

REFERENCE STANDARDS CLINICAL, FORENSIC & TOXICOLOGY MATERIALS

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Weathered Petrochemical Standards

These solutions are prepared from a single source (one refinery) product. The weathered materials indicate the percent weight loss from the original material. Samples of regular and premium grade unleaded gasoline were blended in equal volumes.

There are four general types of mineral spirits, classified according to boiling point range (BPR):

- Type I (Stoddard solvent) BPR 149–182°C
- Type II (high flash point) BPR 177–196°C
- Type III (odorless) BPR 149–196°C
- Type IV (low dry point) BPR 149–174°C

Stoddard Solvent Standard

10,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30487 (ea.)

We prepare our mineral spirits solutions from an equal volume blend of Type I, II, and III mineral spirits.

Concentration is µg/mL. Volume is 1mL/ampul unless otherwise noted.

Compound	Solvent	Conc.	cat.# (ea.)	price
unleaded gasoline: unweathered	PTM	5,000	30096	
unleaded gasoline: 25% weathered	PTM	5,000	30097	
unleaded gasoline: 50% weathered	PTM	5,000	30098	
unleaded gasoline: 75% weathered	PTM	5,000	30099	
unleaded gasoline: 99% weathered	PTM	5,000	30436	

Compound	Solvent	Conc.	cat.# (ea.)	price
kerosene: unweathered	D	5,000	31229	
kerosene: 25% weathered	D	5,000	31230	
kerosene: 50% weathered	D	5,000	31231	
kerosene: 75% weathered	D	5,000	31232	

Compound	Solvent	Conc.	cat.# (ea.)	price
diesel fuel #2: unweathered	D	5,000	31233	
diesel fuel #2: 25% weathered	D	5,000	31234	
diesel fuel #2: 50% weathered	D	5,000	31235	
diesel fuel #2: 75% weathered	D	5,000	31236	

Compound	Solvent	Conc.	cat.# (ea.)	price
mineral spirits: unweathered	D	5,000	31225	
mineral spirits: unweathered	D	50,000	31260	
mineral spirits: unweathered (5mL)	D	50,000	31261	
mineral spirits: 25% weathered	D	5,000	31226	
mineral spirits: 50% weathered	D	5,000	31227	
mineral spirits: 75% weathered	D	5,000	31228	

D = methylene chloride
PTM = P&T methanol

Weathered Gasoline Kit

Contains 1mL each of these mixtures.
30096: Unleaded Gasoline Standard
30097: Unleaded Gas Standard: 25% Weathered
30098: Unleaded Gas Standard: 50% Weathered
30099: Unleaded Gas Standard: 75% Weathered
cat. # 30100 (kit)



Quantity discounts not available.

Weathered Gasoline Kit #2

Contains 1mL each of these mixtures.
30096: Unleaded Gasoline Standard
30097: Unleaded Gas Standard: 25% Weathered
30098: Unleaded Gas Standard: 50% Weathered
30099: Unleaded Gas Standard: 75% Weathered
30436: Unleaded Gas Standard: 99% Weathered
cat. # 30437 (kit)



Quantity discounts not available.

Weathered Petrochemical Standards cont'd

Weathered Kerosene Kit

Contains 1mL each of these mixtures.
31229: Kerosene Standard
31230: Kerosene Standard: 25% Weathered
31231: Kerosene Standard: 50% Weathered
31232: Kerosene Standard: 75% Weathered
cat. # 31238 (kit)



Quantity discounts not available.

Weathered Diesel Fuel #2 Kit

Contains 1mL each of these mixtures.
31233: Diesel Fuel #2 Standard
31234: Diesel Fuel #2 Standard: 25% Weathered
31235: Diesel Fuel #2 Standard: 50% Weathered
31236: Diesel Fuel #2 Standard: 75% Weathered
cat. # 31239 (kit)



Quantity discounts not available.

Weathered Mineral Spirits Kit

Contains 1mL each of these mixtures.
31225: Mineral Spirits Standard
31226: Mineral Spirits Standard: 25% Weathered
31227: Mineral Spirits Standard: 50% Weathered
31228: Mineral Spirits Standard: 75% Weathered
cat. # 31237 (kit)



Quantity discounts not available.

