8000 Series Methods - Resource Conservation and Recovery Act (RCRA)

US EPA Method No.	Compound Class	US EPA Method No.	Compound Class
418.1	Total Recoverable Petroleum Hydrocarbons (TRPH)	8095	Explosives by GC
1311	Toxicity Characteristics Leaching Procedure (TCLP)	8100	Polycyclic Aromatic Hydrocarbons
1664	Oil & Grease	8140, 8141	Organophosphorus Pesticides
3500	Organic Extraction Surrogates	8150, 8151, 8151A	Chlorinated Acid Herbicides
8010	Halogenated Volatile Organics	8240	Volatile Organic Compounds (VOC)
8011	1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane	8260, 8260A, 8260B	Volatile Organic Compounds (VOC)
8020	Aromatic Volatile Organics	8270D, 8270C	Semivolatile Organic Compounds
8021	Volatile Organics	8310	Polycyclic Aromatic Hydrocarbons (PAHs)
8040	Phenols	8315 new!	Aldehydes/Ketones-DNPH by HPLC
8061A	Phthalate Esters	8321	Chlorinated Acids by HPLC
8080, 8081	Chlorinated Pesticides	8330 new!	Nitroaromatics and Nitramines by HPLC
8082, 8082A	PCBs		

free data

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

For complete information detailing manufacturing and testing for Restek inventoried reference standards, visit our website at **www.restek.com**. To view lot certificates and/or an MSDS, enter the catalog number of the product in the Search feature. For a free data pack (Adobe® PDF file), enter the catalog number and lot number of the product.

Method 418.1 (Total Recoverable Petroleum Hydrocarbons [TRPH])

418.1 Calibration Mix

chlorobenzene	25.0% (v/v)
n-hexadecane	37.5%
isooctane	37.5%

1mL/ampul

cat. # 30080 (ea.)

Method 1311 (Toxicity Characteristics Leaching Procedure [TCLP])

TCLP VOA Mix (11 components)

benzene	1,2-dichloroethane
2-butanone (MEK)	1,1-dichloroethene
carbon tetrachloride	tetrachloroethene
chlorobenzene	trichloroethene
chloroform	vinyl chloride
1,4-dichlorobenzene	

2,000µg/mL each in P&T methanol:water (90:10), 1mL/ampul

cat. # 30024 (ea.)

TCLP Acid Mix

2-methylphenol	pentachlorophenol
3-methylphenol	2,4,5-trichlorophenol
4-methylphenol	2,4,6-trichlorophenol

2,000µg/mL each in methanol, 1mL/ampul

cat. # 31027 (ea.)

TCLP B/N Mix (7 components)

1,4-dichlorobenzene	hexachloroethane
2,4-dinitrotoluene	nitrobenzene
hexachlorobenzene	pyridine
hexachlorobutadiene	

2,000µg/mL each in acetone, 1mL/ampul

cat. # 31028 (ea.)

TCLP Pesticide Mix

γ-BHC (lindane)	heptachlor epoxide (isomer B)
endrin	methoxychlor
heptachlor	

2,000µg/mL each in methanol, 1mL/ampul

cat. # 32013 (ea.)

Method 1311 (Toxicity Characteristics Leaching Procedure [TCLP]) *cont'd*

TCLP Herbicide Mix

2,4-D (free acid)	Silvex (free acid)

2,000µg/mL each in methanol, 1mL/ampul

cat. # 32014 (ea.)

TCLP Toxaphene Mix

toxaphene

2,000µg/mL in methanol, 1mL/ampul

cat. # 32015 (ea.)

TCLP Chlordane Mix

chlordane (technical)

2,000µg/mL in methanol, 1mL/ampul

cat. # 32016 (ea.)

Method 1664 (Oil & Grease)

1664 Oil & Grease Mix

hexadecane	stearic acid

4,000µg/mL each in acetone, 5mL/ampul

cat. # 31457 (ea.)

See page 371 for Resprep™ Oil & Grease SPE Disks.

Method 3500 (Organic Extraction Surrogates)

High-Concentration Surrogates and Matrix Spike Mixtures for SW-846

- Highest concentrations commercially available—reduces cost per sample extract.
- Convenient 1mL and 5mL packaging.

See Method 8270, pages 467-469.

Method 8010 (Halogenated Volatile Organics)

Note:
Method 8010 does not specify internal standards to be used. The analyst must select appropriate internal standards based on the particular samples being analyzed. Potential internal standards are listed on page 456.

624 Internal Standard Mix

bromochloromethane
2-bromo-1-chloropropane
1,4-dichlorobutane

1,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30023 (ea.)

502.2 Calibration Mix #1 (gases)

bromomethane
chloroethane
chloromethane
dichlorodifluoromethane (CFC-12)
trichlorofluoromethane (CFC-11)
vinyl chloride

200µg/mL each in P&T methanol, 1mL/ampul
cat. # 30439 (ea.)

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30042 (ea.)

8010A Calibration Mix #2 (15 components)

benzyl chloride
bromodichloromethane
bromoform
carbon tetrachloride
chlorobenzene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,1-dichloroethene
trans-1,2-dichloroethene
cis-1,3-dichloropropene
trans-1,3-dichloropropene
methylene chloride
tetrachloroethene
trichloroethene
1,2,3-trichloropropane

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30056 (ea.)

8010A Calibration Mix #3 (13 components)

bromobenzene
2-chloroethyl vinyl ether
chloroform
dibromochloromethane
dibromomethane
1,4-dichlorobenzene
1,1-dichloroethane
1,2-dichloroethane
1,2-dichloropropane
1,1,1,2-tetrachloroethane
1,1,2,2-tetrachloroethane
1,1,1-trichloroethane
1,1,2-trichloroethane

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30057 (ea.)

8010B Calibration Mix #4

allyl chloride
1-chlorohexane
4-chlorotoluene
1,2-dibromo-3-chloropropane
1,2-dibromoethane
cis-1,4-dichloro-2-butene
trans-1,4-dichloro-2-butene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30058 (ea.)

BTEX Standard

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

200µg/mL each in P&T methanol, 1mL/ampul
cat. # 30051 (ea.)

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30213 (ea.)

2,000µg/mL each in P&T methanol, (*m*-xylene and *p*-xylene at 1,000µg/mL), 1mL/ampul
cat. # 30488 (ea.)

Method 8010 (Halogenated Volatile Organics) *cont'd*

BTEX Gas Mix

Cylinder Construction: aluminum
Cylinder Fitting: CGA-180 outlet

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

In nitrogen, 104 liters @ 1,800psi
1ppm cat. # 34414 (ea.)
100ppb cat. # 34428 (ea.)

In nitrogen, 110 liters @ 1,800psi (Pi-marked Cylinder)
1ppm cat. # 34414-PI (ea.)
100ppb cat. # 34428-PI (ea.)

Requires a high-purity VOC single-stage regulator. See page 415.
No data pack available.

Method 8011 (1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane)

8011 Calibration Mix—EDB/DBCP

1,2-dibromo-3-chloropropane (DBCP)
1,2-dibromoethane (EDB)

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30062 (ea.)

Method 8020 (Aromatic Volatile Organics)

Internal and Surrogate Standards

Compound	cat.# (ea.)
2,000µg/mL in P&T methanol, 1mL/ampul	
α,α,α-trifluorotoluene	30048
4-bromofluorobenzene	30026
1,4-difluorobenzene	30032
fluorobenzene	30030

8020A Calibration Mix (10 components)

benzene
chlorobenzene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
ethylbenzene
toluene
m-xylene
o-xylene
p-xylene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30222 (ea.)

