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REFERENCE STANDARDS

SINGLE COMPONENT

SOLUTIONS

Individual Compounds 443-448
Custom Standards 449



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Single Component Solutions

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	Individual µg/mL*	cat.#	price
acenaphthene	83-32-9	M	1,000	31267	
acenaphthylene	208-96-8	M	1,000	31268	
acetaldehyde-2,4-DNPH	1019-57-4	ACN	100	33074	
acetochlor	34256-82-1	M	100	33208	
acetochlor ESA sodium salt	187022-11-3	M	100	33092	
acetochlor OA	184992-44-4	M	100	33094	
acetone	67-64-1	PTM	5,000	30245	
acetone-2,4-DNPH	1567-89-1	ACN	100	33075	
acetonitrile	75-05-8	DMSO	2.05mg/mL	36281	
acetonitrile	75-05-8	PTM	1,000	30495	
acetophenone	98-86-2	PTM	5,000	30621	
acifluorfen	50594-66-6	M	1,000	32255	
acifluorfen methyl ester	50594-67-7	M	1,000	32256	
acrolein	107-02-8	PTM	5,000	30645	
acrolein	107-02-8	W	5,000	30646	
acrylamide	79-06-1	M	1,000	30494	
acrylonitrile	107-13-1	PTM	2,000	30246	
alachlor	15972-60-8	M	1,000	32204	
alachlor	15972-60-8	M	100	33207	
alachlor ESA sodium salt	142363-53-9	M	100	33096	
alachlor OA	171262-17-2	M	100	33099	
aldrin	309-00-2	M	1,000	32205	
allyl chloride	107-05-1	PTM	2,000	30248	
alprazolam	28981-97-7	PTM	1,000	34042	
2-amino-4,6-dinitrotoluene	35572-78-2	ACN	1,000	31670	
4-amino-2,6-dinitrotoluene	19406-51-0	ACN	1,000	31671	
aminomethyl phosphonic acid (AMPA)	1066-51-9	W	100	32428	
ammelide	645-93-2	DEA:W	1,000	33249	
ammeline	645-92-1	DEA:W	1,000	33250	
ammonium picrate**	131-74-8	ACN	2,000	31890	
amobarbital	64-43-7	PTM	1,000	34028	
d-amphetamine	51-63-8	PTM	1,000	34020	
tert-amyl alcohol	75-85-4	PTM	10,000	30631	
tert-amyl ethyl ether (TAAE)	919-94-8	PTM	2,000	30617	
tert-amyl methyl ether (TAME)	994-05-8	PTM	2,000	30629	
5- α -androstane	438-22-2	D	2,000	31065	
aniline	62-53-3	M	1,000	31470	
anthracene	120-12-7	A	1,000	31269	
anthracene-d10	1719-06-08	D	2,000	31037	
anthracene	120-12-7	ACN	100	33264	
antifoam agent for purge & trap	N/A	Neat	1mL	31822	
aprobarbital	77-02-1	PTM	1,000	34029	
Aramite	140-57-8	H	2,000	31624	
Aroclor 1016	12674-11-2	H	1,000	32006	
Aroclor 1016	12674-11-2	I	200	32064	
Aroclor 1016	12674-11-2	TO	500mg/kg	32076	
Aroclor 1016	12674-11-2	TO	50mg/kg	32075	
Aroclor 1221	11104-28-2	H	1,000	32007	
Aroclor 1221	11104-28-2	I	200	32065	
Aroclor 1221	11104-28-2	TO	500mg/kg	32078	
Aroclor 1221	11104-28-2	TO	50mg/kg	32077	
Aroclor 1232	11141-16-5	H	1,000	32008	
Aroclor 1232	11141-16-5	I	200	32066	
Aroclor 1232	11141-16-5	TO	500mg/kg	32080	
Aroclor 1232	11141-16-5	TO	50mg/kg	32079	
Aroclor 1242	53469-21-9	H	1,000	32009	
Aroclor 1242	53469-21-9	I	200	32067	
Aroclor 1242	53469-21-9	TO	500mg/kg	32082	
Aroclor 1242	53469-21-9	TO	50mg/kg	32081	
Aroclor 1248	12672-29-6	H	1,000	32010	
Aroclor 1248	12672-29-6	I	200	32068	
Aroclor 1248	12672-29-6	TO	500mg/kg	32084	
Aroclor 1248	12672-29-6	TO	50mg/kg	32083	
Aroclor 1254	11097-69-1	H	1,000	32011	
Aroclor 1254	11097-69-1	I	200	32069	
Aroclor 1254	11097-69-1	TO	500mg/kg	32086	
Aroclor 1254	11097-69-1	TO	50mg/kg	32085	
Aroclor 1260	11096-82-5	H	1,000	32012	
Aroclor 1260	11096-82-5	I	200	32070	
Aroclor 1260	11096-82-5	TO	500mg/kg	32088	
Aroclor 1260	11096-82-5	TO	50mg/kg	32087	

