

EPA Superfund Contract Lab Program (CLP)



Joe Moodler
Analytical Reference
Materials Technical
Supervisor
18+ years of service!

free data

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also available

See pages 563-574 for volatiles analysis chromatograms.

US EPA Method No.	Compound Class	US EPA Method No.	Compound Class
SOM01.1 new!	Volatiles	SOM01.1	Semivolatiles
04.2 and 04.1	Volatiles	03.2 OLC	Semivolatiles
10/92 SOW	Volatiles	04.2 and 04.1 SOW	Semivolatiles
3/90 SOW	Volatiles	4/89 and 3/90 SOW	Semivolatiles
03.2 OLC	Volatiles	SOM01.1, 04.1, 3/90, 4/89 and 2/88 SOW	Pesticides, Aroclor PCBs

SOM01.1 (Volatiles), QA Mixes

SOM01.1 VOA Non-Ketone Deuterated Monitoring Compounds (11 components)

benzene-d6	1,2-dichloropropane-d6
chloroethane-d5	1,3-dichloropropene-d4*
chloroform-d	1,1,2,2-tetrachloroethane-d2
1,2-dichlorobenzene-d4	toluene-d8
1,2-dichloroethane-d4	vinyl chloride-d3
1,1-dichloroethene-d2	

500µg/mL each in deuterated methanol (MeOD), 1mL/ampul
cat. # 30624 (ea.)

1,000µg/mL each in deuterated methanol (MeOD), 1mL/ampul
cat. # 30635 (ea.) **new!**

*Mix of *cis* and *trans* isomers. Exact proportions will be reported on the data sheet.

SOM01.1 VOA Ketone Deuterated Monitoring Compounds

2-butanone-d5	2-hexanone-d5
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500µg/mL each in deuterium oxide (D₂O), 1mL/ampul
cat. # 30625 (ea.)

1,000µg/mL each in deuterium oxide (D₂O), 1mL/ampul
cat. # 30636 (ea.) **new!**

SOM01.1 VOA DMC Kit

30624: Non-Ketones
30625: Ketones

500µg/mL. 1mL each of these mixtures.
cat. # 30630 (kit)

1,000µg/mL. 1mL each of these mixtures.
cat. # 30637 (kit) **new!**

04.2, 04.1, and 10/92 SOW (Volatiles), QA Mixes

CLP 04.1 VOA Internal Standard/SMC Spike Mix

bromochloromethane	1,2-dichloroethane-d4
4-bromofluorobenzene	1,4-difluorobenzene
chlorobenzene-d5	toluene-d8

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30457 (ea.)

VOA Internal Standard Mix

bromochloromethane	chlorobenzene-d5
1,4-difluorobenzene	

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30011 (ea.)

04.2, 04.1, and 10/92 SOW (Volatiles), QA Mixes *cont'd*

VOA Surrogate Spike Mix

4-bromofluorobenzene	toluene-d8
1,2-dichloroethane-d4	
2,500µg/mL each in P&T methanol, 1mL/ampul	cat. # 30004 (ea.)

VOA Matrix Spike Mix

benzene	toluene
chlorobenzene	trichloroethene
1,1-dichloroethene	
2,500µg/mL each in P&T methanol, 1mL/ampul	cat. # 30005 (ea.)

VOA Screening Mix #1

benzene	<i>o</i> -xylene
ethylbenzene	<i>p</i> -xylene
toluene	
1,000µg/mL each in P&T methanol, 1mL/ampul	cat. # 30001 (ea.)

VOA Screening Mix #2

<i>n</i> -dodecane	<i>n</i> -nonane
1,000µg/mL each in P&T methanol, 1mL/ampul	cat. # 30002 (ea.)

VOA Tuning Compound

4-bromofluorobenzene	
5,000µg/mL in P&T methanol, 1mL/ampul	cat. # 30003 (ea.)

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)

Neat

1mL cat. # 30482 (ea.)

1g cat. # 33027 (ea.)

No data pack available.

L/C VOA Lab Control Sample #1 (11 components)

benzene	1,2-dichloropropane
bromoform	<i>cis</i> -1,3-dichloropropene
carbon tetrachloride	tetrachloroethene
1,2-dibromoethane	1,1,2-trichloroethane
1,4-dichlorobenzene	trichloroethene
1,2-dichloroethane	

2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30092 (ea.)

**04.2, 04.1, and 10/92 SOW (Volatiles),
QA Mixes cont'd****L/C VOA Lab Control Sample #2**

vinyl chloride
2,500µg/mL in P&T methanol, 1mL/ampul
cat. # 30093 (ea.)

L/C VOA Internal Standard Mix

chlorobenzene-d5 1,4-difluorobenzene
1,4-dichlorobenzene-d4
2,500µg/mL each in P&T methanol, 1mL/ampul
cat. # 30091 (ea.)

**04.2 and 04.1 (Volatiles),
Calibration Mixes****CLP 04.1 VOA CAL2000 MegaMix®**

(40 components)

benzene	<i>cis</i> -1,3-dichloropropene
bromodichloromethane	<i>trans</i> -1,3-dichloropropene
bromoform	ethylbenzene
carbon disulfide	isopropylbenzene
carbon tetrachloride	methyl acetate
chlorobenzene	methyl <i>tert</i> -butyl ether (MTBE)
chloroform	methylcyclohexane
cyclohexane	methylene chloride
dibromochloromethane	styrene
1,2-dibromo-3-chloropropane (DBCP)	1,1,2,2-tetrachloroethane
1,2-dibromoethane	tetrachloroethene
1,2-dichlorobenzene	toluene
1,3-dichlorobenzene	1,2,4-trichlorobenzene
1,4-dichlorobenzene	1,1,1-trichloroethane
1,1-dichloroethane	1,1,2-trichloroethane
1,2-dichloroethane	trichloroethene
1,1-dichloroethene	1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113)
<i>cis</i> -1,2-dichloroethene	<i>m</i> -xylene
<i>trans</i> -1,2-dichloroethene	<i>o</i> -xylene
1,2-dichloropropane	<i>p</i> -xylene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30456 (ea.)