Method 8021 (Volatile Organics)

502.2 Internal Standard Mix #2

2-bromo-1-chloropropane
fluorobenzene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30041 (ea.)

8021 Surrogate Mix

2-bromochlorobenzene
1,4-dichlorobutane

1,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30086 (ea.)

did you **know**?

Restek reference materials include a silanized vial for sample transfer.

tech tip

To analyze compounds listed in Methods 8010 and 8020 concurrently, add BTEX Standard to the calibration curve mix (see bottom of first column on this page).

Method 8021 (Volatile Organics) *cont'd*

8021/502.2 Surrogate Mix #1

1-bromo-2-chloroethane
fluorobenzene
1-chloro-3-fluorobenzene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30463 (ea.)

8021/502.2 Surrogate Mix #2

1-bromo-2-chloroethane
1-chloro-3-fluorobenzene
4-bromochlorobenzene
fluorobenzene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30464 (ea.)

Method 8040 (Phenols)

8040 Surrogate Mix

2-fluorophenol
2,4,6-tribromophenol

2,000µg/mL each in isopropanol, 1mL/ampul
cat. # 31090 (ea.)

8040 Phenols Mix #1 (9 components)

4-chloro-3-methylphenol
4-nitrophenol
2,4-dichlorophenol
pentachlorophenol
2-methyl-4,6-dinitrophenol
phenol
3-methylphenol
2,4,6-trichlorophenol
2-nitrophenol

2,000µg/mL each in isopropanol, 1mL/ampul
cat. # 31088 (ea.)

8040 Phenols Mix #2 (9 components)

sec-butyl-4,6-dinitrophenol (dinoseb)
2,4-dinitrophenol
2-chlorophenol
2-methylphenol
2,6-dichlorophenol
4-methylphenol
2,4-dimethylphenol
2,3,4,6-tetrachlorophenol
2,4,5-trichlorophenol

2,000µg/mL each in isopropanol, 1mL/ampul
cat. # 31089 (ea.)

Method 8061A (Phthalate Esters)

8061A Matrix Spike Solution

benzyl butyl phthalate
bis(2-ethylhexyl)phthalate

2,000µg/mL in acetone, 1mL/ampul
cat. # 31846 (ea.)

Benzyl Benzoate (Internal Standard)

5,000µg/mL in hexane, 1mL/ampul
cat. # 31847 (ea.)

8061A Surrogate Standard

dibenzyl phthalate
diphenyl phthalate
diphenyl isophthalate

500µg/mL in acetone, 1mL/ampul
cat. # 31848 (ea.)

Method 8061A (Phthalate Esters) *cont'd*

Phthalate Ester Mix, EPA 8061A (16 components)

benzyl butyl phthalate
bis(2-ethoxyethyl)phthalate
bis(2-ethylhexyl)phthalate
bis(2-methoxyethyl)
bis(2-*n*-butoxyethyl)
bis(4-methyl-2-pentyl)
di-*n*-butylphthalate
di-*n*-hexyl phthalate
di-*n*-octyl phthalate
di-nonyl phthalate
diethylphthalate
dimethylphthalate
dipentylphthalate
hexyl 2-ethylhexyl phthalate
phthalic acid dicyclohexyl
phthalic acid diisobutyl ester

1000µg/mL each in hexane, 1mL/ampul
cat. # 31849 (ea.)

Method 8080, 8081 (Chlorinated Pesticides)

Organochlorine Pesticide Mix AB #1

(20 components)

aldrin
α-BHC
β-BHC
δ-BHC
γ-BHC (lindane)
α-chlordane
γ-chlordane
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
endosulfan I
endosulfan II
endosulfan sulfate
endrin
endrin aldehyde
endrin ketone
heptachlor
heptachlor epoxide (isomer B)
methoxychlor

200µg/mL each in hexane:toluene (1:1), 1mL/ampul
cat. # 32291 (ea.)

Organochlorine Pesticide Mix AB #2

(20 components)

aldrin	8µg/mL	endosulfan I	8
α-BHC	8	endosulfan II	16
β-BHC	8	endosulfan sulfate	16
δ-BHC	8	endrin	16
γ-BHC (lindane)	8	endrin aldehyde	16
α-chlordane	8	endrin ketone	16
γ-chlordane	8	heptachlor	8
4,4'-DDD	16	heptachlor epoxide (isomer B)	8
4,4'-DDE	16	methoxychlor	80
4,4'-DDT	16		
dieldrin	16		

In hexane:toluene (1:1), 1mL/ampul
cat. # 32292 (ea.)

Organochlorine Pesticide Mix AB # 3

(20 components)

aldrin
α-BHC
β-BHC
δ-BHC
γ-BHC (lindane)
α-chlordane
γ-chlordane
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
endosulfan I
endosulfan II
endosulfan sulfate
endrin
endrin aldehyde
endrin ketone
heptachlor
heptachlor epoxide (isomer B)
methoxychlor

2,000µg/mL each in hexane:toluene (1:1), 1mL/ampul
cat. # 32415 (ea.)

did you **know**?

We have more than 2,000 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.

See **page 427** for our Custom Reference Materials Request Form.

Method 8080, 8081 (Chlorinated Pesticides) *cont'd*

Pesticide Surrogate Mix

decachlorobiphenyl 2,4,5,6-tetrachloro-*m*-xylene
200µg/mL each in acetone, 1mL/ampul
cat. # 32000 (ea.)

Pesticide Surrogate Mix

decachlorobiphenyl	200µg/mL
2,4,5,6-tetrachloro-*m*-xylene	100

In P&T methanol, 1mL/ampul
cat. # 32453 (ea.)

Method 8082, 8082A (PCBs)

PCB Congener Mix, Method 8082A

(19 components)

2-chlorobiphenyl (BZ #1)
2,3-dichlorobiphenyl (BZ #5)
2,2',5-trichlorobiphenyl (BZ #18)
2,4',5-trichlorobiphenyl (BZ #31)
2,2',3,5'-tetrachlorobiphenyl (BZ #44)
2,2',5,5'-tetrachlorobiphenyl (BZ #52)
2,3',4,4'-tetrachlorobiphenyl (BZ #66)
2,2',3,4,5'-pentachlorobiphenyl (BZ #87)
2,2',4,5,5'-pentachlorobiphenyl (BZ #101)
2,3,3',4',6-pentachlorobiphenyl (BZ #110)
2,2',3,4,4',5'-hexachlorobiphenyl (BZ #138)
2,2',3,4,5,5'-hexachlorobiphenyl (BZ #141)
2,2',3,5,5',6-hexachlorobiphenyl (BZ #151)
2,2',4,4',5,5'-hexachlorobiphenyl (BZ #153)
2,2',3,3',4,4',5-heptachlorobiphenyl (BZ #170)
2,2',3,4,4',5,5'-heptachlorobiphenyl (BZ #180)
2,2',3,4,4',5',6-heptachlorobiphenyl (BZ #183)
2,2',3,4',5,5',6-heptachlorobiphenyl (BZ #187)
2,2',3,3',4,4',5,5',6-nonachlorobiphenyl (BZ #206)

100µg/mL each in isooctane, 1mL/ampul
cat. # 32416 (ea.)

Method 8095 (Explosives by GC)

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.

8095 Surrogate

3,4-dinitrotoluene

1,000µg/mL in methanol, 1mL/ampul
cat. # 31452 (ea.)

8095 Surrogate

2-methyl-4-nitroaniline

1,000µg/mL in methanol, 1mL/ampul
cat. # 31612 (ea.)

