

Semivolatile Organic Reference Materials

US EPA Method 8270D/8270C and Appendix IX Target Compounds

Features

Carefully researched formulations: most target analytes in a single, stable mix.

Support major environmental methods.

Calibration mixes prepared in two independent lots.

Benefits

Fewest solutions compatible with maximum shelf life: fewer ampules to open, fewer errors in preparation.

Ready-to-use mixes to meet your lab's complete needs.

Assured lot agreement; ordering convenience.

US Environmental Protection Agency (EPA) Method 8270 outlines the analysis of semivolatile organic pollutants in solid waste, soil, water, and air matrices using gas chromatography/mass spectrometry (GC/MS). Update IVA of the third edition of SW-846—Test Methods for Evaluating Solid Waste, Physical/Chemical Methods—includes EPA Method 8270D, in which there were no major revisions from EPA Method 8270C.

Restek chemists have carefully reviewed EPA methods 8270C and 8270D, and formulated analytical reference materials to include all of the most commonly calibrated compounds. Restek also offers all the surrogate, internal standard, calibration check, matrix spike, and tuning mixtures required for these methods. If your list contains compounds not in our comprehensive listing, we will be happy to provide custom mixtures to meet your specific needs.

Calibration Mixes

8270 MegaMix® (76 components)

acenaphthene	4,6-dinitro-2-methylphenol
acenaphthylene	2,4-dinitrophenol
aniline	2,4-dinitrotoluene
anthracene	2,6-dinitrotoluene
azobenzene ¹	di- <i>n</i> -octyl phthalate
benzo(a)anthracene	diphenylamine ²
benzo(a)pyrene	fluorene
benzo(b)fluoranthene	fluoranthene
benzo(ghi)perylene	hexachlorobenzene
benzo(k)fluoranthene	hexachlorobutadiene
benzyl alcohol	hexachlorocyclopentadiene
benzyl butyl phthalate	hexachloroethane
bis(2-chloroethoxy)methane	indeno(1,2,3- <i>cd</i>)pyrene
bis(2-chloroethyl)ether	isophorone
bis(2-chloroisopropyl)ether	1-methylnaphthalene
bis(2-ethylhexyl)adipate	2-methylnaphthalene
bis(2-ethylhexyl)phthalate	2-methylphenol
4-bromophenyl phenyl ether	3-methylphenol
carbazole	4-methylphenol
4-chloroaniline	naphthalene
4-chloro-3-methylphenol	2-nitroaniline
2-chloronaphthalene	3-nitroaniline
2-chlorophenol	4-nitroaniline
4-chlorophenyl phenyl ether	nitrobenzene
chrysene	2-nitrophenol
dibenzo(a,h)anthracene	4-nitrophenol
dibenzofuran	N-nitrosodimethylamine
1,2-dichlorobenzene	N-nitroso-di- <i>n</i> -propylamine
1,3-dichlorobenzene	pentachlorophenol
1,4-dichlorobenzene	phenanthrene
2,4-dichlorophenol	phenol
diethyl phthalate	pyrene
dimethyl phthalate	pyridine
di- <i>n</i> -butyl phthalate	2,3,4,6-tetrachlorophenol
2,4-dimethylphenol	2,3,5,6-tetrachlorophenol
1,2-dinitrobenzene	1,2,4-trichlorobenzene
1,3-dinitrobenzene	2,4,5-trichlorophenol
1,4-dinitrobenzene	2,4,6-trichlorophenol
1,000µg/mL each in methylene chloride, 1mL/ampul*	
cat. # 31850	

*3-methylphenol and 4-methylphenol concentration is 500µg/mL.

8270 Matrix Spike Mix (76 components)

same list as 8270 MegaMix® (to the left)
200µg/mL each in methanol:methylene chloride (80:20),
5mL/ampul*

cat. # 31687

200µg/mL each in methanol:methylene chloride (80:20),
10mL/ampul*

cat. # 33073

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

¹1,2-diphenylhydrazine (8270-listed analyte) decomposes to
azobenzene (mix component).

²N-nitrosodiphenylamine (8270-listed analyte) decomposes to
diphenylamine (mix component).