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

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

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	Individual µg/mL*	cat.#	price
Aroclor 1262	37324-23-5	H	1,000	32409	
Aroclor 1268	11100-14-4	H	1,000	32410	
atrazine	1912-24-9	A	1,000	32208	
aviation gas	8006-69-1	PTM	2,500	30094	
aviation gas	8006-69-1	PTM	50,000	30207	
aviation gas (5mL)	8006-69-1	PTM	50,000	30208	
azobenzene	103-33-3	D	1,000	31496	
barbital	57-44-3	PTM	1,000	34030	
bentazon	25057-89-0	M	1,000	32257	
benzaldehyde	100-52-7	D	2,000	33017	
benzaldehyde-2,4-DNPH	1157-84-2	ACN	100	33077	
benzene	71-43-2	DMSO	10mg/mL	36282	
benzene	71-43-2	D	250	35262	
benzene	71-43-2	PTM	2,000	30249	
benzene-d6	1076-43-3	PTM	2,000	30025	
benzidine	92-87-5	M	1,000	31441	
benzo(a)anthracene	56-55-3	M	1,000	31270	
benzo(a)pyrene	50-32-8	A	1,000	31271	
benzo(b)fluoranthene	205-99-2	A	1,000	31272	
benzo(ghi)perylene	191-24-2	D	1,000	31273	
benzo(k)fluoranthene	207-08-9	A	1,000	31274	
benzoguanamine	91-76-9	DEA:W	1,000	33251	
benzoguanamine (5mL)	91-76-9	DEA:W	1,000	33252	
benzoic acid	65-85-0	D	2,000	31879	
benzoic acid	65-85-0	M	1,000	31415	
benzoyllecgonine	519-09-5	PTM	1,000	34016	
benzphetamine	5411-22-3	PTM	1,000	34022	
benzyl benzoate	120-51-4	H	5,000	31847	
α -BHC	319-84-6	M	1,000	32206	
β -BHC	319-85-7	A	1,000	32209	
δ -BHC	319-86-8	M	1,000	32217	
γ -BHC (lindane)	58-89-9	M	1,000	32226	
bis(2-ethylhexyl)adipate	103-23-1	M	1,000	31449	
bis(2-ethylhexyl)phthalate	117-81-7	D	1,000	31420	
bromazepam	1812-30-2	PTM	1,000	34043	
bromobenzene	108-86-1	PTM	2,000	30250	
2-bromobutanoic acid	80-58-0	MTBE	2,000	31881	
2-bromobutyrate	3196-15-4	MTBE	2,000	31882	
2-bromochlorobenzene	694-80-4	PTM	2,000	30228	
4-bromochlorobenzene	106-39-8	PTM	2,000	30230	
1-bromo-2-chloroethane	107-04-0	PTM	2,000	30469	
bromochloromethane	74-97-5	PTM	2,000	30225	
2-bromo-1-chloropropane	3017-95-6	PTM	2,000	30226	
2-bromodichloromethane	75-27-4	PTM	2,000	30251	
4-bromo-3,5-dimethylphenyl-N-methylcarbamate (BDMC)	3766-81-2	M	100	32274	
1-bromo-4-fluorobenzene	460-00-4	A	1,000	31854	
4-bromofluorobenzene	460-00-4	PTM	2,000	30026	
4-bromofluorobenzene	460-00-4	PTM	2,500	30067	
4-bromofluorobenzene	460-00-4	PTM	5,000	30003	
4-bromofluorobenzene	460-00-4	PTM	10,000	30082	
bromoform	75-25-2	PTM	2,000	30252	
bromomethane	74-83-9	PTM	2,000	30253	
1-bromo-2-nitrobenzene	577-19-5	A	1,000	32279	
2-bromopropionic acid	598-72-1	MTBE	1,000	31653	
butachlor ESA sodium salt	125-40-6	PTM	1,000	34031	
1,3-butadiene	106-99-0	PTM	2,000	30622	
butalbital	77-26-9	PTM	1,000	34032	
1,4-butanediol	110-63-4	M	1,000	34078	
(S)(-)-1,2,4-butanetriol	42890-76-6	pyridine	1,000	33024	
(S)(-)-1,2,4-butanetriol (5mL)	42890-76-6	pyridine	1,000	33032	
1-butanol	71-36-3	PTM	50,000	30474	
tert-butanol	75-65-0	PTM	50,000	30470	
tert-butanol-d9	25725-11-5	PTM	20,000	30618	
2-butanone (MEK)	78-93-3	PTM	5,000	30254	
n-butylaldehyde-2,4-DNPH	1527-98-6	ACN	100	33079	
γ -butyrolactone (GBL)	96-48-0	ACN	1,000	34077	