502.2 Calibration Mix #1 (gases)

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

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

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

3/90 SOW (Volatiles), Calibration Mixes**CLP VOA CAL2000 MegaMix®** (28 components)

benzene	<i>cis</i> -1,3-dichloropropene
bromodichloromethane	<i>trans</i> -1,3-dichloropropene
bromoform	ethylbenzene
carbon disulfide	methylene chloride
carbon tetrachloride	styrene
chlorobenzene	1,1,2,2-tetrachloroethane
chloroform	tetrachloroethene
dibromochloromethane	toluene
1,1-dichloroethane	1,1,1-trichloroethane
1,2-dichloroethane	1,1,2-trichloroethane
1,1-dichloroethene	trichloroethene
<i>cis</i> -1,2-dichloroethene	<i>m</i> -xylene
<i>trans</i> -1,2-dichloroethene	<i>o</i> -xylene
1,2-dichloropropane	<i>p</i> -xylene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30632 (ea.)

Vinyl Acetate

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

CLP VOA CAL2000 MegaMix® Kit

30632: CLP VOA CAL2000 MegaMix®
30216: vinyl acetate

kit

Contains 1mL each of these mixtures.

cat. # 30438 (kit)

VOA Calibration Mix #2 (7 components)

benzene	vinyl acetate
carbon disulfide	<i>o</i> -xylene
ethylbenzene	<i>p</i> -xylene
toluene	

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30007 (ea.)

VOA Calibration Mix #3 (10 components)

carbon tetrachloride	1,2-dichloropropane
chlorobenzene	methylene chloride
chloroform	1,1,2-trichloroethane
1,1-dichloroethane	trichloroethene
1,1-dichloroethene	<i>m</i> -xylene

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30008 (ea.)

VOA Calibration Mix #4 (12 components)

bromodichloromethane	<i>cis</i> -1,3-dichloropropene
bromoform	<i>trans</i> -1,3-dichloropropene
dibromochloromethane	styrene
1,2-dichloroethane	1,1,2,2-tetrachloroethane
<i>cis</i> -1,2-dichloroethene	tetrachloroethene
<i>trans</i> -1,2-dichloroethene	1,1,1-trichloroethane

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30009 (ea.)

VOA Calibration Mix #5 (gases)

bromomethane	chloromethane
chloroethane	vinyl chloride

2,000µg/mL each in P&T methanol, 1mL/ampul
cat. # 30010 (ea.)

**frequently
asked question****Why don't MegaMix® mixtures
contain ketones required by
the methods?**

In methanol solution, ketones can interact with other compounds, resulting in a methoxy addition to the ketone.¹ The presence of halogenated compounds greatly speeds the reaction, limiting shelf-life to less than two months. Because none of eighteen preservatives (including water) was successful at inhibiting the reaction, we do not combine ketones with halogenated compounds in any of our calibration mixtures.

Reference

¹A comparison of ketone stability in calibration mixes for EPA Method 524.2 Revision 4.0, Christopher Cox, et. al., 1997 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, poster number 467P.

**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.

OLC 03.2 (Volatiles), Calibration Mixes**OLC 03.2 VOA MegaMix®** (42 components)

benzene	<i>cis</i> -1,3-dichloropropene
bromochloromethane	<i>trans</i> -1,3-dichloropropene
bromodichloromethane	ethylbenzene
bromoform	isopropylbenzene (cumene)
carbon disulfide	methyl acetate
carbon tetrachloride	methylcyclohexane
chlorobenzene	methyl <i>tert</i> -butyl ether (MTBE)
chloroform	methylene chloride
cyclohexane	(dichloromethane)
dibromochloromethane	styrene
(chlorodibromomethane)	1,1,2,2-tetrachloroethane
1,2-dibromo-3-chloropropane	tetrachloroethene
(DBCP)	toluene
1,2-dibromoethane (EDB)	1,2,3-trichlorobenzene
1,2-dichlorobenzene	1,2,4-trichlorobenzene
1,3-dichlorobenzene	1,1,1-trichloroethane
1,4-dichlorobenzene	1,1,2-trichloroethane
1,1-dichloroethane	trichloroethene
1,2-dichloroethane	1,1,2-trichlorotrifluoroethane
1,1-dichloroethene	(CFC-113)
<i>cis</i> -1,2-dichloroethene	<i>m</i> -xylene*
<i>trans</i> -1,2-dichloroethene	<i>o</i> -xylene
1,2-dichloropropane	<i>p</i> -xylene*
2,000µg/mL each (* <i>m</i> - & <i>p</i> -xylene at 1,000µg/mL) in P&T methanol, 1mL/ampul	
	cat. # 30492 (ea.)

L/C VOA Calibration Mix #6

bromochloromethane	1,2-dichlorobenzene
1,2-dibromo-3-chloropropane	1,3-dichlorobenzene
(DBCP)	1,4-dichlorobenzene
1,2-dibromoethane	
2,000µg/mL each in P&T methanol, 1mL/ampul	
	cat. # 30090 (ea.)

Additional VOA Calibration Mixes Required:

30006: VOA Calibration Mix #1	30009: VOA Calibration Mix #4
30007: VOA Calibration Mix #2	30010: VOA Calibration Mix #5
30008: VOA Calibration Mix #3	30003: VOA Tuning Compound

See pages 472–473 for mix compositions.

SOM01.1 (Semivolatiles), QA Mixes**SOM01.1 Deuterated Monitoring Compound**

Mix w/ SIM Compounds (18 components)	
acenaphthylene-d8	fluoranthene-d10
anthracene-d10	fluorene-d10
benzo(a)pyrene-d12	2-methylnaphthalene-d10
bis(2-chloroethyl)ether-d8	4-methylphenol-d8
4-chloroaniline-d4	nitrobenzene-d5
2-chlorophenol-d4	2-nitrophenol-d4
2,4-dichlorophenol-d3	4-nitrophenol-d4
dimethylphthalate-d6	phenol-d5
4,6-dinitro-2-methylphenol-d	pyrene-d10
2,000µg/mL each in methylene chloride, 1mL/ampul	
	cat. # 33918 (ea.)