605 Benzidines Calibration Mix

benzidine 3,3'-dichlorobenzidine
2,000µg/mL each in methanol, 1mL/ampul
cat. # 31030

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

8270 Benzidines Mix

benzidine 3,3'-dimethylbenzidine
3,3'-dichlorobenzidine
2,000µg/mL each in methanol, 1mL/ampul
cat. # 31688

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

Benzoic Acid

benzoic acid
2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 31879

Calibration Mixes, *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.

free data

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

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 MSDS, enter the catalog number of the product in the Search feature. For a free data pack, as a printable pdf file, enter the catalog number and lot number of the product.

kit available

128 target analytes in our 8270/Appendix IX Kit—four ampules available in two independently prepared lots.

Appendix IX Mix #1 (18 components)

2-acetylaminofluorene	N-nitrosodibutylamine
4-aminobiphenyl	N-nitrosodiethylamine
<i>p</i> -dimethylaminoazobenzene	N-nitrosomethylethylamine
3,3'-dimethylbenzidine	N-nitrosomorpholine
α,α' -dimethylphenethylamine (free base)	N-nitrosopiperidine
methapyrilene (free base)	N-nitrosopyrrolidine
1-naphthylamine	1,4-phenylenediamine
2-naphthylamine	2-picoline
5-nitro- <i>o</i> -toluidine	<i>o</i> -toluidine
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31625	

Appendix IX Mix #2 (32 components)

acetophenone	hexachloropropene
Aramite	isodrin
atrazine	isosafrone (<i>cis</i> & <i>trans</i>)
benzaldehyde	kepone
biphenyl	3-methylcholanthrene
ϵ -caprolactam	methyl methanesulfonate
chlorobenzilate	1,4-naphthoquinone
1-chloronaphthalene	4-nitroquinoline-N-oxide
diallate	pentachlorobenzene
dibenzo(a,j)acridine	pentachloroethane
2,6-dichlorophenol	pentachloronitrobenzene
7,12-dimethylbenz(a)anthracene	phenacetin
1,4-dioxane	pronamide
diphenyl ether	safrone
ethyl methacrylate	1,2,4,5-tetrachlorobenzene
ethyl methanesulfonate	1,3,5-trinitrobenzene
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31806	

Organophosphorus Pesticide Mix,

8270/Appendix IX (9 components)

dimethoate	parathion (ethyl parathion)
disulfoton	phorate
famphur	sulfotepp
methyl parathion	zinophos (thionazine)
O,O,O-triethylphosphorothioate	
2,000 μ g/mL in methylene chloride, 1mL/ampul	
cat. # 32419	

Organochlorine Pesticide Mix AB # 3

(20 components)	
aldrin	dieldrin
α -BHC	endosulfan I
β -BHC	endosulfan II
δ -BHC	endosulfan sulfate
γ -BHC (lindane)	endrin
α -chlordane	endrin aldehyde
γ -chlordane	endrin ketone
4,4'-DDD	heptachlor
4,4'-DDE	heptachlor epoxide (B)
4,4'-DDT	methoxychlor
2,000 μ g/mL each in hexane:toluene (1:1), 1mL/ampul	
cat. # 32415	

8270/Appendix IX 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

QA Mixes

SV Internal Standard Mix

acenaphthene-d10	naphthalene-d8
chrysene-d12	perylene-d12
1,4-dichlorobenzene-d4	phenanthrene-d10
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31206	
4,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31006	

Revised SV Internal Standard Mix (7 components)

acenaphthene-d10	naphthalene-d8
chrysene-d12	perylene-d12
1,4-dichlorobenzene-d4	phenanthrene-d10
1,4-dioxane-d8	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31885	
4,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31886	

B/N Surrogate Mix (4/89 SOW)

2-fluorobiphenyl	<i>p</i> -terphenyl-d14
nitrobenzene-d5	
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31024	
5,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31062	
5,000 μ g/mL each in methylene chloride, 5mL/ampul	
cat. # 31086	
5,000 μ g/mL each in methylene chloride, 10mL/ampul	
cat. # 33028	

Revised B/N Surrogate Mix

2-fluorobiphenyl	<i>p</i> -terphenyl-d14
nitrobenzene-d5	pyrene-d10
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31887	
5,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31888	
5,000 μ g/mL each in methylene chloride, 5mL/ampul	
cat. # 31889	

Acid Surrogate Mix (4/89 SOW)