Solvent code:

- A = acetone
- ACN = acetonitrile
- C = carbon disulfide
- Cy = cyclohexane
- D = methylene chloride
- DEA = diethylamine
- DMSO = dimethyl sulfoxide
- EA = ethyl acetate
- H = hexane
- I = isoctane
- Ip = isopropanol
- M = methanol
- MTBE = methyl tert-butyl ether
- PTM = purge & trap grade methanol
- T = toluene
- TO = transformer oil
- W = water (DI)

REFERENCE STANDARDS

Single Component Solutions

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	μg/mL*	Individual cat.#	price
caffeine	74051-80-2	W	5	31804	
caffeine	74051-80-2	W	25	31803	
caffeine	74051-80-2	W	125	31802	
caffeine	74051-80-2	W	250	31801	
caffeine	74051-80-2	W	500	31800	
caffeine	58-08-2	M	1,000	34084	
cannabidiol	13956-24-1	PTM	1,000	34011	
cannabinol	521-35-7	PTM	1,000	34010	
ε-caprolactam	105-60-2	D	2,000	31833	
carbazole	86-74-8	D	1,000	31836	
carbazole	86-74-8	M	1,000	31430	
carbon disulfide	75-15-0	PTM	2,000	30258	
carbon tetrachloride	56-23-5	DMSO	20mg/mL	36283	
carbon tetrachloride	56-23-5	PTM	2,000	30259	
chloral hydrate	302-17-0	ACN	1,000	30609	
chlordane (technical)	57-74-9	H	1,000	32021	
chlordane (technical)	57-74-9	I	5,000	32072	
α-chlordanane	5103-71-9	M	2,000	32016	
γ-chlordanane	5566-34-7	M	1,000	32227	
chlor diazepoxide	438-41-5	PTM	1,000	34044	
4-chloroaniline	106-47-8	D	2,000	31211	
chlorobenzene	108-90-7	DMSO	1.8mg/mL	36284	
chlorobenzene	108-90-7	PTM	2,000	30261	
chlorobenzene-d5	3114-55-4	PTM	2,000	30223	
chlorobenzilate	510-15-6	M	1,000	32211	
chloroethane	75-00-3	PTM	2,000	30263	
2-chloroethanol	107-07-3	PTM	2,000	30264	
2-chloroethyl vinyl ether	110-75-8	PTM	2,000	30265	
1-chloro-2-fluorobenzene	348-51-6	PTM	2,000	30040	
1-chloro-4-fluorobenzene	352-33-0	PTM	2,500	30066	
chloroform	67-66-3	DMSO	0.3mg/mL	36285	
chloroform	67-66-3	PTM	2,000	30266	
chloromethane	74-87-3	PTM	2,000	30267	
2-chloronaphthalene	91-58-7	M	1,000	31284	
4-chloro-3-nitrobenzotrifluoride	121-17-5	A	1,000	32282	
1-chlorooctadecane	3386-33-2	D	10,000	31098	
1-chlorooctane	111-85-3	PTM	10,000	30084	
chloroprene	126-99-8	PTM	5,000	30238	
chlorpyrifos	2921-88-2	M	1,000	32212	
chrysene	218-01-9	A	1,000	31275	
clobazam	22316-47-8	PTM	1,000	34045	
clonazepam	1622-61-3	PTM	1,000	34046	
cocaethylene	529-38-4	ACN	1,000	34066	
cocaine	53-21-4	PTM	1,000	34015	
codeine	76-57-3	PTM	1,000	34000	
continine	486-56-6	M	1,000	34086	