SOM01.1 Deuterated Monitoring Compound Mix SIM Compounds

fluoranthene-d10	2-methylnaphthalene-d10
2,000µg/mL each in methylene chloride, 1mL/ampul	
	cat. # 33913 (ea.)

CCME F2 Surrogate Standard

2-methylnonane	
1,000µg/mL in methylene chloride, 1mL/ampul	
	cat. # 31870 (ea.)

SOM01.1 (Semivolatiles), QA Mixes cont'd**SOM01.1 SVOA B/N Matrix Spike Mix**

acenaphthene	N-nitroso-di- <i>n</i> -propylamine
2,4-dinitrotoluene	pyrene
5,000µg/mL each in methanol, 1mL/ampul	
	cat. # 33916 (ea.)
5,000µg/mL each in methanol, 5mL/ampul	
	cat. # 33917 (ea.)

04.2, 04.1, 4/89, and 3/90 SOW (Semivolatiles), QA Mixes**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)

acenaphthene-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.)

Acid Surrogate Standard Mix (3/90 SOW)

2-chlorophenol-d4	phenol-d6
2-fluorophenol	2,4,6-tribromophenol
1,500µg/mL each in methanol, 1mL/ampul	
	cat. # 31003 (ea.)
7,500µg/mL each in methanol, 1mL/ampul	
	cat. # 31073 (ea.)
7,500µg/mL each in methanol, 5mL/ampul	
	cat. # 31083 (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.)

Revised B/N Surrogate Mix

2-fluorobiphenyl	<i>p</i> -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.)

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

OLC 03.2 SVOA Deuterated Monitoring Compounds. See page 478.

**04.2, 04.1, 4/89, and 3/90 SOW
(Semivolatiles), QA Mixes cont'd****CLP 04.1 BNA Surrogate Mix** (8 components)

2-chlorophenol-d4	1,500µg/mL	nitrobenzene-d5	1,000
1,2-dichlorobenzene-d4	1,000	phenol-d6	1,500
2-fluorobiphenyl	1,000	p-terphenyl-d14	1,000
2-fluorophenol	1,500	2,4,6-tribromophenol	1,500

In methylene chloride, 1mL/ampul
cat. # 31493 (ea.)

B/N Surrogate Standard Mix (3/90 SOW)

1,2-dichlorobenzene-d4	nitrobenzene-d5
2-fluorobiphenyl	p-terphenyl-d14

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31002 (ea.)

5,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31072 (ea.)

5,000µg/mL each in methylene chloride, 5mL/ampul
cat. # 31082 (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.)

Acid Matrix Spike Mix

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

1,500µg/mL each in methanol, 1mL/ampul
cat. # 31005 (ea.)

7,500µg/mL each in methanol, 1mL/ampul
cat. # 31075 (ea.)

7,500µg/mL each in methanol, 5mL/ampul
cat. # 31085 (ea.)

CLP 04.1 B/N Matrix Spike Mix

acenaphthene	N-nitroso-di-n-propylamine
2,4-dinitrotoluene	pyrene

1,000µg/mL each in methanol, 1mL/ampul
cat. # 31492 (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.)

SV Screening Mix

di-n-octyl phthalate	phenol
phenanthrene	

2,500µg/mL each in methylene chloride, 1mL/ampul
cat. # 31000 (ea.)

**Low Concentration Semivolatiles,
QA Mixes****L/C Acid Surrogate Mix**

2-fluorophenol	1000µg/mL	2,4,6-tribromophenol	3000
phenol-d6	1000		

In methanol, 1mL/ampul
cat. # 31207 (ea.)

L/C Acid Lab Control Sample

2-chlorophenol	2,4,6-trichlorophenol
phenol	

2,000µg/mL each in methanol, 1mL/ampul
cat. # 31212 (ea.)

L/C B/N Lab Control Sample (12 components)

For extended shelf life, 4-chloroaniline is provided as a separate solution.

Ampul 1:

benzo(a)pyrene	hexachlorethane
bis(2-chloroethyl)ether	isophorone
diethyl phthalate	naphthalene
2,4-dinitrotoluene	N-nitrosodiphenylamine
N-nitroso-di-n-propylamine	1,2,4-trichlorobenzene
hexachlorobenzene	

1,000µg/mL each in methylene chloride, 1mL/ampul

Ampul 2:

4-chloroaniline
2,000µg/mL in methylene chloride, 1mL/ampul

cat. # 31241 (ea.)

SV Tuning Compound

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

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)
Neat

1mL cat. # 30482 (ea.)

1g cat. # 33027 (ea.)

No data pack available.

save **money!**

Buy acid and B/N surrogates and spike mixes in 5mL ampuls.

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.



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Service Representative

tech tip

CLP OLM 04.1 Semivolatiles

Dilution

Atrazine and benzaldehyde react quickly with the methanol stabilizer used in most brands and grades of methylene chloride. This reaction will prevent you from obtaining stable, working-level calibration standards. We prepare **CLP 04.1 B/N MegaMix®** and our **Benzaldehyde** standard from methylene chloride that is stabilized with amylene and is completely free of methanol. We strongly recommend screening the methylene chloride used to dilute these mixtures and confirming that it is free of methanol.

