to be tested for each petroleum range. The analyst must use the following Alaska Series Methods or appropriate SW-846 method for the indicator compounds. The Alaska UST procedurals manual indicates which products are to be tested for each petroleum range.

AK101

Method for determination of aromatic and aliphatic hydrocarbons in gasoline range organics.

Unleaded Gasoline Composite Standard

Unleaded gasoline composite (8006-61-9)

2,500 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30081 (ea.)
50,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30205 (ea.)
50,000 µg/mL in P&T methanol, 5 mL/ampul	cat.# 30206 (ea.)

NOTE: BTEX content of catalog numbers 30081, 30205, and 30206 is not measured. Certified BTEX gasoline standards are available as catalog numbers 30237 and 30485.

1-Chloro-4-fluorobenzene Mix

1-Chloro-4-fluorobenzene (352-33-0)

2,500 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30066 (ea.)

1-Bromo-4-fluorobenzene (BFB)

1-Bromo-4-fluorobenzene (BFB) (460-00-4)

2,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30026 (ea.)
2,500 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30067 (ea.)
10,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30082 (ea.)

α,α,α-Trifluorotoluene

α,α,α-Trifluorotoluene (98-08-8)

2,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30048 (ea.)
2,500 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30068 (ea.)
10,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30083 (ea.)

AK102

Method for determination of aromatic and aliphatic hydrocarbons in diesel range organics.

DRO Mix (Tennessee/Mississippi) (16 components)

(C10) *n*-Decane (124-18-5)	(C18) *n*-Octadecane (593-45-3)
(C11) *n*-Undecane (1120-21-4)	(C19) *n*-Nonadecane (629-92-5)
(C12) *n*-Dodecane (112-40-3)	(C20) *n*-Eicosane (112-95-8)
(C13) *n*-Tridecane (629-50-5)	(C21) *n*-Heneicosane (629-94-7)
(C14) *n*-Tetradecane (629-59-4)	(C22) *n*-Docosane (629-97-0)
(C15) *n*-Pentadecane (629-62-9)	(C23) *n*-Tricosane (638-67-5)
(C16) *n*-Hexadecane (544-76-3)	(C24) *n*-Tetracosane (646-31-1)
(C17) *n*-Heptadecane (629-78-7)	(C25) *n*-Pentacosane (629-99-2)

1,000 µg/mL each in methylene chloride, 1 mL/ampul — cat.# 31214 (ea.)

Kerosene Composite Standard

Kerosene composite (84742-81-0)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31094 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31256 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31257 (ea.)

Diesel Fuel #2 Composite Standard

Diesel fuel #2 composite (68334-30-5)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31093 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31258 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31259 (ea.)

NOTE: A Certified PAH in Diesel standard is available as catalog number 31673.

o-Terphenyl

o-Terphenyl (84-15-1)

2,000 µg/mL in acetone, 1 mL/ampul	cat.# 31066 (ea.)
10,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31097 (ea.)

5-α-Androstane

5-α-Androstane (438-22-2)

2,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31065 (ea.)

AK103

Method for determination of aromatic and aliphatic hydrocarbons in residual range organics.

Residual Range Calibration Standard (RCS) (2 components)

SAE30 motor oil:SAE40 motor oil (1:1) (64742-65-0)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31817 (ea.)

Motor Oil Composite Standard

Motor oil composite (64742-65-0)

50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31464 (ea.)

Fuel Oil #6 Standard

A high-viscosity residual type of heavy fuel oil requiring pre-heating to 104–127 °C. This material is also known as residual fuel oil (RFO) or Bunker C.

Fuel oil #6 (68553-00-4)

5,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31218 (ea.)
50,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31248 (ea.)
50,000 µg/mL in methylene chloride, 5 mL/ampul	cat.# 31249 (ea.)

Arizona

DRO/ORO Calibration Standard (2 components)

10W30 Motor oil (64742-65-0):diesel fuel #2 (68334-30-5) (1:1 blend)

25,000 µg/mL each in methylene chloride, 1 mL/ampul	cat.# 31831 (ea.)

o-Terphenyl

o-Terphenyl (84-15-1)

2,000 µg/mL in acetone, 1 mL/ampul	cat.# 31066 (ea.)
10,000 µg/mL in methylene chloride, 1 mL/ampul	cat.# 31097 (ea.)