creosote oil	8001-58-9	D	50,000	31838	
crotonaldehyde-2,4-DNPH	1527-96-4	ACN	100	33080	
cyanazine	21725-46-2	A	1,000	32215	
cyanuric acid	108-80-5	DEA:W	1,000	33248	
cyclohexane	110-82-7	DMSO	19.4mg/mL	36286	

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	μg/mL*	Individual cat.#	price
2,4-D (2,4-dichlorophenylacetic acid)	94-75-7	M	1,000	32239	
2,4-D methyl ester	1928-38-7	M	1,000	32240	
Dacthal (DCPA dimethyl ester)	1861-32-1	M	1,000	32216	
dalapon	75-99-0	ACN	1,000	32432	
dalapon	75-99-0	M	1,000	32253	
dalapon methyl ester	17640-02-7	H	2,000	32057	
dalapon methyl ester	17640-02-7	M	1,000	32254	
2,4-DB	94-82-6	M	1,000	32241	
DCPA diacid	2136-79-0	M	200	32261	
2,4'-DDD	53-19-0	M	1,000	32098	
4,4'-DDD	72-54-8	M	1,000	32201	
2,4'-DDE	3424-82-6	M	1,000	32099	
4,4'-DDE	72-55-9	M	1,000	32202	
2,4'-DDT	789-02-6	M	1,000	32200	
4,4'-DDT	50-29-3	M	1,000	32203	
decachlorobiphenyl (BZ #209)	2051-24-3	A	200	32029	
decachlorobiphenyl (BZ #209)	2051-24-3	I	10	32289	
decachlorobiphenyl (BZ #209) (5mL)	2051-24-3	A	200	32030	
decafluorobiphenyl	434-90-2	A	1,000	31855	
decafluorobiphenyl	434-90-2	D	2,000	31041	
decafluorobiphenyl	434-90-2	ACN	1,000	31842	
decafluorotriphenylphosphine (DFTPP)	5074-71-5	D	2,500	31001	
n-decane	124-18-5	Neat	1mL	31858	
desethyl-atrazine	6190-65-4	A	1,000	32445	
desisopropylatrazine	1007-28-9	A	1,000	32446	
dextromethorphan HBr monohydrate	125-69-9	M	1,000	34081	
dextro-propoxyphene	1639-60-7	PTM	1,000	34008	
diazepam	439-14-5	PTM	1,000	34047	
dibenzo(a,h)anthracene	53-70-3	D	1,000	31276	
4,4'-dibromobiphenyl	92-86-4	D	2,000	31039	
4,4'-dibromobiphenyl	92-86-4	EA	500	32092	
dibromochloromethane (chlorodibromochloromethane)	124-48-1	PTM	2,000	30271	
1,2-dibromo-3-chloropropane (DBCP)	96-12-8	PTM	2,000	30270	
1,2-dibromoethane	106-93-4	PTM	2,000	30272	
dibromofluoromethane	1868-53-7	Neat	100mg	30634	
dibromomethane	74-95-3	PTM	2,000	30430	
4,4'-dibromoctafluorobiphenyl	10386-84-2	D	2,000	31040	
4,4'-dibromoctafluorobiphenyl	10386-84-2	H	250	32053	
4,4'-dibromoctafluorobiphenyl	10386-84-2	MTBE	2,000	31856	
2,3-dibromopropionic acid	600-05-5	MTBE	1,000	31655	
2,5-dibromotoluene	615-59-8	PTM	1,000	30435	
2,5-dibromotoluene	615-59-8	PTM	10,000	30453	
ditburychlorendate	1770-80-5	A	200	32025	
dicamba	1918-00-9	M	1,000	32247	
dicamba methyl ester	6597-78-0	M	1,000	32248	