SOM01.1 (Semivolatiles), Calibration Mixes

SOM01.1 SVOA MegaMix®

(67 components)

acenaphthene	2,4-dinitrophenol
acenaphthylene	2,4-dinitrotoluene
acetophenone	2,6-dinitrotoluene
anthracene	di- <i>n</i> -octyl phthalate
atrazine	diphenylamine ¹
benzo(a)anthracene	fluoranthene
benzo(a)pyrene	fluorene
benzo(b)fluoranthene	hexachlorobenzene
benzo(ghi)perylene	hexachloro-1,3-butadiene (hexachlorobutadiene)
benzo(k)fluoranthene	hexachlorocyclopentadiene
benzyl butyl phthalate	hexachloroethane
biphenyl	indeno(1,2,3-cd)pyrene
bis(2-chloroethoxy)methane	isophorone
bis(2-chloroethyl)ether	2-methylnaphthalene
bis(2-chloroisopropyl)ether	2-methylphenol (<i>o</i> -cresol)
(2,2'-oxybis(1-chloropropane))	3-methylphenol (<i>m</i> -cresol)*
bis(2-ethylhexyl)phthalate	4-methylphenol (<i>p</i> -cresol)*
4-bromophenyl-phenylether	naphthalene
ε-caprolactam	2-nitroaniline
carbazole	4-chloroaniline
4-chloroaniline	2-chloronaphthalene
4-chloro-3-methylphenol	4-chlorophenyl phenyl ether
2-chloronaphthalene	chrysene
2-chlorophenol	dibenzo(a,h)anthracene
4-chlorophenyl-phenylether	dibenzofuran
chrysene	1,000µg/mL each in methylene chloride, 1mL/ampul
dibenzo(a,h)anthracene	cat. # 33019 (ea.)
dibenzofuran	
3,3'-dichlorobenzidine	
2,4-dichlorophenol	*3-methylphenol and 4-methylphenol concentration is 500µg/mL.
diethylphthalate	¹ N-nitrosodiphenylamine (CLP-listed analyte) decomposes to
2,4-dimethylphenol	diphenylamine (mix component) in the injector.
dimethylphthalate	
di- <i>n</i> -butylphthalate	
4,6-dinitro-2-methylphenol	

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 33019 (ea.)

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

¹ N-nitrosodiphenylamine (CLP-listed analyte) decomposes to diphenylamine (mix component) in the injector.

Benzaldehyde

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 33017 (ea.)

SOM01.1 SVOA MegaMix® Kit

33019: SOM01.1 SVOA MegaMix® 1,000µg/mL **kit**
33017: Benzaldehyde 2,000µg/mL

Contains 1mL each of these mixtures.

cat. # 33005 (kit)

04.2 and 04.1 (Semivolatiles), Calibration Mixes

CLP 04.1 B/N MegaMix® (49 components)

acenaphthene	diethylphthalate
acenaphthylene	dimethylphthalate
acetophenone	di- <i>n</i> -butyl phthalate
anthracene	2,4-dinitrotoluene
atrazine	2,6-dinitrotoluene
benzo(a)anthracene	di- <i>n</i> -octyl phthalate
benzo(a)pyrene	diphenylamine ¹
benzo(b)fluoranthene	diphenylamine ¹
benzo(ghi)perylene	fluoranthene
benzo(k)fluoranthene	fluorene
benzyl butyl phthalate	hexachlorobenzene
biphenyl	hexachloro-1,3-butadiene (hexachlorobutadiene)
bis(2-chloroethoxy)methane	hexachlorocyclopentadiene
bis(2-chloroethyl)ether	hexachloroethane
bis(2-chloroisopropyl)ether	indeno(1,2,3-cd)pyrene
(2,2'-oxybis(1-chloropropane))	isophorone
bis(2-ethylhexyl)phthalate	2-methylnaphthalene
4-bromophenyl phenyl ether	naphthalene
ε-caprolactam	2-nitroaniline
carbazole	3-nitroaniline
4-chloroaniline	4-nitroaniline
2-chloronaphthalene	nitrobenzene
4-chlorophenyl phenyl ether	N-nitroso-di- <i>n</i> -propylamine
chrysene	phenanthrene
dibenzo(a,h)anthracene	pyrene
dibenzofuran	

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 33018 (ea.)

¹ N-nitrosodiphenylamine (CLP-listed analyte) decomposes to diphenylamine (mix component) in the injector.

Benzaldehyde

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 33017 (ea.)

CLP 04.1 B/N MegaMix® Kit

33018: CLP 04.1 B/N MegaMix® 1,000µg/mL **kit**
33017: Benzaldehyde 2,000µg/mL

Contains 1mL each of these mixtures.

cat. # 33014 (kit)

CLP 04.1 Phenols Calibration Mix (14 components)

4-chloro-3-methylphenol	4-methylphenol
2-chlorophenol	2-nitrophenol
2,4-dichlorophenol	4-nitrophenol
2,4-dimethylphenol	pentachlorophenol
2,4-dinitrophenol	phenol
2-methyl-4,6-dinitrophenol	2,4,5-trichlorophenol
2-methylphenol	2,4,6-trichlorophenol

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31494 (ea.)

Benzidine Mix

benzidine 3,3'-dichlorobenzidine
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31834 (ea.)

**4/89 and 3/90 SOW (Semivolatiles),
Calibration Mixes****SV Calibration Mix #1**

benzyl alcohol
4-chloroaniline
2-nitroaniline
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31007 (ea.)

SV Calibration Mix #2 (15 components)

benzoic acid
4-chloro-3-methylphenol
2-chlorophenol
2,4-dichlorophenol
2,4-dimethylphenol
2,4-dinitrophenol
2-methyl-4,6-dinitrophenol
2-methylphenol
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31008 (ea.)

SV Calibration Mix #3 (14 components)

bis(2-chloroethoxy)methane
bis(2-chloroethyl)ether
bis(2-chloroisopropyl)ether
bis(2-ethylhexyl)phthalate
4-bromophenyl phenyl ether
butyl benzyl phthalate
2-chloronaphthalene
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31009 (ea.)

SV Calibration Mix #4 (13 components)

carbazole
dibenzofuran
diethyl phthalate
2,4-dinitrotoluene
2,6-dinitrotoluene
hexachlorobenzene
hexachlorobutadiene
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31010 (ea.)

SV Calibration Mix #5 / 610 PAH Mix

(16 components)

acenaphthene
acenaphthylene
anthracene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(k)fluoranthene
benzo(ghi)perylene
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31011 (ea.)

**4/89 and 3/90 SOW (Semivolatiles),
Calibration Mixes *cont'd*****SV Calibration Mix #6** (18 components)

aldrin
α-BHC
β-BHC
δ-BHC
γ-BHC (lindane)
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
2,000µg/mL each in toluene:hexane (1:1), 1mL/ampul
cat. # 31012 (ea.)