California

PVOC Mix (California) (7 components)

Benzene (71-43-2)
Ethylbenzene (100-41-4)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Toluene (108-88-3)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

1,000 µg/mL each in P&T methanol, 1 mL/ampul	cat.# 30231 (ea.)

California Oxygenates Mix (5 components)

tert-Amyl methyl ether (TAME) (994-05-8), 2,000 µg/mL
tert-Butanol (TBA) (75-65-0), 10,000 µg/mL
Diisopropyl ether (DIPE) (108-20-3), 2,000 µg/mL
Ethyl-*tert*-butyl ether (ETBE) (637-92-3), 2,000 µg/mL
Methyl *tert*-butyl ether (MTBE) (1634-04-4), 2,000 µg/mL

In P&T methanol, 1 mL/ampul	cat.# 30465 (ea.)

Ethanol

Ethanol (64-17-5)

10,000 µg/mL in DI water, 1 mL/ampul	cat.# 30466 (ea.)
2,000 µg/mL in P&T methanol, 1 mL/ampul	cat.# 30288 (ea.)

Glycols Standard (2 components)

Ethylene glycol (107-21-1)
Propylene glycol (57-55-6)

50,000 µg/mL each in DI water, 1 mL/ampul	cat.# 30471 (ea.)

Los Angeles County, CA Well Investigation Program (WIP)*

CA WIP VOA Standard (11 components)

Benzene (71-43-2)
Chlorobenzene (108-90-7)
1,2-Dichlorobenzene (95-50-1)
1,3-Dichlorobenzene (541-73-1)
1,4-Dichlorobenzene (106-46-7)
Ethylbenzene (100-41-4)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Toluene (108-88-3)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

2,000 µg/mL each in P&T methanol, 1 mL/ampul	cat.# 30236 (ea.)

* For monitoring samples suspected of gasoline contamination, Los Angeles County requires laboratories to calibrate and report these compounds.

Spectra Gas 7621 High-Purity VOC Regulators

Description	qty.	cat.#
0–30 psig outlet pressure gauge	ea.	21572
0–100 psig outlet pressure gauge	ea.	21572-R100

Connecticut

Connecticut ETPH Calibration Mixture (15 components)

(C9) *n*-Nonane (111-84-2)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C14) *n*-Tetradecane (629-59-4)
(C16) *n*-Hexadecane (544-76-3)
(C18) *n*-Octadecane (593-45-3)
(C20) *n*-Eicosane (112-95-8)
(C22) *n*-Docosane (629-97-0)
(C24) *n*-Tetracosane (646-31-1)
(C26) *n*-Hexacosane (630-01-3)
(C28) *n*-Octacosane (630-02-4)
(C30) *n*-Triacontane (638-68-6)
(C32) *n*-Dotriacontane (544-85-4)
(C34) *n*-Tetratriacontane (14167-59-0)
(C36) *n*-Hexatriacontane (630-06-8)

1,000 µg/mL each in methylene chloride, 1 mL/ampul	cat.# 31614 (ea.)

Florida

Florida TRPH Standard (17 components)

(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C14) *n*-Tetradecane (629-59-4)
(C16) *n*-Hexadecane (544-76-3)
(C18) *n*-Octadecane (593-45-3)
(C20) *n*-Eicosane (112-95-8)
(C22) *n*-Docosane (629-97-0)
(C24) *n*-Tetracosane (646-31-1)
(C26) *n*-Hexacosane (630-01-3)
(C28) *n*-Octacosane (630-02-4)
(C30) *n*-Triacontane (638-68-6)
(C32) *n*-Dotriacontane (544-85-4)
(C34) *n*-Tetratriacontane (14167-59-0)
(C36) *n*-Hexatriacontane (630-06-8)
(C38) *n*-Octatriacontane (7194-85-6)
(C40) *n*-Tetracontane (4181-95-7)

500 µg/mL each in hexane, 1 mL/ampul	cat.# 31266 (ea.)