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Single Component Solutions

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	Individual µg/mL*	cat.#	price
1,2-dichlorobenzene	95-50-1	M	1,000	31442	
1,3-dichlorobenzene	541-73-1	M	1,000	31443	
1,4-dichlorobenzene	106-46-7	ACN	1,000	30498	
1,4-dichlorobenzene	106-46-7	M	1,000	31444	
1,2-dichlorobenzene-d4	2199-69-1	PTM	2,000	30049	
3,3'-dichlorobenzidine	91-94-1	D	2,000	31835	
3,3'-dichlorobenzidine	91-94-1	M	2,000	31026	
3,5-dichlorobenzoic acid	51-36-5	MTBE	1,000	31652	
3,5-dichlorobenzoic acid methyl ester	2905-67-1	M	1,000	32264	
3,5-dichlorobenzoic acid methyl ester	2905-67-1	MTBE	1,000	31649	
1,4-dichlorobutane	110-56-5	PTM	2,000	30227	
trans-1,4-dichloro-2-butene	110-57-6	PTM	2,000	30274	
dichlorodifluoromethane (CFC-12)	75-71-8	PTM	2,000	30275	
1,1-dichloroethane	75-34-3	PTM	2,000	30276	
1,2-dichloroethane	107-06-2	DMSO	25mg/mL	36288	
1,2-dichloroethane	107-06-2	PTM	2,000	30277	
1,2-dichloroethane-d4	17060-07-0	PTM	2,000	30027	
1,1-dichloroethene	75-35-4	DMSO	40mg/mL	36287	
1,1-dichloroethene	75-35-4	PTM	2,000	30278	
cis-1,2-dichloroethene	156-59-2	PTM	2,000	30279	
trans-1,2-dichloroethene	156-60-5	PTM	2,000	30280	
cis-1,2-dichloroethylene	156-59-2	DMSO	4.67mg/mL	36289	
trans-1,2-dichloroethylene	156-60-5	DMSO	4.67mg/mL	36290	
2,6-dichlorophenol	87-65-0	M	1,000	31409	
2,4-dichlorophenylacetic acid	19719-28-9	M	200	32049	
2,4-dichlorophenyl acetic acid methyl ester	19719-28-9	A	1,000	32439	
2,4-dichlorophenyl acetic acid methyl ester	55954-23-9	H	200	32050	
1,2-dichloropropane	78-87-5	PTM	2,000	30281	
2,2-dichloropropane	594-20-7	PTM	2,000	30283	
cis-1,3-dichloropropene	10061-01-5	PTM	2,000	30284	
trans-1,3-dichloropropene	10061-02-6	PTM	2,000	30285	
2,3-dichloropropionic acid	565-64-0	MTBE	1,000	31650	
2,3-dichloropropionic acid methyl ester	3674-09-7	MTBE	1,000	31651	
1,2-dichlortetrafluoroethane (CFC-114)	76-14-2	PTM	2,000	30476	
dichlorprop	120-36-5	M	1,000	32249	
dichlorprop methyl ester	57153-17-0	M	1,000	32250	
dieldrin	60-57-1	M	1,000	32218	
diesel fuel #2 composite	68334-30-5	D	5,000	31093	
diesel fuel #2 composite	68334-30-5	D	50,000	31258	
diesel fuel #2 composite (5mL)	68334-30-5	D	50,000	31259	
diesel fuel #2: 25% weathered	68334-30-5	D	5,000	31234	
diesel fuel #2: 50% weathered	68334-30-5	D	5,000	31235	
diesel fuel #2: 75% weathered	68334-30-5	D	5,000	31236	
diesel fuel #2: unweathered	68334-30-5	D	5,000	31233	
diesel/biodiesel 80:20	67784-80-9	D	5,000	31880	
diethyl ether (ethyl ether)	60-29-7	PTM	2,000	30286	
1,4-difluorobenzene	540-36-3	PTM	2,000	30032	
diisopropyl ether (DIPE)	108-20-3	PTM	2,000	30627	
dimethachlor ESA sodium salt		M	100	33203	