ASTM E1387 and E1618 (Fire Debris Analysis)

These materials also can be used for underground storage tank monitoring.

E1387 Column Resolution Check Mix (13 components)

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

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31224 (ea.)

E1618 Test Mix (13 components)

Components in this mix (0.5µL/mL or 0.05% volume/volume each) are at 10X the concentration of the final test solution specified in ASTM 1618 and ASTM 1387.

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

0.05% volume/volume each in methylene chloride, 1mL/ampul
cat. # 31613 (ea.)

No data pack available.

please note

We can custom prepare weathered accelerants for fire debris analysis.

Please complete the custom reference material request form at www.restek.com/solutions.

We'll be glad to work with you!

Blood Alcohols, Bank Dye, Explosives

Blood Alcohol Standards

We have developed calibration mixtures for performing multi-point instrument calibrations so that laboratories can construct calibration curves. The data pack (which can be downloaded from our website at www.restek.com/documents) includes a Certificate of Analysis, raw material testing results, statistical QA results, analytical balance printout, and gravimetric weight of each analyte. Ethanol in these mixes is National Institute of Standards and Technology (NIST)-traceable.

Compound	qty.	cat.#	price
0.010g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36276	
1mL/ampul	10-pk.	36278	
5mL/ampul	ea.	36277	
0.015g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36232	
1mL/ampul	10-pk.	36332	
20mL/ampul	ea.	36248	
0.02g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36233	
1mL/ampul	10-pk.	36333	
20mL/ampul	ea.	36249	
0.025g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36234	
1mL/ampul	10-pk.	36334	
5mL/ampul	ea.	36242	
0.04g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36235	
1mL/ampul	10-pk.	36335	
5mL/ampul	ea.	36243	
20mL/ampul	ea.	36251	
0.05g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36257	
1mL/ampul	10-pk.	36259	
5mL/ampul	ea.	36258	
20mL/ampul	ea.	36260	
0.08g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36262	
1mL/ampul	10-pk.	36264	
5mL/ampul	ea.	36263	
20mL/ampul	ea.	36265	
0.1g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36236	
1mL/ampul	10-pk.	36336	
5mL/ampul	ea.	36244	
20mL/ampul	ea.	36252	
0.15g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36237	
1mL/ampul	10-pk.	36337	
5mL/ampul	ea.	36245	
20mL/ampul	ea.	36253	
0.16g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36417	
1mL/ampul	10-pk.	36418	
5mL/ampul	ea.	36419	
20mL/ampul	ea.	36420	
0.2g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36238	
1mL/ampul	10-pk.	36338	
5mL/ampul	ea.	36246	
20mL/ampul	ea.	36254	
0.3g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36239	
1mL/ampul	10-pk.	36339	
5mL/ampul	ea.	36247	
20mL/ampul	ea.	36255	
0.4g/dL forensic ethanol solution			
1mL/ampul	5-pk.	36266	
1mL/ampul	10-pk.	36268	
5mL/ampul	ea.	36267	
20mL/ampul	ea.	36269	

Blood Alcohol Standards cont'd

Blood Alcohol Mix Resolution Control Standard (8 components)

Use to verify the retention time for each compound normally included in a blood alcohol test, and to verify that the compounds are resolved from and do not interfere with one another. Concentration of ethanol is NIST-traceable.

acetaldehyde	ethyl acetate
acetone	isopropanol
acetonitrile	methanol
ethanol (NIST certified value)	methyl ethyl ketone
0.100g/dL each in water, 1mL/ampul	
cat. # 36256 (ea.)	

Bank Dye Standard (MAAQ)

Restek offers this qualitative standard (red dye used in bank "Security Pack") to help investigators in municipal police stations and criminal laboratories fight crime.

1-N-(methylamino)anthraquinone (MAAQ)

100µg/mL in methylene chloride, 1mL/ampul
cat. # 31823 (ea.)

No data pack available.

Explosives Solutions

Single-Component Explosives Solutions

These materials support nitroaromatic, nitramine, and nitroester analyses by GC/ECD (Method 8095).^{1,2} Compounds listed are explosives, manufacturing intermediates, or degradation products. Method 8095 mixtures contain the components at concentration ratios appropriate for ECD.