Method 8095 (Explosives by GC) *cont'd*

8095 Matrix Spike Mix A (10 components)

2-amino-4,6-dinitrotoluene	HMX*
4-amino-2,6-dinitrotoluene	RDX
1,3-dinitrobenzene	tetryl
2,4-dinitrotoluene	1,3,5-trinitrobenene
2,6-dinitrotoluene	2,4,6-trinitrotoluene

200µg/mL in acetonitrile (*HMX at 2,000µg/mL), 1mL/ampul
cat. # 31609 (ea.)

8095 Matrix Spike Mix B (7 components)

3,5-dinitroaniline*	3-nitrotoluene
nitrobenzene	4-nitrotoluene
nitroglycerine	PETN
2-nitrotoluene	

1,000µg/mL in acetonitrile (*3,5-dinitroaniline at 200µg/mL), 1mL/ampul
cat. # 31610 (ea.)

8095 Calibration Mix A (10 components)

2-amino-4,6-dinitrotoluene	HMX
4-amino-2,6-dinitrotoluene	RDX
1,3-dinitrobenzene	tetryl
2,4-dinitrotoluene	1,3,5-trinitrobenzene
2,6-dinitrotoluene	2,4,6-trinitrotoluene

1,000µg/mL each in acetonitrile, 1mL/ampul
cat. # 31607 (ea.)

8095 Calibration Mix B (7 components)

3,5-dinitroaniline*	3-nitrotoluene
nitrobenzene	4-nitrotoluene
nitroglycerine	PETN
2-nitrotoluene	

5,000µg/mL in acetonitrile (*3,5-dinitroaniline at 1,000µg/mL), 1mL/ampul
cat. # 31608 (ea.)

Single-Component Explosives Solutions

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

Compound	Solvent	µg/mL	cat.# (ea.)	
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	
1,3-dinitrobenzene	ACN	1,000	31662	
1,4-dinitrobenzene	ACN	2,000	33205	new!
2,4-dinitrotoluene	ACN	1,000	31663	
2,6-dinitrotoluene	ACN	1,000	31664	
EGDN	M	1,000	31601	
HMX	ACN	1,000	31665	
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
M = methanol

free data

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

For complete information detailing manufacturing and testing for Restek inventoried reference standards, visit our website at **www.restek.com**. To view lot certificates and/or an MSDS, enter the catalog number of the product in the Search feature. For a free data pack (Adobe® PDF file), enter the catalog number and lot number of the product.

References (Not available from Restek.)
[1]US 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.
[2]M. E. Walsh, T. Ranney, J. Chromatogr. Sci., Vol. 36, pp. 406-416, August 1998.

also available

Restek offers the ChemService product line of neat pesticides and metabolites.

See pages 429-440 for more information.

ChemService

Method 8100 (Polycyclic Aromatic Hydrocarbons)

PAH Supplement Mix for Method 8100

(8 components)

benzo(j)fluoranthene	dibenzo(a,e)pyrene
dibenzo(a,h)acridine	dibenzo(a,h)pyrene
dibenzo(a,j)acridine	dibenzo(a,i)pyrene
7H-dibenzo(c,g)carbazole	3-methylcholanthrene

1000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31857 (ea.)

SV Calibration Mix #5 / 610 PAH Mix

(16 components)

acenaphthene	chrysene
acenaphthylene	dibenzo(a,h)anthracene
anthracene	fluoranthene
benzo(a)anthracene	fluorene
benzo(a)pyrene	indeno(1,2,3-cd)pyrene
benzo(b)fluoranthene	naphthalene
benzo(k)fluoranthene	phenanthrene
benzo(ghi)perylene	pyrene

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31011 (ea.)

also available

Our 30m, 0.32mm ID, 0.50µm Rtx®-OPPesticides column provides fast analyses, low bleed, and better resolution than alternative choices.

See page 77 for details.

also available

Additional nitrogen/phosphorus pesticide mixes are listed on page 449.

Methods 8140, 8141 (Organophosphorus Pesticides)

The preparation of accurate and stable OP pesticide standards is complicated by their sensitivity to light, pH, heat, and water. Restek has spent more than four years researching OP pesticide mixtures. Based on this research, our procedures include:

- Solvents are assayed to ensure low water content.
- Reference mixtures are packaged in deactivated amber ampules, under an inert atmosphere.
- Purity is determined by a combination of GC/FID, GC/FPD, GC/NPD, DSC, or HPLC/UV.

8140/8141 Internal Standards & Surrogates

NPD Detector:

1,000µg/mL in acetone, 1mL/ampul
Internal Standard: 1-bromo-2-nitrobenzene
cat. # 32279 (ea.)
Surrogate: 4-chloro-3-nitrobenzotrifluoride
cat. # 32282 (ea.)

FPD Detector:

1,000µg/mL in acetone, 1mL/ampul
Internal Standard: none suggested
Surrogate: tributylphosphate
cat. # 32280 (ea.)
Surrogate: triphenylphosphate
cat. # 32281 (ea.)

8140/8141 OP Pesticide Calibration Mix A

(20 components)

azinphos methyl	fenthion
bolstar (sulprofos)	merphos
chlorpyrifos	methyl parathion
coumaphos	mevinphos
demeton, O & S	naled
diazinon	phorate
dichlorvos	ronnel
disulfoton	stirofos
ethoprop	tokuthion (prothiofos)
fensulfothion	trichloronate

200µg/mL each in hexane:acetone (95:5), 1mL/ampul
cat. # 32277 (ea.)

8141 OP Pesticide Calibration Mix B

(7 components)

dimethoate	parathion
EPN	sulfotepp
malathion	TEPP
monocrotophos	

200µg/mL each in hexane:acetone (95:5), 1mL/ampul
cat. # 32278 (ea.)

please note

Restek OPP standards are stable for at least 12 months.

Method 8150, 8151, 8151A (Chlorinated Acid Herbicides)

Herbicide Internal Standard

4,4'-dibromooctafluorobiphenyl

250µg/mL in hexane, 1mL/ampul
cat. # 32053 (ea.)

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 31040 (ea.)

2,000µg/mL in methyl *tert*-butyl ether, 1mL/ampul
cat. # 31856 (ea.)

Herbicide Surrogate

Free Acid Form:

2,4-dichlorophenylacetic acid (DCAA)

200µg/mL in methanol, 1mL/ampul
cat. # 32049 (ea.)

1,000µg/mL in acetone, 1mL/ampul
cat. # 32439 (ea.)

Derivatized Form:

2,4-dichlorophenyl acetic acid methyl ester (DCAA methyl ester)

200µg/mL in hexane, 1mL/ampul
cat. # 32050 (ea.)

Herbicide Mix #1 (7 components)

Free Acid Form:

2,4-D
2,4-DB
2,4,5-T
2,4,5-TP
dicamba
dichlorprop
dinoseb

200µg/mL each in methanol, 1mL/ampul
cat. # 32054 (ea.)

Derivatized Form:

2,4-D methyl ester
2,4-DB methyl ester
2,4,5-T methyl ester
2,4,5-TP methyl ester
dicamba methyl ester
dichlorprop methyl ester
dinoseb methyl ether

200µg/mL each in hexane, 1mL/ampul
cat. # 32055 (ea.)

Herbicide Mix #2

Free Acid Form:

dalapon

1,000µg/mL in acetonitrile, 1mL/ampul
cat. # 32432 (ea.)

1,000µg/mL in methanol, 1mL/ampul
cat. # 32253 (ea.)

2,000µg/mL in methanol, 1mL/ampul
cat. # 32056 (ea.)

Derivatized Form:

dalapon methyl ester

2,000µg/mL in hexane, 1mL/ampul
cat. # 32057 (ea.)

1,000µg/mL in methanol, 1mL/ampul
cat. # 32254 (ea.)