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	Individual µg/mL*	cat.#	price
1,2-dimethoxyethane	173201-80-4	DMSO	0.5mg/mL	36291	
N,N-dimethylacetamide	127-19-5	DMSO	5.45mg/mL	36292	
dimethyl dichlorosilane (DMDCS) (20mL)	75-78-5	Neat	20mL	31840	
N,N-dimethylformamide	68-12-2	DMSO	4.4mg/mL	36293	
3,5-dinitroaniline	618-87-1	ACN	1,000	31661	
1,2-dinitrobenzene	528-29-0	M	1,000	31453	
1,3-dinitrobenzene	99-65-0	ACN	1,000	31662	
1,4-dinitrobenzene	100-25-4	ACN	2,000	33205	
2,4-dinitrophenol	51-28-5	M	1,000	31291	
2,4-dinitrotoluene	121-14-2	ACN	1,000	31663	
2,6-dinitrotoluene	606-20-2	ACN	1,000	31664	
3,4-dinitrotoluene	610-39-9	EA	2,000	33901	
3,4-dinitrotoluene	610-39-9	M	1,000	31452	
di-n-octyl phthalate	117-84-0	M	1,000	31426	
dinoseb	88-85-7	M	1,000	32251	
dinoseb methyl ether	6099-79-2	M	1,000	32252	
diolein (1,3-di[cis-octadecenoyl] glycerol)	2465-32-9	pyridine	5,000	33022	
1,4-dioxane	123-91-1	DMSO	1.9mg/mL	36294	
1,4-dioxane	123-91-1	D	2,000	31853	
1,4-dioxane	123-91-1	PTM	2,000	30287	
1,4-dioxane-d8	17647-74-4	PTM	2,000	30614	
1,2-diphenylhydrazine	122-66-7	M	1,000	31497	
duron	330-54-1	ACN	200	32450	
ecgonine	5796-31-6	PTM	1,000	34017	
ecgonine methyl ester	38969-40-3	PTM	1,000	34018	
EDDP perchlorate	66729-78-0	M	1,000	34069	
EGDN**	628-96-6	M	1,000	31601	
endosulfan I	959-98-8	M	1,000	32221	
endosulfan II	33213-65-9	M	1,000	32222	
endosulfan sulfate	1031-07-8	M	1,000	32223	
endrin	72-20-8	M	1,000	32219	
endrin aldehyde	7421-93-4	M	1,000	32224	
endrin ketone	53494-70-5	M	1,000	32220	
ethanol	64-17-5	PTM	2,000	30288	
ethanol	64-17-5	W	10,000	30466	
2-ethoxyethanol	110-80-5	DMSO	0.8mg/mL	36295	
ethylbenzene	100-41-4	DMSO	1.84mg/mL	36296	
ethylbenzene	100-41-4	PTM	2,000	30290	
ethylbenzene-d10	25837-05-2	PTM	2,000	30029	
ethylbenzene-d5	20302-26-5	PTM	2,000	30028	
ethyl-tert-butyl ether (ETBE)	637-92-3	PTM	2,000	30628	
ethylenediamine	107-15-3	M	540	35222	
ethylene glycol	3775-85-7	DMSO	3.1mg/mL	36297	
ethylene oxide	75-21-8	DMSO	500	36005	
ethyl methacrylate	97-63-2	PTM	2,000	30289	
fentanyl	437-38-7	M	1,000	34082	
nor-fentanyl oxalate	1609-66-1	M	1,000	34083	