Florida TRPH Standard (HC) (17 components)

(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C14) *n*-Tetradecane (629-59-4)
(C16) *n*-Hexadecane (544-76-3)
(C18) *n*-Octadecane (593-45-3)
(C20) *n*-Eicosane (112-95-8)
(C22) *n*-Docosane (629-97-0)
(C24) *n*-Tetracosane (646-31-1)
(C26) *n*-Hexacosane (630-01-3)
(C28) *n*-Octacosane (630-02-4)
(C30) *n*-Triacontane (638-68-6)
(C32) *n*-Dotriacontane (544-85-4)
(C34) *n*-Tetratriacontane (14167-59-0)
(C36) *n*-Hexatriacontane (630-06-8)
(C38) *n*-Octatriacontane (7194-85-6)
(C40) *n*-Tetracontane (4181-95-7)

2,000 µg/mL each in carbon disulfide, 1 mL/ampul	cat.# 31878 (ea.)

Note: Reference standards containing greater than 99% carbon disulfide are classified as UN1131 carbon disulfide 3(6.1), I and are restricted from air transportation. Additional restrictions may apply to lower concentration materials depending on formulations. Contact standards@restek.com with any questions.

Florida TRPH Surrogate Mix (n-Nonatriacontane)

(C39) *n*-Nonatriacontane (7194-86-7)

3,000 µg/mL in carbon disulfide, 1 mL/ampul	cat.# 31456 (ea.)
3,000 µg/mL in carbon disulfide, 10 mL/ampul	cat.# 31877 (ea.)

Note: Reference standards containing greater than 99% carbon disulfide are classified as UN1131 carbon disulfide 3(6.1), I and are restricted from air transportation. Additional restrictions may apply to lower concentration materials depending on formulations. Contact standards@restek.com with any questions.

free data

Available on Our Website:
Lot Certificates, Data Packs, and SDSs

For complete information detailing manufacturing and testing for Restek inventoried reference standards, just visit our website at **www.restek.com**

To view lot certificates and/or an SDS, enter the catalog number of the product in the Search feature. For a free data pack, available as a printable pdf file, enter the catalog number and lot number of the product.

Massachusetts

MA VPH Standard with Surrogate Rev. 1.1 (July 2004) (16 components)

(C5) *n*-Pentane (109-66-0)
(C9) *n*-Nonane (111-84-2)
(C10) *n*-Decane (124-18-5)
Benzene (71-43-2)
n-Butylcyclohexane (1678-93-9)
2,5-Dibromotoluene (SS) (615-59-8)
Ethylbenzene (100-41-4)
2-Methylpentane (107-83-5)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Naphthalene (91-20-3)
Toluene (108-88-3)
1,2,4-Trimethylbenzene (95-63-6)
2,2,4-Trimethylpentane (isooctane) (540-84-1)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

10,000 µg/mL in P&T methanol, 1 mL/ampul — cat.# 30604 (ea.)

MA VPH Surrogate Standard

(2,5-Dibromotoluene)

2,5-Dibromotoluene (615-59-8)

1,000 µg/mL in P&T methanol, 1 mL/ampul cat.# 30435 (ea.)

10,000 µg/mL in P&T methanol, 1 mL/ampul cat.# 30453 (ea.)

MA VPH Matrix Spike Mix with Surrogate Rev. 1.1 (July 2004) (16 components)

(C5) *n*-Pentane (109-66-0)
(C9) *n*-Nonane (111-84-2)
(C10) *n*-Decane (124-18-5)
Benzene (71-43-2)
n-Butylcyclohexane (1678-93-9)
2,5-Dibromotoluene (SS) (615-59-8)
Ethylbenzene (100-41-4)
2-Methylpentane (107-83-5)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Naphthalene (91-20-3)
Toluene (108-88-3)
1,2,4-Trimethylbenzene (95-63-6)
2,2,4-Trimethylpentane (isooctane) (540-84-1)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

50 µg/mL in P&T methanol, 1 mL/ampul — cat.# 30605 (ea.)

MA Volatile Petroleum Hydrocarbon (VPH) Standard (13 components)

(C5) *n*-Pentane (109-66-0), 1,000 µg/mL
(C9) *n*-Nonane (111-84-2), 1,000 µg/mL
Benzene (71-43-2), 500 µg/mL
Ethylbenzene (100-41-4), 500 µg/mL
2-Methylpentane (107-83-5), 1,500 µg/mL
Methyl *tert*-butyl ether (MTBE) (1634-04-4), 1,500 µg/mL
Naphthalene (91-20-3), 1,000 µg/mL
Toluene (108-88-3), 1,500 µg/mL
1,2,4-Trimethylbenzene (95-63-6), 1,000 µg/mL
2,2,4-Trimethylpentane (isooctane) (540-84-1), 1,500 µg/mL
m-Xylene (108-38-3), 1,000 µg/mL
o-Xylene (95-47-6), 1,000 µg/mL
p-Xylene (106-42-3), 1,000 µg/mL

In P&T methanol, 1 mL/ampul — cat.# 30434 (ea.)