SV Calibration Mix #7

1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31013 (ea.)

3,3'-Dichlorobenzidine

2,000µg/mL in methanol, 1mL/ampul
cat. # 31026 (ea.)
2,000µg/mL in methylene chloride (methanol free), 1mL/ampul
cat. # 31835 (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'-dichlorobenzidine
3,3'-dimethylbenzidine
2,000µg/mL each in methanol, 1mL/ampul
cat. # 31688 (ea.)
2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31852 (ea.)

also **available**See **pages 575-591** for chromatograms of semivolatiles analysis.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.

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.

also available

See page 76 for details on our Rxi™-5Sil MS Capillary Columns for semivolatiles analysis.



did you know?

Our Pesticide Matrix Spike Mix (cat. # 32018, page 479) can be used as a GPC calibration verification solution.

03.2 (Semivolatiles), Calibration Mixes

OLC 03.2 SVOA Deuterated Monitoring Compounds (DMC) (16 components)

acenaphthylene-d8	4,6-dinitro-methylphenol-d2
anthracene-d10	fluorene-d10
benzo(a)pyrene-d12	4-methylphenol-d8
4-chloroaniline-d4	nitrobenzene-d5
bis-(2-chloroethyl)ether-d8	2-nitrophenol-d4
2-chlorophenol-d4	4-nitrophenol-d4
2,4-dichlorophenol-d3	phenol-d5
dimethylphthalate-d6	pyrene-d10

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31810 (ea.)

OLC 03.2 SVOA MegaMix® (57 components)

acenaphthene	dimethylphthalate
acenaphthylene	di- <i>n</i> -butyl phthalate
acetophenone	2,4-dinitrophenol
anthracene	2,4-dinitrotoluene
atrazine	2,6-dinitrotoluene
benzaldehyde	di- <i>n</i> -octyl phthalate
benzo(a)anthracene	fluoranthene
benzo(a)pyrene	fluorene
benzo(b)fluoranthene	hexachlorobutadiene
benzo(ghi)perylene	hexachlorocyclopentadiene
benzo(k)fluoranthene	hexachloroethane
benzyl butyl phthalate	indeno(1,2,3-cd)pyrene
biphenyl	isophorone
bis(2-chloroethoxy)methane	2-methylnaphthalene
bis(2-chloroethyl)ether	2-methylphenol
bis(2-chloroisopropyl)ether	4-methylphenol
bis(2-ethylhexyl)phthalate	naphthalene
4-bromophenyl phenyl ether	nitrobenzene
ε-caprolactam	2-nitrophenol
carbazole	N-nitroso-di- <i>n</i> -propylamine
4-chloro-3-methylphenol	N-nitrosodiphenylamine
2-chloronaphthalene	pentachlorophenol
2-chlorophenol	phenanthrene
4-chlorophenyl phenyl ether	phenol
chrysene	pyrene
dibenzo(a,h)anthracene	1,2,4,5-tetrachlorobenzene
dibenzofuran	2,4,6-trichlorophenol
diethylphthalate	
2,4-dimethylphenol	

1,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31862 (ea.)

Fortification Mix (7 components)

4,6-dinitro-2-methylphenol	4-nitroaniline
2,4-dinitrophenol	4-nitrophenol
2-nitroaniline	2,4,5-trichlorophenol
3-nitroaniline	

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31813 (ea.)

3,3'-Dichlorobenzidine

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 31835 (ea.)

Hexachlorophene

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31811 (ea.)

Low Concentration Semivolatiles, Calibration Mixes

L/C Phenol Mix A

2,4-dinitrophenol*	pentachlorophenol*
2-methyl-4,6-dinitrophenol*	2,4,6-tribromophenol (SUR)*
4-nitrophenol*	2,4,5-trichlorophenol*

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31208 (ea.)

*Must be calibrated at a level different from the other listed semivolatiles compounds.

L/C Phenol Mix B (11 components)

4-chloro-3-methylphenol	4-methylphenol
2-chlorophenol	2-nitrophenol
2,4-dichlorophenol	phenol
2,4-dimethylphenol	phenol-d6 (SUR)
2-fluorophenol	2,4,6-trichlorophenol
2-methylphenol	

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31209 (ea.)

L/C Aniline Mix A

2-nitroaniline*	4-nitroaniline*
3-nitroaniline*	

2,000µg/mL each in methylene chloride, 1mL/ampul
cat. # 31210 (ea.)

*Must be calibrated at a level different from the other listed semivolatiles compounds.

L/C Aniline Mix B

4-chloroaniline

2,000µg/mL in methylene chloride, 1mL/ampul
cat. # 31211 (ea.)

Additional Required SV Calibration Mixes:

See pages 475 and 477 for mix compositions.

31024:	B/N Surrogate Mix (4/89 SOW)
31009:	SV Calibration Mix #3
31010:	SV Calibration Mix #4
31011:	SV Calibration Mix #5
31026:	3,3'-dichlorobenzidine
31001:	SV Tuning Compound (DFTPP)

GPC Calibration Mix

Qualitative mixture useful for determining GPC dump/collect times. The compounds are dissolved in methylene chloride at the concentrations listed. Data packs are not available.

CLP GPC Calibration Mix

bis(2-ethylhexyl)	methoxychlor	2.0
phthalate	10mg/mL perylene	0.2
corn oil	250 sulfur	0.8

In methylene chloride, 1mL/ampul
cat. # 32019 (ea.)

In methylene chloride, 5mL/ampul
cat. # 32023 (ea.)

Revised GPC Calibration Mix

bis(2-ethylhexyl)	methoxychlor	1.0
phthalate	5mg/mL perylene	0.2
corn oil	250 sulfur	0.8

In methylene chloride, 1mL/ampul
cat. # 32041 (ea.)

In methylene chloride, 5mL/ampul
cat. # 32042 (ea.)

SOM01.1 (Pesticides), QA Mixes**Pesticide Surrogate Mix**

decachlorobiphenyl	200µg/mL
2,4,5,6-tetrachloro- <i>m</i> -xylene	100
In P&T methanol, 1mL/ampul	
cat. # 32453 (ea.)	