Solvent code:

A = acetone
 ACN = acetonitrile
 C = carbon disulfide
 Cy = cyclohexane
 D = methylene chloride
 DEA = diethylamine
 DMSO = dimethyl sulfoxide
 EA = ethyl acetate
 H = hexane
 I = isooctane
 Ip = isopropanol
 M = methanol
 MTBE = methyl tert-butyl ether
 PTM = purge & trap grade methanol
 T = toluene
 TO = transformer oil
 W = water (DI)

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REFERENCE STANDARDS

Single Component Solutions

Compound Packaged 1mL/ampul*	CAS#	Solvent Code	µg/mL*	Individual cat.#	price	Compound Packaged 1mL/ampul*	CAS#	Solvent Code	µg/mL*	Individual cat.#	price
flunitrazepam	1622-62-4	PTM	1,000	34049		JP-5 military fuel	8008-20-6	D	5,000	31220	
fluoranthene	206-44-0	M	1,000	31277		JP-5 military fuel	8008-20-6	D	50,000	31252	
fluorene	86-73-7	M	1,000	31278		JP-8 military fuel	8008-20-6	D	5,000	31262	
fluorobenzene	402-06-6	PTM	2,000	30030		JP-8 military fuel	8008-20-6	D	50,000	31254	
2-fluorobiphenyl	321-60-8	D	2,000	31091		kerosene composite	84742-81-0	D	5,000	31094	
2-fluorobiphenyl	321-60-8	D	10,000	31096		kerosene composite	84742-81-0	D	50,000	31256	
1-fluoronaphthalene	321-38-0	D	2,000	31092		kerosene composite (5mL)	84742-81-0	D	50,000	31257	
2-fluorophenol	367-12-4	D	2,000	31047		kerosene: 25% weathered	84742-81-0	D	5,000	31230	
flurazepam	1172-18-5	PTM	1,000	34050		kerosene: 50% weathered	84742-81-0	D	5,000	31231	
formaldehyde-DNPH	1081-15-8	ACN	500	31837		kerosene: 75% weathered	84742-81-0	D	5,000	31232	
formaldehyde-2,4-DNPH	1081-15-8	ACN	100	33082		kerosene: unweathered	84742-81-0	D	5,000	31229	
formaldehyde oxazolidine		T	2,000	33004		levorphanol	5985-38-6	PTM	1,000	34003	
formamide	75-12-7	DMSO	1.1mg/mL	36298		lorazepam	846-49-1	PTM	1,000	34051	
fuel oil # 4	68476-31-3	D	5,000	31216		MCPA	94-74-6	M	1,000	32269	
fuel oil # 4	68476-31-3	D	50,000	31244		MCPP	93-65-2	M	1,000	32271	
fuel oil # 5	70892-11-4	D	5,000	31217		3,4-MDA HCl	4764-17-4	M	1,000	34070	
fuel oil # 5	70892-11-4	D	50,000	31246		3,4-MDEA HCl	82801-81-8	M	1,000	34072	
fuel oil # 6	68553-00-4	D	5,000	31218		4,4'-MDIP	72375-24-7	DMSO	1,000	33003	
fuel oil # 6	68553-00-4	D	50,000	31248		3,4-MDMA HCl	42542-10-9	M	1,000	34071	
fuel oil # 6 (5mL)	68553-00-4	D	50,000	31249		melamine	108-78-1	DEA:W	1,000	33247	