Herbicide Mix #3

Free Acid Form:

MCPA
MCPP

20,000µg/mL each in methanol, 1mL/ampul
cat. # 32058 (ea.)

Derivatized Form:

MCPA methyl ester
MCPP methyl ester

20,000µg/mL each in hexane, 1mL/ampul
cat. # 32059 (ea.)

MCPA

1,000µg/mL in methanol, 1mL/ampul
cat. # 32269 (ea.)

MCPP

1,000µg/mL in methanol, 1mL/ampul
cat. # 32271 (ea.)

Herbicide Mix #4 (8 components)

Free Acid Form:

acifluorfen
bentazon
chloramben
DCPA diacid
3,5-dichlorobenzoic acid
4-nitrophenol
pentachlorophenol
picloram

200µg/mL each in methanol, 1mL/ampul
cat. # 32061 (ea.)

Derivatized Form:

acifluorfen methyl ester
bentazon methyl ester
chloramben methyl ester
DCPA (Dacthal®)
3,5-dichlorobenzoic acid methyl ester
4-nitroanisole
pentachloroanisole
picloram methyl ester

200µg/mL each in hexane, 1mL/ampul
cat. # 32062 (ea.)

Picloram

1,000µg/mL in methanol, 1mL/ampul
cat. # 32265 (ea.)

3,5-Dichlorobenzoic Acid Surrogate Standard

3,5-dichlorobenzoic acid

1,000µg/mL in MTBE, 1mL/ampul
cat. # 31652 (ea.)

3,5-Dichlorobenzoic Acid Methyl Ester Surrogate Standard

3,5-dichlorobenzoic acid methyl ester

1,000µg/mL in MTBE, 1mL/ampul
cat. # 31649 (ea.)

1,000µg/mL in methanol, 1mL/ampul
cat. # 32264 (ea.)

Mike Shuey
Customer Service Representative
4+ years of service!

did you **know**?

We have more than 2,000 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.

See **page 427** for our Custom Reference Materials Request Form.

also **available**

Additional chlorinated acid herbicides mixes:

see Method 555, **page 453** and Method 8321, **page 470**

restek
innovation!

Xylene-Free, Highly-Purified Chloroprene Standard

The R&D chemists at Restek developed a novel procedure that produces a pure, quantitative chloroprene solution specially stabilized in purge & trap-grade methanol. The entire procedure is performed under carefully monitored conditions to prevent any contamination or polymerization of the highly reactive, neat chloroprene. The final solution is specially stabilized, allowing analysts to make dilutions for working standards in unmodified purge & trap-grade methanol.

Note: Because chloroprene is not analyzed by many laboratories, it is not included in our 8240 VOA mixes. Chloroprene is included in our 8260B MegaMix® Calibration Mix. Refer to **page 465.**

Method 8240 (Volatile Organic Compounds [VOC])

502.2 Calibration Mix #1 (gases)

bromomethane
chloroethane
chloromethane
dichlorodifluoromethane (CFC-12)
trichlorofluoromethane (CFC-11)
vinyl chloride

200µg/mL each in P&T methanol, 1mL/ampul
cat. # 30439 (ea.)

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30042 (ea.)

VOA Calibration Mix #1 (ketones)

acetone
2-butanone (MEK)
2-hexanone
4-methyl-2-pentanone (MIBK)

5,000µg/mL each in P&T methanol:water (90:10), 1mL/ampul
cat. # 30006 (ea.)

VOA Purgeable Halocarbon Mix #1

(23 components)

bromodichloromethane
bromoform
carbon tetrachloride
chlorobenzene
2-chloroethyl vinyl ether
chloroform
dibromochloromethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
cis-1,3-dichloropropene
trans-1,3-dichloropropene
methylene chloride
1,1,2,2-tetrachloroethane
tetrachloroethene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30212 (ea.)

8240 Volatiles Mix #1A (12 components)

allyl chloride
benzyl chloride
1,2-dibromo-3-chloropropane
1,2-dibromoethane
dibromomethane
cis-1,4-dichloro-2-butene
trans-1,4-dichloro-2-butene
1,4-dioxane
iodomethane
pentachloroethane
1,1,1,2-tetrachloroethane
1,2,3-trichloropropane

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30217 (ea.)

8240 Volatiles Mix #2A

carbon disulfide
2-picoline
pyridine

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30218 (ea.)

Method 8240 (Volatile Organic Compounds [VOC]) *cont'd*

8240 Nitriles Mix (7 components)

acrylonitrile
ethyl methacrylate
malononitrile
methacrylonitrile
methyl methacrylate
propionitrile
styrene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30215 (ea.)

8240 Alcohols Mix

allyl alcohol
2-chloroethanol
ethanol
isobutyl alcohol
propargyl alcohol

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30214 (ea.)

Glycols Standard

ethylene glycol
propylene glycol

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

BTEX Standard

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

200µg/mL each in P&T methanol, 1mL/ampul
cat. # 30051 (ea.)

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30213 (ea.)

2,000µg/mL each in P&T methanol, (*m*-xylene and *p*-xylene at 1,000µg/mL), 1mL/ampul
cat. # 30488 (ea.)

BTEX Gas Mix

Cylinder Construction: aluminum
Cylinder Fitting: CGA-180 outlet

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

In nitrogen, 104 liters @ 1,800psi
1ppm cat. # 34414 (ea.)
100ppb cat. # 34428 (ea.)

In nitrogen, 110 liters @ 1,800psi (Pi-marked Cylinder)
1ppm cat. # 34414-PI (ea.)
100ppb cat. # 34428-PI (ea.)

Requires a high-purity VOC single-stage regulator. See page 415.
No data pack available.

Method 8260, 8260A, 8260B (Volatile Organic Compounds [VOC])

8260A Internal Standard Mix

chlorobenzene-d5
1,4-dichlorobenzene-d4
fluorobenzene

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30241 (ea.)

8260 Internal Standard Mix

chlorobenzene-d5
1,4-dichlorobenzene-d4
1,4-difluorobenzene
pentafluorobenzene

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30074 (ea.)

8260A Surrogate Mix

4-bromofluorobenzene
dibromofluoromethane
1,2-dichloroethane-d4
toluene-d8

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30240 (ea.)

8260 Surrogate Mix

4-bromofluorobenzene
dibromofluoromethane
toluene-d8

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30073 (ea.)

8260B Matrix Spike Mix

benzene
chlorobenzene
1,1-dichloroethene
toluene
trichloroethylene

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30479 (ea.)

8240/8260 System Performance Check Mix

bromoform
chlorobenzene
chloromethane
1,1-dichloroethane
1,1,2,2-tetrachloroethane

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30075 (ea.)

4-Bromofluorobenzene

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

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

1,4-Dioxane-d8

2,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30614 (ea.)

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)

Neat
1mL cat. # 30482 (ea.)
1g cat. # 33027 (ea.)

No data pack available.