MA EPH Internal Standard

5-α-Androstane (438-22-2)

2,000 µg/mL in methylene chloride, 1 mL/ampul cat.# 31065 (ea.)

Massachusetts APH Mix (26 components)

Benzene
1,3-Butadiene
Butylcyclohexane
Cyclohexane
n-Decane
2,3-Dimethylheptane
2,3-Dimethylpentane
n-Dodecane
Ethylbenzene
n-Heptane
n-Hexane
Isopentane
Isopropylbenzene
p-Isopropyltoluene
Methyl *tert*-butyl ether
1-Methyl-3-ethylbenzene
Naphthalene
n-Nonane
n-Octane
Toluene
1,2,3-Trimethylbenzene
1,3,5-Trimethylbenzene
n-Undecane
o-Xylene
m/*p*-Xylene (combined)

Blend tolerance: ±10%; Analytical accuracy: ±5% 1 ppm in nitrogen, 104 liters @ 1,800 psi — cat.# 34540 (ea.)

Blend tolerance: ±10%; Analytical accuracy: ±5% 100 ppb in nitrogen, 110 liters @ 1,800 psi — cat.# 26366 (ea.)

Blend tolerance: ±10%; Analytical accuracy: ±5% 100 ppb in nitrogen, 110 liters @ 1,800 psig (Pi-marked cylinder) — cat.# 34540-PI (ea.)

Quantity discounts not available.

Note: Actual cylinder pressure may vary due to loss from quality testing procedure. No data pack available.

Gas standards are subject to hazardous materials shipping fees by most freight carriers. All calibration gas standards are nonreturnable due to DOT hazardous shipping requirements.

MA EPH Surrogate Spike Mix

(2 components)

1-Chlorooctadecane (3386-33-2)
o-Terphenyl (84-15-1)

4,000 µg/mL each in acetone, 1 mL/ampul cat.# 31479 (ea.)

1-Chlorooctadecane

1-Chlorooctadecane (3386-33-2)

10,000 µg/mL in methylene chloride, 1 mL/ampul cat.# 31098 (ea.)

MA EPH Aromatic Hydrocarbon Standard (17 components)

Acenaphthene (83-32-9)
Acenaphthylene (208-96-8)
Anthracene (120-12-7)
Benz(a)anthracene (56-55-3)
Benzo(a)pyrene (50-32-8)
Benzo(b)fluoranthene (205-99-2)
Benzo(k)fluoranthene (207-08-9)
Benzo(ghi)perylene (191-24-2)
Chrysene (218-01-9)
Dibenz(a,h)anthracene (53-70-3)
Fluoranthene (206-44-0)
Fluorene (86-73-7)
Indeno(1,2,3-cd)pyrene (193-39-5)
2-Methylnaphthalene (91-57-6)
Naphthalene (91-20-3)
Phenanthrene (85-01-8)
Pyrene (129-00-0)

1,000 µg/mL each in methylene chloride, 1 mL/ampul — cat.# 31458 (ea.)

MA Fractionation Surrogate Spike Mix

(2 components)

2-Bromonaphthalene (580-13-2)
2-Fluorobiphenyl (321-60-8)

4,000 µg/mL each in hexane, 1 mL/ampul cat.# 31480 (ea.)

MA EPH Aliphatic Hydrocarbon Standard (14 components)

(C9) *n*-Nonane (111-84-2)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C14) *n*-Tetradecane (629-59-4)
(C16) *n*-Hexadecane (544-76-3)
(C18) *n*-Octadecane (593-45-3)
(C19) *n*-Nonadecane (629-92-5)
(C20) *n*-Eicosane (112-95-8)
(C22) *n*-Docosane (629-97-0)
(C24) *n*-Tetracosane (646-31-1)
(C26) *n*-Hexacosane (630-01-3)
(C28) *n*-Octacosane (630-02-4)
(C30) *n*-Triacontane (638-68-6)
(C36) *n*-Hexatriacontane (630-06-8)

1,000 µg/mL each in hexane, 1 mL/ampul — cat.# 31459 (ea.)