Organochlorine Pesticide Resolution Check Mix (with surrogates) (22 components)

aldrin	10µg/mL	endosulfan I	10
α-BHC	10	endosulfan II	20
β-BHC	10	endosulfan sulfate	20
δ-BHC	10	endrin	20
γ-BHC (lindane)	10	endrin aldehyde	20
α-chlordane	10	endrin ketone	20
γ-chlordane	10	heptachlor	10
decachlorobiphenyl (SUR)	20	heptachlor epoxide	
dieldrin	20	(isomer B)	10
4,4'-DDD	20	methoxychlor	100
4,4'-DDE	20	2,4,5,6-tetrachloro- <i>m</i> -xylene (SUR)	10
4,4'-DDT	20		

In hexane:toluene, 1mL/ampul
cat. # 32454 (ea.)

04.2, 04.1, 03.2, 3/90, 4/89, and 2/88 SOW (Pesticides), QA Mixes**Pesticide Surrogate Mix**

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

2,4,5,6-Tetrachloro-*m*-xylene

200µg/mL in acetone, 1mL/ampul
cat. # 32027 (ea.)

200µg/mL in acetone, 5mL/ampul
cat. # 32028 (ea.)

Decachlorobiphenyl (BZ #209)

200µg/mL in acetone, 1mL/ampul
cat. # 32029 (ea.)

200µg/mL in acetone, 5mL/ampul
cat. # 32030 (ea.)

10µg/mL in isooctane, 1mL/ampul
cat. # 32289 (ea.)

Dibutylchloroendate

200µg/mL in acetone, 1mL/ampul
cat. # 32025 (ea.)

Florisil® Cartridge Check Standard

2,4,5-trichlorophenol
1,000µg/mL in acetone, 1mL/ampul
cat. # 32017 (ea.)

Organochlorine Pesticide System Evaluation Mix

4,4'-DDT 200µg/mL
endrin 100µg/mL

In MTBE, 1mL/ampul
cat. # 32417 (ea.)

04.2, 04.1, 03.2, 3/90, 4/89, and 2/88**SOW (Pesticides), QA Mixes cont'd****Pesticide Resolution Check Mix (7 components)**

γ-chlordane	1µg/mL	endosulfan I	1
4,4'-DDE	2	endosulfan sulfate	2
dieldrin	2	endrin ketone	2
		methoxychlor	10

In hexane, 1mL/ampul
cat. # 32001 (ea.)

Pesticide Resolution Check Mix w/Surrogates (9 components)

γ-chlordane	1µg/mL	endosulfan sulfate	2
4,4'-DDE	2	endrin ketone	2
decachlorobiphenyl (SUR)	2	methoxychlor	10
dieldrin	2	2,4,5,6-tetrachloro- <i>m</i> -xylene (SUR)	2
endosulfan I	1		

In hexane, 1mL/ampul
cat. # 32073 (ea.)

Pesticide Performance Evaluation Mix

α-BHC	1µg/mL	4,4'-DDT	10
β-BHC	1	endrin	5
γ-BHC (lindane)	1	methoxychlor	25

In hexane, 1mL/ampul
cat. # 32002 (ea.)

Pesticide Performance Evaluation Mix w/Surrogates (8 components)

α-BHC	1µg/mL	decachlorobiphenyl (SUR)	2
β-BHC	1	endrin	5
γ-BHC (lindane)	1	methoxychlor	25
4,4'-DDT	10	2,4,5,6-tetrachloro- <i>m</i> -xylene (SUR)	2

In hexane, 1mL/ampul
cat. # 32074 (ea.)

CLP Pesticides Mixtures, QA Mixes**Pesticide Matrix Spike Mix**

aldrin	25µg/mL	dieldrin	50
γ-BHC (lindane)	25	endrin	50
4,4'-DDT	50	heptachlor	25

In acetone, 1mL/ampul
cat. # 32018 (ea.)

Pesticide Matrix Spike Mix (2/88 SOW)

aldrin	200µg/mL	dieldrin	500
γ-BHC (lindane)	200	endrin	500
4,4'-DDT	500	heptachlor	200

In methanol, 1mL/ampul
cat. # 32031 (ea.)

Pesticide Evaluation Mix (2/88 SOW)

aldrin	4,4'-DDT
dibutylchloroendate (SUR)	endrin

100µg/mL each in hexane, 1mL/ampul
cat. # 32032 (ea.)

See complete listing of PCBs, pages 481-482.

tech tip**Working with solutions containing decachlorobiphenyl**

Decachlorobiphenyl has poor solubility in most organic solvents. The maximum concentration that can be prepared in acetone, hexane, or isooctane is 200µg/mL. Temperature will affect the solubility as well. Storing solutions at reduced temperatures will cause decachlorobiphenyl to precipitate.

Products containing decachlorobiphenyl must be sonicated for a minimum of 10 minutes prior to opening the ampul. Because each ultrasonic bath operates at a different energy level, 10 minutes is a guideline only. Longer sonication time will not affect product quality.

These precautions apply to working solutions prepared in your laboratory as well. The amount of compound that precipitates depends on concentration AND temperature. If you store your standards at a temperature lower than 4°C (even dilute solutions), allow extra sonication time.

also available

See pages 78-81 for Rtx®-CLPesticides and Rtx®-CLPesticide2 capillary columns for pesticides analysis.

See pages 481-482 for our complete listing of PCBs and congeners.

Low Concentration Pesticides Mixtures, QA Mixes

L/C Pesticide Lab Control Sample (7 components)

γ -BHC (lindane)	10 μ g/mL	endosulfan sulfate	20
γ -chlordane	10	endrin	20
4,4'-DDE	20	heptachlor epoxide (isomer B)	10
dieldrin	20		

In acetone, 1mL/ampul
cat. # 32040 (ea.)

tech tip

Working with solutions containing decachlorobiphenyl

Decachlorobiphenyl has poor solubility in most organic solvents. The maximum concentration that can be prepared in acetone, hexane, or isooctane is 200 μ g/mL. Temperature will affect the solubility as well. Storing solutions at reduced temperatures will cause decachlorobiphenyl to precipitate.