Method 8260, 8260A, 8260B (Volatile Organic Compounds [VOC]) *cont'd*

8260B MegaMix® Calibration Mix (76 components)

acetonitrile
acrylonitrile
allyl chloride
benzene
bromobenzene
bromochloromethane
bromodichloromethane
bromoform
n-butylbenzene
sec-butylbenzene
tert-butylbenzene
carbon disulfide
carbon tetrachloride
chlorobenzene
2-chloroethanol
chloroform
chloroprene
2-chlorotoluene
4-chlorotoluene
dibromochloromethane
1,2-dibromo-3-chloropropane (DBCP)
1,2-dibromoethane (EDB)
dibromomethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
cis-1,4-dichloro-2-butene
trans-1,4-dichloro-2-butene
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
cis-1,2-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
1,3-dichloropropane
2,2-dichloropropane
1,1-dichloropropene
cis-1,3-dichloropropene
trans-1,3-dichloropropene
diethyl ether (ethyl ether)
1,4-dioxane
ethylbenzene
ethyl methacrylate
hexachloro-1,3-butadiene
iodomethane
isobutyl alcohol
isopropylbenzene (cumene)
4-isopropyl toluene (*p*-cymene)
methacrylonitrile
methyl acrylate
methyl methacrylate
methylene chloride (dichloromethane)
naphthalene
nitrobenzene
2-nitropropane
pentachloroethane
propionitrile
n-propylbenzene
styrene
1,1,1,2-tetrachloroethane
1,1,2,2-tetrachloroethane
tetrachloroethene
tetrahydrofuran
toluene
1,2,3-trichlorobenzene
1,2,4-trichlorobenzene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene
1,2,3-trichloropropane
1,1,2-trichlorotrifluororethane (CFC-113)
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
m-xylene
o-xylene
p-xylene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30633 (ea.)

2-Chloroethyl Vinyl Ether

2,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30265 (ea.)

8260B MegaMix® Calibration Mix Kit

kit

30633: 8260B MegaMix®
30265: 2-chlorethyl vinyl ether

Contains 1mL each of these mixtures.
cat. # 30475 (kit)

8240/8260 Calibration Check Mix

chloroform
1,1-dichloroethene
1,2-dichloropropane
ethylbenzene
toluene
vinyl chloride

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30427 (ea.)

Antifoam Agent for Purge & Trap Samples

Foam generated as purge gas passes through a sample can enter the analytical trap, and possibly into the GC column. Our silica-containing antifoam agent is effective over a wide pH range, and will not conflict with chromatography of target analytes.

Neat, 1mL/ampul
cat. # 31822 (ea.)

No data pack available.

also **available**

Our Rtx®-VMS column is your best choice for EPA Method 8260.

Fastest cycle times for VOCs. Tuned selectivity for VOCs. Excellent separation of gases.

See **page 87** for more information.

Method 8260, 8260A, 8260B (Volatile Organic Compounds [VOC]) *cont'd*

502.2 Calibration Mix #1 (gases)

bromomethane
chloroethane
chloromethane
dichlorodifluoromethane (CFC-12)
trichlorofluoromethane (CFC-11)
vinyl chloride

200µg/mL each in P&T methanol, 1mL/ampul
cat. # 30439 (ea.)

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30042 (ea.)

VOA Calibration Mix #1 (ketones)

acetone
2-butanone (MEK)
2-hexanone
4-methyl-2-pentanone (MIBK)

5,000µg/mL each in P&T methanol:water (90:10), 1mL/ampul
cat. # 30006 (ea.)

8260B Acetate Mix

vinyl acetate
ethyl acetate
isopropyl acetate
n-propyl acetate
n-butyl acetate

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30477 (ea.)

8260B Acetate Mix (Revised) (7 components)

n-amyl acetate
butyl acetate
ethyl acetate
isopropyl acetate
methyl acetate
propyl acetate
vinyl acetate

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30489 (ea.)

California Oxygenates Mix

diisopropyl ether	2,000µg/mL	*tert*-butyl alcohol	10,000
ethyl-*tert*-butyl ether	2,000	methyl *tert*-butyl ether	2,000
tert-amyl methyl ether	2,000		

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

Oxygenates

tert-amyl ethyl ether (TAEE)	2,000µg/mL
tert-amyl methyl ether (TAME)	2,000
tert-butyl alcohol (TBA)	10,000
diisopropyl ether (DIPE)	2,000
ethyl-*tert*-butyl ether (ETBE)	2,000
methyl *tert*-butyl ether (MTBE)	2,000

In P&T methanol, 1mL/ampul
cat. # 30626 (ea.)

Single-Component Oxygenates Solutions

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

Compound	Solvent	µg/mL	cat.# (ea.)
ethanol	W	10,000	30466
methanol	W	10,000	30467
tert-amyl alcohol	PTM	10,000	30631
ethanol	PTM	2,000	30288
methyl *tert*-butyl ether (MTBE)	PTM	2,000	30402
tert-amyl ethyl ether (TAEE)	PTM	2,000	30617
diisopropyl ether (DIPE)	PTM	2,000	30627
ethyl-*tert*-butyl ether (ETBE)	PTM	2,000	30628
tert-amyl methyl ether (TAME)	PTM	2,000	30629
tert-butanol-d9	PTM	20,000	30618
tert-butanol	PTM	50,000	30470

PTM = purge & trap grade methanol
W = DI water

Acrolein

10,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30499 (ea.)

10,000µg/mL in water, 1mL/ampul
cat. # 30478 (ea.)

1,2-Dichlorotetrafluoroethane (CFC-114)

2,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30476 (ea.)

Chloroprene

5,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30238 (ea.)

Vinyl Acetate

2,000µg/mL in P&T methanol, 1mL/ampul
cat. # 30216 (ea.)

free data

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

For complete information detailing manufacturing and testing for Restek inventoried reference standards, visit our website at **www.restek.com**. To view lot certificates and/or an MSDS, enter the catalog number of the product in the Search feature. For a free data pack (Adobe® PDF file), enter the catalog number and lot number of the product.

Method 8270D, 8270C (Semivolatile Organic Compounds)

SV Internal Standard Mix

acenaphthene-d10 — naphthalene-d8
chrysene-d12 — perylene-d12
1,4-dichlorobenzene-d4 — phenanthrene-d10

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31206 (ea.)

4,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31006 (ea.)

Revised SV Internal Standard Mix

(7 components)

acenaphthane-d10 — naphthalene-d8
chrysene-d12 — perylene-d12
1,4-dichlorobenzene-d4 — phenanthrene-d10
1,4-dioxane-d8

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31885 (ea.)

4,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31886 (ea.)

B/N Surrogate Mix (4/89 SOW)

2-fluorobiphenyl — *p*-terphenyl-d14
nitrobenzene-d5

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31024 (ea.)

5,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31062 (ea.)

5,000µg/mL each in methylene chloride, 5mL/ampul
cat. # 31086 (ea.)

5,000µg/mL each in methylene chloride, 10mL/ampul
cat. # 33028 (ea.)

Revised B/N Surrogate Mix

2-fluorobiphenyl — *p*-terphenyl-d14
nitrobenzene-d5 — pyrene-d10

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31887 (ea.)

5,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31888 (ea.)

5,000µg/mL each in methylene chloride, 5mL/ampul
cat. # 31889 (ea.)

Acid Surrogate Mix (4/89 SOW)

2-fluorophenol — 2,4,6-tribromophenol
phenol-d6

2,000µg/mL each in methanol, 1mL/ampul
cat. # 31025 (ea.)

10,000µg/mL each in methanol, 1mL/ampul
cat. # 31063 (ea.)

10,000µg/mL each in methanol, 5mL/ampul
cat. # 31087 (ea.)

10,000µg/mL each in methylene chloride, 10mL/ampul
cat. # 33029 (ea.)

B/N Matrix Spike Mix

acenaphthene — N-nitroso-di-*n*-propylamine
1,4-dichlorobenzene — pyrene
2,4-dinitrotoluene — 1,2,4-trichlorobenzene

1,000µg/mL each in methanol, 1mL/ampul
cat. # 31004 (ea.)

5,000µg/mL each in methanol, 1mL/ampul
cat. # 31074 (ea.)

5,000µg/mL each in methanol, 5mL/ampul
cat. # 31084 (ea.)

5,000µg/mL each in methylene chloride, 10mL/ampul
cat. # 33030 (ea.)