MA Fractionation Check Mix (31 components)

PAHs:
Acenaphthene (83-32-9)
Acenaphthylene (208-96-8)
Anthracene (120-12-7)
Benz(a)anthracene (56-55-3)
Benzo(a)pyrene (50-32-8)
Benzo(b)fluoranthene (205-99-2)
Benzo(k)fluoranthene (207-08-9)
Benzo(ghi)perylene (191-24-2)
Chrysene (218-01-9)
Dibenz(a,h)anthracene (53-70-3)
Fluoranthene (206-44-0)
Fluorene (86-73-7)
Indeno(1,2,3-cd)pyrene (193-39-5)
2-Methylnaphthalene (91-57-6)
Naphthalene (91-20-3)
Phenanthrene (85-01-8)
Pyrene (129-00-0)

Hydrocarbons:
(C9) *n*-Nonane (111-84-2)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C14) *n*-Tetradecane (629-59-4)
(C16) *n*-Hexadecane (544-76-3)
(C18) *n*-Octadecane (593-45-3)
(C19) *n*-Nonadecane (629-92-5)
(C20) *n*-Eicosane (112-95-8)
(C22) *n*-Docosane (629-97-0)
(C24) *n*-Tetracosane (646-31-1)
(C26) *n*-Hexacosane (630-01-3)
(C28) *n*-Octacosane (630-02-4)
(C30) *n*-Triacontane (638-68-6)
(C36) *n*-Hexatriacontane (630-06-8)

25 µg/mL each in hexane, 1 mL/ampul — cat.# 31481 (ea.)

Mississippi

DRO Mix (Tennessee/Mississippi) (16 components)

(C10) *n*-Decane (124-18-5)
(C11) *n*-Undecane (1120-21-4)
(C12) *n*-Dodecane (112-40-3)
(C13) *n*-Tridecane (629-50-5)
(C14) *n*-Tetradecane (629-59-4)
(C15) *n*-Pentadecane (629-62-9)
(C16) *n*-Hexadecane (544-76-3)
(C17) *n*-Heptadecane (629-78-7)
(C18) *n*-Octadecane (593-45-3)
(C19) *n*-Nonadecane (629-92-5)
(C20) *n*-Eicosane (112-95-8)
(C21) *n*-Heneicosane (629-94-7)
(C22) *n*-Docosane (629-97-0)
(C23) *n*-Tricosane (638-67-5)
(C24) *n*-Tetracosane (646-31-1)
(C25) *n*-Pentacosane (629-99-2)

1,000 µg/mL each in methylene chloride, 1 mL/ampul — cat.# 31214 (ea.)

Gasoline Component Standard (10 components)

Benzene (71-43-2), 500 µg/mL
Ethylbenzene (100-41-4), 500 µg/mL
Heptane (142-82-5), 500 µg/mL
2-Methylpentane (107-83-5), 1,500 µg/mL
Toluene (108-88-3), 1,500 µg/mL
1,2,4-Trimethylbenzene (95-63-6), 1,000 µg/mL
2,2,4-Trimethylpentane (isooctane) (540-84-1), 1,500 µg/mL
m-Xylene (108-38-3), 1,000 µg/mL
o-Xylene (95-47-6), 1,000 µg/mL
p-Xylene (106-42-3), 1,000 µg/mL

10,000 µg/mL total in P&T methanol, 1 mL/ampul — cat.# 30486 (ea.)

Northwest USA Regional Method (Oregon & Washington)

Glycols Standard (2 components)

Ethylene glycol (107-21-1)
Propylene glycol (57-55-6)

50,000 µg/mL each in DI water, 1 mL/ampul — cat.# 30471 (ea.)

NW TPH-Dx Surrogate Mix Standards

Volume is 1 mL/ampul. Concentration is µg/mL.

Compound	CAS #	Solvent	Conc.	cat.#
2-Fluorobiphenyl	321-60-8	D	10,000	31096
o-Terphenyl	84-15-1	D	10,000	31097
p-Terphenyl	92-94-4	D	10,000	31095
Pentacosane (C25)	629-99-2	D	10,000	31487

D = methylene chloride

Pennsylvania

PA DEP UST Standard (11 components)

Benzene (71-43-2)
1,2-Dibromoethane (EDB) (106-93-4)
1,2-Dichloroethane (107-06-2)
Ethylbenzene (100-41-4)
Isopropyl benzene (cumene) (98-82-8)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Naphthalene (91-20-3)
Toluene (108-88-3)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

2,000 µg/mL each in P&T methanol, 1 mL/ampul — cat.# 30433 (ea.)