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

Compound	Solvent	Conc.	cat.# (ea.)	price
2-amino-4,6-dinitrotoluene	ACN	1,000	31670	
4-amino-2,6-dinitrotoluene	ACN	1,000	31671	
ammonium picrate*	ACN	2,000	31890	
3,5-dinitroaniline	ACN	1,000	31661	
1,2-dinitrobenzene	M	1,000	31453	
1,3-dinitrobenzene	ACN	1,000	31662	
2,4-dinitrotoluene	ACN	1,000	31663	
2,6-dinitrotoluene	ACN	1,000	31664	
3,4-dinitrotoluene	EA	2,000	33901	
3,4-dinitrotoluene	M	1,000	31452	
EGDN*	M	1,000	31601	
HMX*	ACN	1,000	31665	
2-methyl-4-nitroaniline	M	1,000	31612	
nitrobenzene	ACN	1,000	31657	
nitroglycerin*	M	1,000	31498	
nitroguanidine*	M	1,000	31602	
2-nitrotoluene	ACN	1,000	31659	
3-nitrotoluene	ACN	1,000	31660	
4-nitrotoluene	ACN	1,000	31658	
PETN (pentaerythritol tetranitrate)*	M	1,000	31600	
picric acid*	M	1,000	31499	
propylene glycol dinitrate (PGDN)	M	1,000	31821	
RDX*	ACN	1,000	31666	
tetryl*	ACN	1,000	31667	
1,3,5-trinitrobenzene*	ACN	1,000	31668	
2,4,6-trinitrotoluene*	ACN	1,000	31669	

ACN = acetonitrile; EA = ethyl acetate; M = methanol

*Meet all DOT requirements. Available only to customers or distributors inside the 48 contiguous United States; items may not be resold for export.

References (Not available from Restek.)

¹US Environmental Protection Agency. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. SW-846, Proposed Draft Update IVB, Office of Solid Waste, Washington, DC, 1999.

²M. E. Walsh, T. Ranney, J. Chromatogr. Sci., Vol. 36, pp. 406-416, August 1998.

did you know?

Resolve blood alcohol samples in less than 3 minutes with our Rtx®-BAC1 and Rtx®-BAC2 columns. Visit www.restek.com/CFT for more information on these columns or to find out what's new for clinical/forensic analyses.