Acid Matrix Spike Mix

4-chloro-3-methylphenol — pentachlorophenol
2-chlorophenol — phenol
4-nitrophenol

2,000µg/mL each in methanol, 1mL/ampul
cat. # 31014 (ea.)

10,000µg/mL each in methylene chloride, 10mL/ampul
cat. # 33031 (ea.)

10,000µg/mL each in methanol, 1mL/ampul
cat. # 31061 (ea.)

10,000µg/mL each in methanol, 5mL/ampul
cat. # 31071 (ea.)

GC/MS Tuning Mixture

benzidine — DFTPP
4,4'-DDT — pentachlorophenol

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31615 (ea.)

SV Tuning Compound

decafluorotriphenylphosphine (DFTPP)

2,500µg/mL in methylene chloride, 1mL/ampul
cat. # 31001

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)

Neat

1mL cat. # 30482 (ea.)
1g cat. # 33027 (ea.)

No data pack available.

8270 B/N Calibration Check Mix (7 components)

acenaphthene — diphenylamine
benzo(a)pyrene — fluoranthene
1,4-dichlorobenzene — hexachlorobutadiene
di-*n*-octyl phthalate

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31616 (ea.)

8270 Acid Calibration Check Mix

4-chloro-3-methylphenol — pentachlorophenol
2,4-dichlorophenol — phenol
2-nitrophenol — 2,4,6-trichlorophenol

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31617 (ea.)

SV System Performance Check Mix (SPCC)

2,4-dinitrophenol — 4-nitrophenol
hexachlorocyclopentadiene — N-nitroso-di-*n*-propylamine

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31689 (ea.)

605 Benzidines Calibration Mix

benzidine — 3,3'-dichlorobenzidine

2,000µg/mL each in methanol, 1mL/ampul
cat. # 31030 (ea.)

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31834 (ea.)

8270 Benzidines Mix

benzidine — 3,3'-dimethylbenzidine
3,3'-dichlorobenzidine

2,000µg/mL each in methanol, 1mL/ampul
cat. # 31688 (ea.)

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31852 (ea.)

Ken Poorman
International Customer Service Representative

did you **know**?

We have more than 2,000 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.

See **page 427** for our Custom Reference Materials Request Form.

Method 8270D, 8270C (Semivolatile Organic Compounds) *cont'd*

ordering **note**

Easier calibration!
8270 MegaMix® and 8270 Matrix Spike Mix include 3-methylphenol and 4-methylphenol at 1/2 x concentration of other components.

did you **know**?

We have more than 2,000 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.

See **page 427** for our Custom Reference Materials Request Form.

8270 MegaMix® (76 components)

acenaphthene
acenaphthylene
aniline
anthracene
azobenzene[1]
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(ghi)perylene
benzo(k)fluoranthene
benzyl alcohol
benzyl butyl phthalate
bis(2-chloroethoxy)methane
bis(2-chloroethyl)ether
bis(2-chloroisopropyl)ether
bis(2-ethylhexyl)adipate
bis(2-ethylhexyl)phthalate
4-bromophenyl phenyl ether
carbazole
4-chloroaniline
4-chloro-3-methylphenol
2-chloronaphthalene
2-chlorophenol
4-chlorophenyl phenyl ether
chrysene
dibenzo(a,h)anthracene
dibenzofuran
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
2,4-dichlorophenol
diethyl phthalate
2,4-dimethylphenol
dimethyl phthalate
di-*n*-butyl phthalate
1,2-dinitrobenzene
1,3-dinitrobenzene
1,4-dinitrobenzene
4,6-dinitro-2-methylphenol
2,4-dinitrophenol
2,4-dinitrotoluene
2,6-dinitrotoluene
di-*n*-octyl phthalate
diphenylamine[2]
fluoranthene
fluorene
hexachlorobenzene
hexachlorobutadiene
hexachlorocyclopentadiene
hexachloroethane
indeno(1,2,3-cd)pyrene
isophorone
1-methylnaphthalene
2-methylnaphthalene
2-methylphenol
3-methylphenol
4-methylphenol
naphthalene
2-nitroaniline
3-nitroaniline
4-nitroaniline
nitrobenzene
2-nitrophenol
4-nitrophenol
N-nitrosodimethylamine
N-nitroso-di-*n*-propylamine
pentachlorophenol
phenanthrene
phenol
pyrene
pyridine
2,3,4,6-tetrachlorophenol
2,3,5,6-tetrachlorophenol
1,2,4-trichlorobenzene
2,4,5-trichlorophenol
2,4,6-trichlorophenol

1,000µg/mL each in methylene chloride, 1mL/ampul*
cat. # 31850 (ea.)

*3-methylphenol and 4-methylphenol concentration is 500µg/mL.
[1]1,2-diphenylhydrazine (8270-listed analyte) decomposes to azobenzene (mix component) in the injector.
[2]N-nitrosodiphenylamine (8270-listed analyte) decomposes to diphenylamine (mix component) in the injector.

8270 Matrix Spike Mix (76 components)

same list as 8270 MegaMix® above

200µg/mL each in methanol:methylene chloride (80:20), 5mL/ampul**
cat. # 31687 (ea.)

200µg/mL each in methanol:methylene chloride (80:20), 10mL/ampul**
cat. # 33073 (ea.)

**3-methylphenol and 4-methylphenol concentration is 100µg/mL.

8270/Appendix IX Kit

kit

31850: 8270 MegaMix®
31834: 605 Benzidines Calibration Mix
31625: Appendix IX Mix #1
31806: Appendix IX Mix #2

Contains 1mL each of these mixtures.
cat. # 31815 (kit)

Benzoic Acid

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 31879 (ea.)

Appendix IX Mix #1 (18 components)

2-acetylaminofluorene
4-aminobiphenyl
p-dimethylaminoazobenzene
3,3'-dimethylbenzidine
α,α,-dimethylphenethylamine (free base)
methapyrilene (free base)
1-naphthylamine
2-naphthylamine
5-nitro-*o*-toluidine
N-nitrosodibutylamine
N-nitrosodiethylamine
N-nitrosomethylethylamine
N-nitrosomorpholine
N-nitrosopiperidine
N-nitrosopyrrolidine
1,4-phenylenediamine
2-picoline
o-toluidine

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31625 (ea.)

Appendix IX Mix #2 (32 components)

acetophenone
Aramite
atrazine
benzaldehyde
biphenyl
ε-caprolactam
chlorobenzilate
1-chloronaphthalene
diallate
dibenzo(a,j)acridine
2,6-dichlorophenol
7,12-dimethylbenz(a)anthracene
1,4-dioxane
diphenyl ether
ethyl methacrylate
ethyl methanesulfonate
hexachloropropene
isodrin
isosafrole (*cis* & *trans*)
kepone
3-methylcholanthrene
methyl methanesulfonate
1,4-naphthoquinone
4-nitroquinoline-N-oxide
pentachlorobenzene
pentachloroethane
pentachloronitrobenzene
phenacetin
pronamide
safrole
1,2,4,5-tetrachlorobenzene
1,3,5-trinitrobenzene

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31806 (ea.)

Organophosphorus Pesticide Mix, 8270/Appendix IX (9 components)

dimethoate
disulfoton
famphur
methyl parathion
O,O,O-triethyl phosphorothioate
parathion (ethyl parathion)
phorate
sulfotepp
zinophos (thionazine)

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 32419 (ea.)