Tennessee/Mississippi

DRO Mix (Tennessee/Mississippi) (16 components)

(C10) *n*-Decane (124-18-5)
(C11) *n*-Undecane (1120-21-4)
(C12) *n*-Dodecane (112-40-3)
(C13) *n*-Tridecane (629-50-5)
(C14) *n*-Tetradecane (629-59-4)
(C15) *n*-Pentadecane (629-62-9)
(C16) *n*-Hexadecane (544-76-3)
(C17) *n*-Heptadecane (629-78-7)
(C18) *n*-Octadecane (593-45-3)
(C19) *n*-Nonadecane (629-92-5)
(C20) *n*-Eicosane (112-95-8)
(C21) *n*-Heneicosane (629-94-7)
(C22) *n*-Docosane (629-97-0)
(C23) *n*-Tricosane (638-67-5)
(C24) *n*-Tetracosane (646-31-1)
(C25) *n*-Pentacosane (629-99-2)

1,000 µg/mL each in methylene chloride, 1 mL/ampul — cat.# 31214 (ea.)

Tennessee/Mississippi *(cont.)*

Gasoline Component Standard (10 components)

Benzene (71-43-2), 500 µg/mL
Ethylbenzene (100-41-4), 500 µg/mL
Heptane (142-82-5), 500 µg/mL
2-Methylpentane (107-83-5), 1,500 µg/mL
Toluene (108-88-3), 1,500 µg/mL
1,2,4-Trimethylbenzene (95-63-6), 1,000 µg/mL
2,2,4-Trimethylpentane (isooctane) (540-84-1), 1,500 µg/mL
m-Xylene (108-38-3), 1,000 µg/mL
o-Xylene (95-47-6), 1,000 µg/mL
p-Xylene (106-42-3), 1,000 µg/mL

10,000 µg/mL total in P&T methanol, 1 mL/ampul — cat.# 30486 (ea.)

Texas

Texas TNRCC Method 1006

TNRCC 1006 Retention Time Marker Mix (9 components)

(C6) *n*-Hexane (110-54-3)
(C7) *n*-Heptane (142-82-5)
(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C16) *n*-Hexadecane (544-76-3)
(C21) *n*-Heneicosane (629-94-7)
(C28) *n*-Octacosane (630-02-4)
(C35) *n*-Pentatriacontane (630-07-9)

200 µg/mL in pentane, 1 mL/ampul — cat.# 31814 (ea.)

Texas TNRCC Method 1005

TNRCC 1005 Retention Time Markers Mix

(4 components)

(C6) *n*-Hexane (110-54-3)
(C12) *n*-Dodecane (112-40-3)
(C28) *n*-Octacosane (630-02-4)
(C35) *n*-Pentatriacontane (630-07-9)

200 µg/mL each in pentane, 1 mL/ampul — cat.# 31698 (ea.)

TX TPH Calibration Mix (2 components)

Diesel fuel #2 composite (68334-30-5)
Unleaded gasoline composite (8006-61-9)

10,000 µg/mL each in pentane, 1 mL/ampul — cat.# 31483 (ea.)

TX TPH Matrix Spike Mix (2 components)

Diesel fuel #2 composite (68334-30-5)
Unleaded gasoline composite (8006-61-9)

10,000 µg/mL each in P&T methanol, 1 mL/ampul — cat.# 31484 (ea.)

Alternate Boiling Point/Carbon Number Distribution Marker Stock Standard (9 components)

(C6) *n*-Hexane (110-54-3)
(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C16) *n*-Hexadecane (544-76-3)
(C21) *n*-Heneicosane (629-94-7)
(C28) *n*-Octacosane (630-02-4)
(C35) *n*-Pentatriacontane (630-07-9)
(C36) *n*-Hexatriacontane (630-06-8)

200 µg/mL each in pentane, 1 mL/ampul — cat.# 31639 (ea.)