Exempted Drug of Abuse Reference Materials

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

Compound	CAS#	Solvent	Conc.	cat.# (ea.)	price
Benzodiazepines					
alprazolam	28981-97-7	PTM	1,000	34042	
bromazepam	1812-30-2	PTM	1,000	34043	
chlordiazepoxide	438-41-5	PTM	1,000	34044	
clobazam	22316-47-8	PTM	1,000	34045	
clonazepam	1622-61-3	PTM	1,000	34046	
diazepam	439-14-5	PTM	1,000	34047	
flunitrazepam	1622-62-4	PTM	1,000	34049	
flurazepam	1172-18-5	PTM	1,000	34050	
lorazepam	846-49-1	PTM	1,000	34051	
nitrazepam	146-22-5	PTM	1,000	34053	
oxazepam	604-75-1	PTM	1,000	34054	
prazepam	2955-38-6	PTM	1,000	34055	
temazepam	896-50-4	PTM	1,000	34056	
triazolam	28911-01-5	PTM	1,000	34057	
Cocaine & Metabolites					
cocaethylene	529-38-4	ACN	1,000	34066	
cocaine	53-21-4	PTM	1,000	34015	
benzoyllecgonine	519-09-5	PTM	1,000	34016	
ecgonine	5796-31-6	PTM	1,000	34017	
ecgonine methyl ester	38969-40-3	PTM	1,000	34018	
Methadone & Metabolites					
EDDP perchlorate	66729-78-0	M	1,000	34069	
methadone	1095-90-5	PTM	1,000	34005	
Amphetamines & Metabolites					
d-amphetamine	51-63-8	PTM	1,000	34020	
(+)-methamphetamine	51-57-0	PTM	1,000	34021	
3,4-MDA HCl	4764-17-4	M	1,000	34070	
3,4-MDEA HCl	82801-81-8	M	1,000	34072	
3,4-MDMA HCl	42542-10-9	M	1,000	34071	
phenylpropranolamine HCl	154-41-6	M	1,000	34073	
Opiates & Metabolites					
codeine	76-57-3	PTM	1,000	34000	
dextromethorphan HBr monohydrate	125-69-9	M	1,000	34081	
hydrocodone	34195-34-1	PTM	1,000	34002	
hydromorphone	71-68-1	PTM	1,000	34063	
morphine	6211-15-0	PTM	1,000	34006	
oxycodone	124-90-3	PTM	1,000	34007	
oxymorphone	76-41-5	PTM	1,000	34065	
Cannabinoid & Metabolites					
cannabidiol	13956-24-1	PTM	1,000	34011	
cannabinol	521-35-7	PTM	1,000	34010	
Δ ⁹ -THC	1972-08-3	M	1,000	34067	
(±)11-nor-9-carboxy-Δ ⁹ -THC	104874-50-2	M	100	34068	
Barbiturates					
amobarbital	64-43-7	PTM	1,000	34028	
aprobital	77-02-1	PTM	1,000	34029	
barbital	57-44-3	PTM	1,000	34030	
butobarbital	125-40-6	PTM	1,000	34031	
butalbital	77-26-9	PTM	1,000	34032	
DL-glutethimide	18389-24-7	PTM	1,000	34058	
hexobarbital	56-29-1	PTM	1,000	34033	
mephobarbital	115-38-8	PTM	1,000	34034	
methohexital	151-83-7	PTM	1,000	34035	
pentobarbital	76-74-4	PTM	1,000	34036	
phenobarbital	50-06-6	PTM	1,000	34037	
secobarbital	29071-21-4	PTM	1,000	34038	
talbutal	115-44-6	PTM	1,000	34039	
thiopental	71-73-8	PTM	1,000	34041	

Compound	CAS#	Solvent	Conc.	cat.# (ea.)	price
GHB					
1,4-butanediol	110-63-4	M	1,000	34078	
γ-butyrolactone (GBL)	96-48-0	ACN	1,000	34077	
α-methylene-γ-butyrolactone (AMGBL)					
α-methylene-γ-butyrolactone	547-65-9	ACN	1,000	34079	
γ-valerolactone	108-29-2	ACN	1,000	34080	
Other					
benzphetamine	5411-22-3	PTM	1,000	34022	
caffeine	58-08-2	M	1,000	34084	
continine	486-56-6	M	1,000	34086	
fentanyl	437-38-7	M	1,000	34082	
nor-fentanyl oxalate	1609-66-1	M	1,000	34083	
levorphanol	5985-38-6	PTM	1,000	34003	
meperidine	50-13-5	PTM	1,000	34004	
meprobamate	57-53-4	PTM	1,000	34059	
methaqualone	340-56-7	PTM	1,000	34064	
methyprylon	125-64-4	PTM	1,000	34060	
nicotine	54-11-5	M	1,000	34085	
pentazocine	64024-15-3	PTM	1,000	34062	
phencyclidine	956-90-1	PTM	1,000	34027	
phendimetrazine	50-58-8	PTM	1,000	34025	
phenmetrazine	1707-14-8	PTM	1,000	34026	
phentermine	1197-21-3	PTM	1,000	34024	
dextro-propoxyphene	1639-60-7	PTM	1,000	34008	
thebaine	115-37-7	PTM	1,000	34009	

Quantity discounts not available.

ACN = acetonitrile; M = methanol; PTM = purge & trap grade methanol

Forensic Drug Screen Test Mixture (8 components)

amiodarone	10µg/mL	diazepam	10
amphetamine	10	doxepine	10
caffeine	10	haloperidol	1
codeine	10	morphine	10

In P&T methanol, 1mL/ampul

cat. # 36340 (ea.)

Forensic Drug Screen Internal Standard (2 components)

D5-diazepam D5-doxepine

10µg/mL each in P&T methanol, 10mL/ampul

cat. # 36341 (ea.)

Derivatization Reagents



- Reagents available for acylation, alkylation, and silylation.
- Packaged in 10 x 1 g vials or 25 g vials.
- High purity for accurate results.

See page 537.

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