Organochlorine Pesticide Mix AB # 3 (20 components)

aldrin
α-BHC
β-BHC
δ-BHC
γ-BHC (lindane)
α-chlordane
γ-chlordane
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
endosulfan I
endosulfan II
endosulfan sulfate
endrin
endrin aldehyde
endrin ketone
heptachlor
heptachlor epoxide (isomer B)
methoxychlor

2,000µg/mL each in hexane:toluene (1:1), 1mL/ampul
cat. # 32415 (ea.)

Method 8270D, 8270C (Semivolatile Organic Compounds) *cont'd*

8270 Calibration Mix #1 (19 components)

benzoic acid
4-chloro-3-methylphenol
2-chlorophenol
2,4-dichlorophenol
2,6-dichlorophenol
2,4-dimethylphenol
4,6-dinitro-2-methylphenol
2,4-dinitrophenol
dinoseb
2-methylphenol
3-methylphenol
4-methylphenol
2-nitrophenol
4-nitrophenol
pentachlorophenol
phenol
2,3,4,6-tetrachlorophenol
2,4,5-trichlorophenol
2,4,6-trichlorophenol

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31618 (ea.)

8270 Calibration Mix #2 (11 components)

aniline
benzidine
4-chloroaniline
3,3'-dichlorobenzidine
diphenylamine*
2-nitroaniline
3-nitroaniline
4-nitroaniline
N-nitrosodimethylamine
N-nitrosodi-*n*-propylamine
pyridine

2,000µg/mL each in methylene chloride:methanol (85:15), 1mL/ampul
cat. # 31619 (ea.)

*N-nitrosodiphenylamine (listed compound) decomposes to diphenylamine (mix component) in the injector.

8270 Calibration Mix #3 (23 components)

Aramite
bis(2-chloroethyl)ether
bis(2-chloroethoxy)methane
bis(2-chloroisopropyl)ether
4-bromophenyl phenyl ether
chlorobenzilate
2-chloronaphthalene
4-chlorophenyl phenyl ether
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,3-dinitrobenzene
hexachlorobenzene
hexachlorobutadiene
hexachlorocyclopentadiene
hexachloroethane
hexachloropropene
isodrin
kepone
pentachlorobenzene
pentachloronitrobenzene
1,2,4,5-tetrachlorobenzene
1,2,4-trichlorobenzene

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31620 (ea.)

8270 Calibration Mix #4 (22 components)

acetophenone
azobenzene*
benzyl alcohol
bis(2-ethylhexyl)phthalate
butyl benzyl phthalate
dibenzofuran
diethyl phthalate
dimethyl phthalate
di-*n*-butyl phthalate
di-*n*-octyl phthalate
2,4-dinitrotoluene
2,6-dinitrotoluene
ethyl methanesulfonate
isophorone
isosafrole (*cis* & *trans*)
methyl methanesulfonate
1,4-naphthoquinone
nitrobenzene
4-nitroquinoline-1-oxide
phenacetin
safrole
1,3,5-trinitrobenzene

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31621 (ea.)

*1,2-diphenylhydrazine (listed compound) decomposes to azobenzene (mix component) in the injector.

8270 Calibration Mix #5 (19 components)

acenaphthene
acenaphthylene
anthracene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(ghi)perylene
benzo(k)fluoranthene
chrysene
dibenzo(a,h)anthracene
fluoranthene
fluorene
ideno(1,2,3-cd)pyrene
3-methylcholanthrene
1-methylnaphthalene
2-methylnaphthalene
naphthalene
phenanthrene
pyrene

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31622 (ea.)

8270 Calibration Mix #6 (10 components)

diallate (*cis* & *trans*)
dimethoate
disulfoton
famphur
methyl parathion
parathion
phorate
pronamide
thionazine (zinophos)
0,0,0-triethyl phosphorothioate

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31623 (ea.)

Aramite

2,000µg/mL in hexane, 1mL/ampul
cat. # 31624 (ea.)

605 Benzidines Calibration Mix

benzidine
3,3'-dichlorobenzidine

2,000µg/mL each in methanol, 1mL/ampul
cat. # 31030 (ea.)

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31834 (ea.)

Aroclor Solutions

Compound	cat.# (ea.)
1,000µg/mL in hexane, 1mL/ampul	
Aroclor 1016	32006
Aroclor 1221	32007
Aroclor 1232	32008
Aroclor 1242	32009
Aroclor 1248	32010
Aroclor 1254	32011
Aroclor 1260	32012
Aroclor 1016/1260	32039
Aroclor 1262	32409
Aroclor 1268	32410
200µg/mL in isooctane, 1mL/ampul	
Aroclor 1016	32064
Aroclor 1221	32065
Aroclor 1232	32066
Aroclor 1242	32067
Aroclor 1248	32068
Aroclor 1254	32069
Aroclor 1260	32070
Aroclor 1016/1260	32299

free data

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

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also available

See **page 457** for chlordane and toxaphene reference materials.

did you know?

We have more than 2,000 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.

See **page 427** for our Custom Reference Materials Request Form.

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Method 8310 (Polycyclic Aromatic Hydrocarbons [PAHs])

EPA Method 8310 PAH Mixture

(18 components)

acenaphthene	dibenzo(a,h)anthracene
acenaphthylene	fluoranthene
anthracene	fluorene
benzo(a)anthracene	indeno(1,2,3-cd)pyrene
benzo(a)pyrene	1-methylnaphthalene
benzo(b)fluoranthene	2-methylnaphthalene
benzo(ghi)perylene	naphthalene
benzo(k)fluoranthene	phenanthrene
chrysene	pyrene

500µg/mL each in acetonitrile, 1mL/ampul

cat. # 31841 (ea.)

EPA Method 8310 Surrogate Standard

decafluorobiphenyl

1,000µg/mL in acetonitrile, 1mL/ampul

cat. # 31842 (ea.)

EPA Method 8310 Quality Control Check

(18 components)

acenaphthene	100µg/mL	dibenzo(a,h)anthracene	10
acenaphthylene	100	fluoranthene	10
anthracene	100	fluorene	100
benzo(a)anthracene	10	indeno(1,2,3-cd)pyrene	10
benzo(a)pyrene	10	1-methylnaphthalene	100
benzo(b)fluoranthene	10	2-methylnaphthalene	100
benzo(ghi)perylene	10	naphthalene	100
benzo(k)fluoranthene	5	phenanthrene	100
chrysene	10	pyrene	10

In acetonitrile, 1mL/ampul

cat. # 31843 (ea.)

Method 8315 (Aldehydes/Ketones-DNPH by HPLC)

Aldehyde-Ketone-DNPH TO-11A Calibration Mix

(15 components)

acetaldehyde-DNPH	formaldehyde-DNPH
acetone-DNPH	hexaldehyde-DNPH
acrolein-DNPH	isovaleraldehyde-DNPH
benzaldehyde-DNPH	propionaldehyde-DNPH
n-butyraldehyde-DNPH	*m*-tolualdehyde-DNPH
crotonaldehyde-DNPH	*o*-tolualdehyde-DNPH
2,5-dimethylbenz aldehyde-DNPH	*p*-tolualdehyde-DNPH
	valeraldehyde-DNPH

15µg/mL* each in acetonitrile, 1mL/ampul

cat. # 31808 (ea.)

*Concentration calculated as aldehyde.

Formaldehyde-DNPH Mix

formaldehyde-DNPH

500µg/mL* in acetonitrile, 1mL/ampul

cat. # 31837 (ea.)

*Concentration calculated as aldehyde.