2-fluorophenol	2,4,6-tribromophenol
phenol-d6	
2,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31025	
10,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31063	
10,000 μ g/mL each in methanol, 5mL/ampul	
cat. # 31087	
10,000 μ g/mL each in methylene chloride, 10mL/ampul	
cat. # 33029	

B/N Matrix Spike Mix

acenaphthene	N-nitroso-di- <i>n</i> -propylamine
1,4-dichlorobenzene	pyrene
2,4-dinitrotoluene	1,2,4-trichlorobenzene
1,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31004	
5,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31074	
5,000 μ g/mL each in methanol, 5mL/ampul	
cat. # 31084	
5,000 μ g/mL each in methylene chloride, 10mL/ampul	
cat. # 33030	

QA Mixes, *cont'd*

Acid Matrix Spike Mix

4-chloro-3-methylphenol	pentachlorophenol
2-chlorophenol	phenol
4-nitrophenol	
2,000µg/mL each in methanol, 1mL/ampul	
cat. # 31014	
10,000µg/mL each in methanol, 1mL/ampul	
cat. # 31061	
10,000µg/mL each in methanol, 5mL/ampul	
cat. # 31071	
10,000µg/mL each in methylene chloride, 10mL/ampul	
cat. # 33031	

GC/MS Tuning Mixture

benzidine	DFTPP
4,4'-DDT	pentachlorophenol
1,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31615	

SV Tuning Compound

decafluorotriphenylphosphine (DFTPP)
2,500µg/mL in methylene chloride, 1mL/ampul
cat. # 31001

PFTBA (MS Tuning Compound)

perfluorotriethylamine (PFTBA)

Neat

1mL cat. # 30482

1g cat. # 33027

No data pack available.

8270 B/N Calibration Check Mix (7 components)

acenaphthene	diphenylamine
benzo(a)pyrene	fluoranthene
1,4-dichlorobenzene	hexachlorobutadiene
di- <i>n</i> -octyl phthalate	
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31616	

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	

SV System Performance Check Mix (SPCC)

2,4-dinitrophenol	4-nitrophenol
hexachlorocyclopentadiene	N-nitroso-di- <i>n</i> -propylamine
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31689	

Calibration Mixes by Class

8270 Calibration Mix #1 (19 components)

benzoic acid	3-methylphenol
4-chloro-3-methylphenol	4-methylphenol
2-chlorophenol	2-nitrophenol
2,4-dichlorophenol	4-nitrophenol
2,6-dichlorophenol	pentachlorophenol
2,4-dimethylphenol	phenol
4,6-dinitro-2-methylphenol	2,3,4,6-tetrachlorophenol
2,4-dinitrophenol	2,4,5-trichlorophenol
dinoseb	2,4,6-trichlorophenol
2-methylphenol	
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31618	

Calibration Mixes by Class, *cont'd*

8270 Calibration Mix #2 (11 components)

aniline	3-nitroaniline
benzidine	4-nitroaniline
4-chloroaniline	N-nitrosodimethylamine
3,3'-dichlorobenzidine	N-nitrosodi- <i>n</i> -propylamine
diphenylamine*	pyridine
2-nitroaniline	
2,000µg/mL each in methylene chloride:methanol (85:15), 1mL/ampul	
cat. # 31619	

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

8270 Calibration Mix #3 (23 components)

Aramite	hexachlorobenzene
bis(2-chloroethyl)ether	hexachlorobutadiene
bis(2-chloroethoxy)methane	hexachlorocyclopentadiene
bis(2-chloroisopropyl)ether	hexachloroethane
4-bromophenyl phenyl ether	hexachloropropene
chlorobenzilate	isodrin
2-chloronaphthalene	kepone
4-chlorophenyl phenyl ether	pentachlorobenzene
1,2-dichlorobenzene	pentachloronitrobenzene
1,3-dichlorobenzene	1,2,4,5-tetrachlorobenzene
1,4-dichlorobenzene	1,2,4-trichlorobenzene
1,3-dinitrobenzene	
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31620	

8270 Calibration Mix #4 (23 components)

acetophenone	2,6-dinitrotoluene
azobenzene*	ethyl methanesulfonate
benzyl alcohol	isophorone
bis(2-ethylhexyl)phthalate	isosafole (<i>cis</i> & <i>trans</i>)
butyl benzyl phthalate	methyl methanesulfonate
dibenzofuran	1,4-naphthoquinone
diethyl phthalate	nitrobenzene
dimethyl phthalate	4-nitroquinoline-1-oxide
di- <i>n</i> -butyl phthalate	phenacetin
di- <i>n</i> -octyl phthalate	safrole
2,4-dinitrotoluene	1,3,5-trinitrobenzene
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31621	