α,α,α-Trifluorotoluene

α,α,α-Trifluorotoluene (98-08-8)

2,000 µg/mL in P&T methanol, 1 mL/ampul — cat.# 30048 (ea.)
2,500 µg/mL in P&T methanol, 1 mL/ampul — cat.# 30068 (ea.)
10,000 µg/mL in P&T methanol, 1 mL/ampul — cat.# 30083 (ea.)

1-Chlorooctane

1-Chlorooctane (111-85-3)

10,000 µg/mL in P&T methanol, 1 mL/ampul — cat.# 30084 (ea.)

1-Chlorooctadecane

1-Chlorooctadecane (3386-33-2)

10,000 µg/mL in methylene chloride, 1 mL/ampul — cat.# 31098 (ea.)

Reference Standards

Washington

WA VPH Standard (15 components)

(C5) *n*-Pentane (109-66-0)
(C6) *n*-Hexane (110-54-3)
(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
Benzene (71-43-2)
Ethylbenzene (100-41-4)
1-Methylnaphthalene (90-12-0)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Naphthalene (91-20-3)
Toluene (108-88-3)
1,2,3-Trimethylbenzene (526-73-8)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

1,000 µg/mL each in P&T methanol, 1 mL/ampul cat.# 30451 (ea.)

WA EPH Aliphatic Hydrocarbon Mix (6 components)

(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C16) *n*-Hexadecane (544-76-3)
(C21) *n*-Heneicosane (629-94-7)
(C34) *n*-Tetratriacontane (14167-59-0)

1,000 µg/mL each in hexane, 1 mL/ampul cat.# 31489 (ea.)

WA EPH Fractionation Check Mix (22 components)

(C8) *n*-Octane (111-65-9)
(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C16) *n*-Hexadecane (544-76-3)
(C21) *n*-Heneicosane (629-94-7)
(C34) *n*-Tetratriacontane (14167-59-0)
Acenaphthene (83-32-9)
Acenaphthylene (208-96-8)
Anthracene (120-12-7)
Benz(a)anthracene (56-55-3)
Benzo(a)pyrene (50-32-8)
Benzo(b)fluoranthene (205-99-2)
Benzo(k)fluoranthene (207-08-9)
Benzo(ghi)perylene (191-24-2)
Chrysene (218-01-9)
Dibenz(a,h)anthracene (53-70-3)
Fluoranthene (206-44-0)
Fluorene (86-73-7)
Indeno(1,2,3-cd)pyrene (193-39-5)
Naphthalene (91-20-3)
Phenanthrene (85-01-8)
Pyrene (129-00-0)

25 µg/mL each in hexane, 1 mL/ampul cat.# 31491 (ea.)

Wisconsin

PVOC/GRO Mix (Wisconsin)

(10 components)

Benzene (71-43-2)
Ethylbenzene (100-41-4)
Methyl *tert*-butyl ether (MTBE) (1634-04-4)
Naphthalene (91-20-3)
Toluene (108-88-3)
1,2,4-Trimethylbenzene (95-63-6)
1,3,5-Trimethylbenzene (108-67-8)
m-Xylene (108-38-3)
o-Xylene (95-47-6)
p-Xylene (106-42-3)

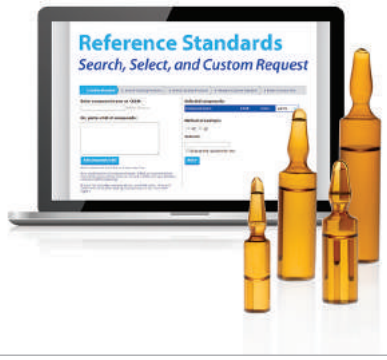
1,000 µg/mL each in P&T methanol, 1 mL/ampul cat.# 30095 (ea.)

DRO Mix (EPA/Wisconsin)

(10 components)

(C10) *n*-Decane (124-18-5)
(C12) *n*-Dodecane (112-40-3)
(C14) *n*-Tetradecane (629-59-4)
(C16) *n*-Hexadecane (544-76-3)
(C18) *n*-Octadecane (593-45-3)
(C20) *n*-Eicosane (112-95-8)
(C22) *n*-Docosane (629-97-0)
(C24) *n*-Tetracosane (646-31-1)
(C26) *n*-Hexacosane (630-01-3)
(C28) *n*-Octacosane (630-02-4)

2,000 µg/mL each in methylene chloride, 1 mL/ampul cat.# 31064 (ea.)



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