Method 8315 (Aldehydes/Ketones-DNPH by HPLC) *cont'd*

CARB 1004 Aldehyde/Ketone-DNPH Calibration Standard (13 components) new!

acetaldehyde-2,4-DNPH	hexaldehyde-2,4-DNPH
acetone-2,4-DNPH	methacrolein-2,4-DNPH
acrolein-2,4-DNPH	methyl ethyl ketone-2,4-DNPH
benzaldehyde-2,4-DNPH	propionaldehyde-2,4-DNPH
n-butyraldehyde-2,4-DNPH	*m*-tolualdehyde-2,4-DNPH
crotonaldehyde-2,4-DNPH	valeraldehyde-2,4-DNPH
formaldehyde-2,4-DNPH	

3µg/mL each in acetonitrile, 1mL/ampul

cat. # 33093 (ea.)

DNPH Reference Materials new!

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

Compound	Solvent	µg/mL	cat.# (ea.)
acetaldehyde-2,4-DNPH	ACN	100	33074
acetone-2,4-DNPH	ACN	100	33075
acrolein-2,4-DNPH	ACN	100	33076
benzaldehyde-2,4-DNPH	ACN	100	33077
2-butanone-2,4-DNPH	ACN	100	33078
n-butyraldehyde-2,4-DNPH	ACN	100	33079
crotonaldehyde-2,4-DNPH	ACN	100	33080
2,5-dimethylbenzaldehyde-2,4-DNPH	ACN	100	33081
formaldehyde-2,4-DNPH	ACN	100	33082
glycolaldehyde-2,4-DNPH	ACN	100	33091
hexaldehyde-2,4-DNPH	ACN	100	33083
isobutyraldehyde-2,4-DNPH	ACN	100	33084
isovaleraldehyde-2,4-DNPH	ACN	100	33085
methacrolein-2,4-DNPH	ACN	100	33095
propionaldehyde-2,4-DNPH	ACN	100	33086
m-tolualdehyde-2,4-DNPH	ACN	100	33088
o-tolualdehyde-2,4-DNPH	ACN	100	33087
p-tolualdehyde-2,4-DNPH	ACN	100	33089
valeraldehyde-2,4-DNPH	ACN	100	33090

ACN=acetonitrile

Method 8321 (Chlorinated Acids by HPLC)

Chlorinated Acids by HPLC, Mix A (8 components)

acifluorfen (Blazer®)	dicamba
bentazon	dichlorprop
chloramben	picloram
2,4-D	2,4,5-TP (Silvex)

1,000µg/mL each in acetonitrile, 1mL/ampul

cat. # 32431 (ea.)

Chlorinated Acids by HPLC, Mix B (8 components)

2,4-DB	MCPP (mecoprop)
3,5-dichlorobenzoic acid	4-nitrophenol
dinoseb	pentachlorophenol
MCPA	2,4,5-T

1,000µg/mL each in acetonitrile, 1mL/ampul

cat. # 32430 (ea.)

Chlorinated Acid Herbicide Mix

2,4-dichlorophenoxyacetic acid (2,4-D)	2,4,5-TP (Silvex)

1,000µg/mL each in acetonitrile, 1mL/ampul

cat. # 32429 (ea.)

Dalapon (2,2-dichloropropionic acid)

1,000µg/mL in acetonitrile, 1mL/ampul

cat. # 32432 (ea.)

1,000µg/mL in methanol, 1mL/ampul

cat. # 32253 (ea.)

2,000µg/mL in methanol, 1mL/ampul

cat. # 32056 (ea.)

Method 8330 (Nitroaromatics and Nitramines by HPLC)

EPA Method 8330 is used to measure explosives residues in water and soil samples, using HPLC with UV detection. Target analytes are nitroaromatic and nitramine explosives and their degradation products.

8330 Internal Standards

3,4-dinitrotoluene

1,000µg/mL in methanol, 1mL/ampul
cat. # 31452 (ea.)

1,4-dinitrobenzene

2,000µg/mL in acetonitrile, 1mL/ampul
cat. # 33205 (ea.)

new!

8330 Surrogate

1,2-dinitrobenzene

1,000µg/mL in methanol, 1mL/ampul
cat. # 31453 (ea.)

Nitroaromatics and Nitramine Explosives by HPLC, EPA 8330B (17 components)

new!

2-amino-4,6-dinitrotoluene
4-amino-2,6-dinitrotoluene
3,5-dinitroaniline
1,3-dinitrobenzene
2,4-dinitrotoluene
2,6-dinitrotoluene
HMX
nitrobenzene
nitroglycerin
2-nitrotoluene
3-nitrotoluene
4-nitrotoluene
PETN
RDX
tetryl
1,3,5-trinitrobenzene
2,4,6-trinitrotoluene

1,000µg/mL each in acetonitrile, 1mL/ampul
cat. # 33204 (ea.)

Nitroaromatics and Nitramine Explosives by HPLC (14 components)

1,3-dinitrobenzene
2-amino-4,6-dinitrotoluene
4-amino-2,6-dinitrotoluene
2,4-dinitrotoluene
2,6-dinitrotoluene
HMX
nitrobenzene
2-nitrotoluene
3-nitrotoluene
4-nitrotoluene
RDX
tetryl
1,3,5-trinitrobenzene
2,4,6-trinitrotoluene

1,000µg/mL each in acetonitrile, 1mL/ampul
cat. # 33905 (ea.)

8330 Calibration Mix #1 (7 components)

1,3-dinitrobenzene
2,4-dinitrotoluene
HMX
nitrobenzene
RDX
1,3,5-trinitrobenzene
2,4,6-trinitrotoluene

1,000µg/mL each in acetonitrile, 1mL/ampul
cat. # 31450 (ea.)

8330 Calibration Mix #2 (7 components)

2-amino-4,6-dinitrotoluene
4-amino-2,6-dinitrotoluene
2,6-dinitrotoluene
2-nitrotoluene
3-nitrotoluene
4-nitrotoluene
tetryl

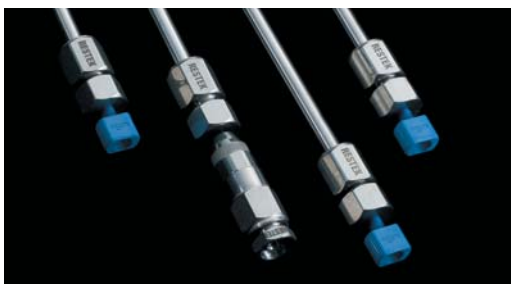
1,000µg/mL each in acetonitrile, 1mL/ampul
cat. # 31451 (ea.)

Single-Component Explosives Solutions

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

Compound	Solvent	µg/mL	cat.# (ea.)
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
1,3-dinitrobenzene	ACN	1,000	31662
1,4-dinitrobenzene	ACN	2,000	33205
2,4-dinitrotoluene	ACN	1,000	31663
2,6-dinitrotoluene	ACN	1,000	31664
EGDN	M	1,000	31601
HMX	ACN	1,000	31665
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
M = methanol



it's a fact

For excellent resolution and confirmation of EPA Method 8330B compounds, we recommend:

Ultra C18 primary column (250 x 4.6mm, cat.# 9174575, **page 322**)

Pinnacle™ II Biphenyl confirmation column (150 x 4.6mm, cat.# 9209565, **page 317**)

For example chromatography, dowload our *Trace-Level Explosives Analysis by HPLC* applications note from **www.restek.com**.
lit. cat.# 59361A

also available

See materials for GC Method 8095 on **pages 461.**

did you know?

When you order reference materials for Method 8330, be aware that obtaining pure, neat compounds for standards can be very difficult. Some of these commercial-grade materials contain desensitizing agents such as beeswax, water, or other manufacturing by-products. Many are shipped wet and must be carefully dried before preparation. To ensure the highest quality standards, Restek chemists use multiple analytical techniques including GC, HPLC, GC/MS, or DSC to verify raw material purity. All compounds are 98% pure or higher.