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

8270 Calibration Mix #5 (19 components)

acenaphthene	fluoranthene
acenaphthylene	fluorene
anthracene	ideno(1,2,3- <i>cd</i>)pyrene
benzo(a)anthracene	3-methylcholanthrene
benzo(a)pyrene	1-methylnaphthalene
benzo(b)fluoranthene	2-methylnaphthalene
benzo(ghi)perylene	naphthalene
benzo(k)fluoranthene	phenanthrene
chrysene	pyrene
dibenzo(a,h)anthracene	
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31622	

8270 Calibration Mix #6 (10 components)

diallate (<i>cis</i> & <i>trans</i>)	phorate
dimethoate	pronamide
disulfoton	thionazine (zinphos)
famphur	0,0,0-triethyl
methyl parathion	phosphorothioate
parathion	
2,000µg/mL each in methylene chloride, 1mL/ampul	
cat. # 31623	

Aramite

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



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Calibration Mixes by Compound Class, *cont'd*

8270/Appendix IX Calibration Kit (2,000µg/mL)

31618: 8270 Calibration Mix #1
 31619: 8270 Calibration Mix #2
 31620: 8270 Calibration Mix #3
 31621: 8270 Calibration Mix #4
 31622: 8270 Calibration Mix #5
 31623: 8270 Calibration Mix #6
 31625: Appendix IX Mix #1

kit

Contains 1mL each of these mixtures.
 cat. # 31627

8270 Calibration Kit (2,000µg/mL)

31618: 8270 Calibration Mix #1
 31619: 8270 Calibration Mix #2
 31620: 8270 Calibration Mix #3
 31621: 8270 Calibration Mix #4
 31622: 8270 Calibration Mix #5

kit

Contains 1mL each of these mixtures.
 cat. # 31626

Aroclor® Solutions

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

Compound	Solvent	Conc.	cat.#
Aroclor® 1016	H	1,000	32006
Aroclor® 1016	I	200	32064
Aroclor® 1221	H	1,000	32007
Aroclor® 1221	I	200	32065
Aroclor® 1232	H	1,000	32008
Aroclor® 1232	I	200	32066
Aroclor® 1242	H	1,000	32009
Aroclor® 1242	I	200	32067
Aroclor® 1248	H	1,000	32010
Aroclor® 1248	I	200	32068
Aroclor® 1254	H	1,000	32011
Aroclor® 1254	I	200	32069
Aroclor® 1260	H	1,000	32012
Aroclor® 1260	I	200	32070
Aroclor® 1262	H	1,000	32409
Aroclor® 1268	H	1,000	32410
Aroclor® 1016/1260	H	1,000	32039
Aroclor® 1016/1260	I	200	32299
Aroclor® 1016/1260	A	400	32456

A = acetone

H = hexane

I = isooctane

Recommended GC Columns for US EPA Method 8270

Rxi™-5ms Columns (fused silica)

(Crossbond® 5% diphenyl / 95% dimethyl polysiloxane)

ID	df (µm)	temp. limits	15-Meter	30-Meter	60-Meter	
0.25mm	0.25	-60 to 330/350°C	13420	13423	13426	
	0.40	-60 to 330/350°C		13481		
	0.50	-60 to 330/350°C	13435	13438	13441	
0.32mm	1.00	-60 to 330/350°C	13450	13453	13456	
	0.25	-60 to 330/350°C	13421	13424	13427	
	0.50	-60 to 330/350°C	13436	13439	13442	
0.53mm	1.00	-60 to 330/350°C	13451	13454	13457	
	0.25	-60 to 330/350°C	13422	13425		
	0.50	-60 to 330/350°C	13437	13440		
	1.00	-60 to 330/350°C	13452	13455		
	1.50	-60 to 330/350°C	13467	13470		
	ID	df (µm)	temp. limits	12-Meter	20-Meter	25-Meter
0.18mm	0.18	-60 to 330/350°C		13402		
	0.30	-60 to 330/350°C		13409		
	0.36	-60 to 330/350°C		13411		
0.20mm	0.33	-60 to 330/350°C	13497		13498	13499

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