Products containing decachlorobiphenyl must be sonicated for a minimum of 10 minutes prior to opening the ampul. Because each ultrasonic bath operates at a different energy level, 10 minutes is a guideline only. Longer sonication time will not affect product quality.

These precautions apply to working solutions prepared in your laboratory as well. The amount of compound that precipitates depends on concentration AND temperature. If you store your standards at a temperature lower than 4°C (even dilute solutions), allow extra sonication time.

CLP Pesticides Mixtures, Calibration Mixes

Pesticide Standard Mix A (2/88 SOW)

(10 components)

aldrin	10 μ g/mL	endrin aldehyde	25
γ -BHC (lindane)	5	heptachlor	10
4,4'-DDT	20	heptachlor epoxide (isomer B)	10
dieldrin	10	methoxychlor	100
endosulfan I	10		
endosulfan II	20		

In hexane, 1mL/ampul
cat. # 32033 (ea.)

Pesticide Standard Mix B (2/88 SOW)

(11 components)

aldrin	10 μ g/mL	4,4'-DDD	20
α -BHC	5	4,4'-DDE	10
β -BHC	10	endosulfan sulfate	20
δ -BHC	10	endrin	10
α -chlordane	10	endrin ketone	20
γ -chlordane	10		

In hexane, 1mL/ampul
cat. # 32034 (ea.)

Pesticide Standard Mix A (9 components)

α -BHC	5 μ g/mL	endosulfan I	5
γ -BHC (lindane)	5	endrin	10
4,4'-DDD	10	heptachlor	5
4,4'-DDT	10	methoxychlor	50
dieldrin	10		

In hexane:toluene (90:10), 1mL/ampul
cat. # 32297 (ea.)

Pesticide Standard Mix B (11 components)

aldrin	5 μ g/mL	endosulfan II	10
β -BHC	5	endosulfan sulfate	10
δ -BHC	5	endrin aldehyde	10
α -chlordane	5	endrin ketone	10
γ -chlordane	5	heptachlor epoxide (isomer B)	5
4,4'-DDE	10		

In hexane:toluene (90:10), 1mL/ampul
cat. # 32298 (ea.)

CLP Pesticides Mixtures, Calibration Mixes *cont'd*

Organochlorine Pesticide Mix AB #1

(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 (isomer B)	
4,4'-DDT		methoxychlor	

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

Organochlorine Pesticide Mix AB #2

(20 components)

aldrin	8 μ g/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		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 (isomer B)	
4,4'-DDT		methoxychlor	

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

Pesticides Calibration Mixtures

Components of these products are at 16x the Contract Required Quantitation Level (CRQL) and can be used to prepare calibration mixes at 4x CRQL and at 1x CRQL by serial dilution.

Pesticide Standard Mix A w/Surrogates

(11 components)

α -BHC	8 μ g/mL	endosulfan I	8
γ -BHC (lindane)	8	endrin	16
4,4'-DDD	16	heptachlor	8
4,4'-DDT	16	methoxychlor	80
decachlorobiphenyl (SUR)	16	2,4,5,6-tetrachloro-	
dieldrin	16	<i>m</i> -xylene (SUR)	8

In hexane, 1mL/ampul

cat. # 32003 (ea.)

Pesticide Standard Mix B w/Surrogates

(13 components)

aldrin	8 μ g/mL	endosulfan sulfate	16
β -BHC	8	endrin aldehyde	16
δ -BHC	8	endrin ketone	16
α -chlordane	8	heptachlor epoxide	
γ -chlordane	8	(isomer B)	8
4,4'-DDE	16	2,4,5,6-tetrachloro-	
decachlorobiphenyl (SUR)	16	<i>m</i> -xylene (SUR)	8
endosulfan II	16		

In hexane, 1mL/ampul

cat. # 32004 (ea.)

**Technical Chlordane,
Toxaphene Solutions**

Compound	cat.# (ea.)
1,000 μ g/mL in hexane, 1mL/ampul	
chlordane (technical)	32021
toxaphene	32005
2,000 μ g/mL in methanol, 1mL/ampul	
chlordane (technical)	32016
toxaphene	32015
5,000 μ g/mL in isooctane, 1mL/ampul	
chlordane (technical)	32072
toxaphene	32071

Aroclor Solutions

Compound	cat.# (ea.)
1,000 μ g/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
200 μ g/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
400 μ g/mL in acetone, 1mL/ampul	
Aroclor 1016/1260	32456
50mg/kg in transformer oil (PCB-free)	
Aroclor 1016	32075
Aroclor 1221	32077
Aroclor 1232	32079
Aroclor 1242	32081
Aroclor 1248	32083
Aroclor 1254	32085
Aroclor 1260	32087
500mg/kg in transformer oil (PCB-free)	
Aroclor 1016	32076
Aroclor 1221	32078
Aroclor 1232	32080
Aroclor 1242	32082
Aroclor 1248	32084
Aroclor 1254	32086
Aroclor 1260	32088

please **note**

We test our transformer oil solvent to ensure that it is PCB-free.

Miscellaneous

PCB Congeners
Organotins
Minnesota Dept. of Agriculture List 1 Pesticides

PCB Congeners

Compound	cat.# (ea.)
10µg/mL in isooctane, 1mL/ampul	
2,4,4'-trichlorobiphenyl (BZ #28)	32283
2,2',5,5'-tetrachlorobiphenyl (BZ #52)	32284
2,2',4,5,5'-pentachlorobiphenyl (BZ #101)	32285
2,3',4,4',5-pentachlorobiphenyl (BZ #118)	32293
2,2',3,4,4',5-hexachlorobiphenyl (BZ #138)	32286
2,2',4,4',5,5'-hexachlorobiphenyl (BZ #153)	32287
2,2',3,4,4',5,5'-heptachlorobiphenyl (BZ #180)	32288
decachlorobiphenyl (BZ #209)	32289

PCB Congener Standard #1

2,4,4'-trichlorobiphenyl (BZ #28)	
2,2',5,5'-tetrachlorobiphenyl (BZ #52)	
2,2',4,5,5'-pentachlorobiphenyl (BZ #101)	
2,2',3,4,4',5'-hexachlorobiphenyl (BZ #138)	
2,2',4,4',5,5'-hexachlorobiphenyl (BZ #153)	
2,2',3,4,4',5,5'-heptachlorobiphenyl (BZ #180)	
10µg/mL each in isooctane, 1mL/ampul	
cat.# 32290 (ea.)	

PCB Congener Standard #2

2,4,4'-trichlorobiphenyl (BZ #28)	
2,2',5,5'-tetrachlorobiphenyl (BZ #52)	
2,2',4,5,5'-pentachlorobiphenyl (BZ #101)	
2,3',4,4',5-pentachlorobiphenyl (BZ #118)	
2,2',3,4,4',5'-hexachlorobiphenyl (BZ #138)	
2,2',4,4',5,5'-hexachlorobiphenyl (BZ #153)	
2,2',3,4,4',5,5'-heptachlorobiphenyl (BZ #180)	
10µg/mL each in isooctane, 1mL/ampul	
cat.# 32294 (ea.)	

Organotin Mixes

Butyltin Chloride Calibration Mixture

butyltin trichloride tetrabutyltin
dibutyltin dichloride tributyltin chloride
2,000µg/mL each in methylene chloride, 1mL/ampul
cat.# 31472 (ea.)

Tributyltin Chloride Calibration Mixture

2,000µg/mL in methylene chloride, 1mL/ampul
cat.# 31478 (ea.)

Phenyltin Chloride Calibration Mixture

diphenyltin dichloride tetraphenyltin
phenyltin trichloride triphenyltin chloride
2,000µg/mL each in methylene chloride, 1mL/ampul
cat.# 31473 (ea.)

Tri-*n*-propyltin Chloride Surrogate

2,000µg/mL in methylene chloride, 1mL/ampul
cat.# 31476 (ea.)

Triphenyltin Chloride Surrogate

2,000µg/mL in methylene chloride, 1mL/ampul
cat.# 31477 (ea.)

Tetra-*n*-propyltin Internal Standard

2,000µg/mL in methylene chloride, 1mL/ampul
cat.# 31474 (ea.)

Tetraphenyltin Internal Standard

2,000µg/mL in methylene chloride, 1mL/ampul
cat.# 31475 (ea.)

also available

Additional PCB congener mixes:

See EPA Method 8082
cat.# 32416 page 461.

See EPA Method 525
cat.# 32420 page 449.



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Minnesota Department of Agriculture List 1 Pesticides

Minnesota Ag List 1 Pesticides Mix A

(16 components)

acetochlor	metolachlor
alachlor	metribuzin
atrazine	pendimethalin
cyazazine	prometon
desethylatrazine	propachlor
desisopropylatrazine	propazine
dimethenamid*	simazine
ethalfuralin	trifluralin

200ppm each in acetone, 1mL/ampul

cat. # 32406 (ea.)

Minnesota Ag List 1 Pesticides Mix B

chlorpyrifos	phorate
EPTC	terbufos
fonofos	triallate

200ppm each in acetone, 1mL/ampul

cat. # 32407 (ea.)



Jonathan Keim

Technical Service

Supervisor

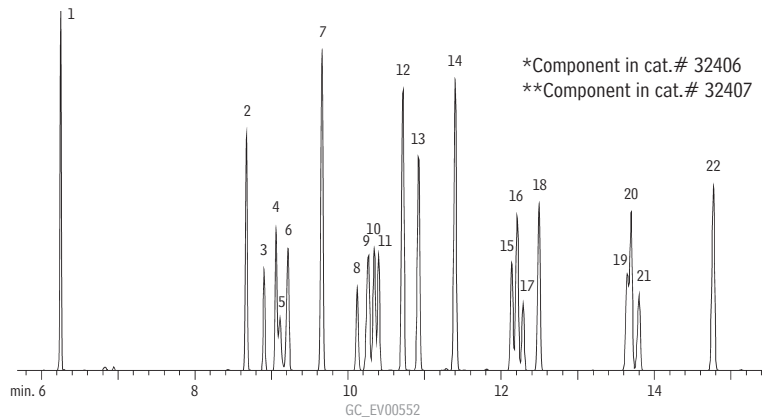
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*Added to Minnesota Department of Agriculture List 1 pesticide (neutrals) incident investigation requirements, effective January 1, 2000.¹ CAS # 87674-68-8 manufactured by several companies under various trade names.

¹Analytical Lists for Pesticide Incident Investigations, Minnesota Department of Agriculture, Guidance Document 26 (3/99), St. Paul, MN. For a copy, visit their web site at: www.mda.state.mn.us

Minnesota Dept. of Agriculture List 1 Pesticides

- | | | | |
|---------------------------------|----------------------|-------------------|--|
| 1. EPTC**
(eptam, eradicane) | 6. desethylatrazine* | 12. terbufos** | 18. alachlor* |
| 2. propachlor* | 7. phorate** | 13. fonofos** | 19. metolachlor* |
| 3. ethalfuralin* | 8. prometon* | 14. triallate** | 20. chlorpyrifos**
(chlorpyrifos ethyl) |
| 4. trifluralin* | 9. simazine* | 15. dimethenamid* | 21. cyanazine* |
| 5. desisopropylatrazine* | 10. atrazine* | 16. acetochlor* | 22. pendimethalin* |
| | 11. propazine* | 17. metribuzin* | |



Column: Rtx®-5SiIMS, 30m, 0.28mmID, 0.5µm (cat.# 12794)
 Inj.: 1µL splitless 0.5 min., 10ppm calibration standard in methylene chloride/acetone, 10ng on column concentration
 Oven temp.: 35°C (hold 0.5 min.) to 160°C @ 50°C/min. to 190°C @ 10°C/min. to 300°C @ 5°C/min.
 Inj. temp: 250°C
 Det: Agilent 5973 MS, scan 35-550amu

free data

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