DL-glutethimide	18389-24-7	PTM	1,000	34058		meperidine	50-13-5	PTM	1,000	34004	
glycerin	56-81-5	pyridine	500	33020		mephobarital	115-38-8	PTM	1,000	34034	
glycolaldehyde-2,4-DNPH		ACN	100	33091		meprabamate	57-53-4	PTM	1,000	34059	
glyphosate	1071-83-6	W	1,000	32426		methacrolein-2,4-DNPH	5077-73-6	ACN	100	33095	
glyphosate (5mL)	1071-83-6	W	1,000	32427		methacrylonitrile	126-98-7	PTM	2,000	30297	
1,6-HDIP	72375-27-0	DMSO	1,000	33002		methadone	1095-90-5	PTM	1,000	34005	
heptachlor	76-44-8	M	1,000	32228		(+)-methamphetamine	51-57-0	PTM	1,000	34021	
heptachlor epoxide (isomer B)	1024-57-3	M	1,000	32230		methanol	67-56-1	DMSO	15mg/mL	36401	
2,2',3,4,4',5,5'-heptachlorobiphenyl (BZ #180)	35065-29-3	I	10	32288		methanol	67-56-1	W	10,000	30467	
hexachlorobenzene	118-74-1	A	1,000	32231		methaqualone	340-56-7	PTM	1,000	34064	
2,2',3,4,4',5-hexachlorobiphenyl (BZ #138)	35065-28-2	I	10	32286		methohexital	151-83-7	PTM	1,000	34035	
2,2',4,4',5,5'-hexachlorobiphenyl (BZ #153)	35065-27-1	I	10	32287		methoxychlor	72-43-5	M	1,000	32233	
hexachloro-1,3-butadiene	87-68-3	M	1,000	31435		2-methoxyethanol	109-86-4	DMSO	0.25mg/mL	36402	
hexachlorocyclopentadiene	77-47-4	M	1,000	32232		1-(methylamino)anthraquinone	82-38-3	D	100	31823	
hexachloroethane	67-72-1	M	1,000	31436		methyl arachidate	1120-28-1	Neat		35056	
hexachlorophene	70-30-4	D	2,000	31811		methyl arachidonate	2566-89-4	Neat		35060	
hexaldehyde-2,4-DNPH	1527-97-5	ACN	100	33083		methyl behenate	929-77-1	Neat		35062	
hexane	8031-34-3	DMSO	1.45mg/mL	36299		methyl 2-bromopropionate	5445-17-0	MTBE	1,000	31654	
hexobarbital	56-29-1	PTM	1,000	34033		methyl <i>tert</i> -butyl ether (MTBE)	1634-04-4	PTM	2,000	30402	
hexyl 2-ethylhexyl phthalate	75673-16-4	H:A	1,000	33228		methylbutylketone	591-78-6	DMSO	0.25mg/mL	36400	
HMX**	2691-41-0	ACN	1,000	31665		methyl caprate	110-42-9	Neat		35041	
hydraulic oil	64741-89-5	D	50,000	31839		methyl caproate	106-70-7	Neat		35037	
hydrocodone	34195-34-1	PTM	1,000	34002		methyl caprylate	111-11-5	Neat		35039	
hydromorphone	71-68-1	PTM	1,000	34063		methyl cyclohexane	108-87-2	DMSO	5.9mg/mL	36403	
indeno(1,2,3-cd)pyrene	193-39-5	D	1,000	31279		2-methyl-2,3-dibromopropionate	1729-67-5	MTBE	1,000	31656	
iodomethane	74-88-4	PTM	2,000	30292		2-methyl-4,6-dinitrophenol	534-52-1	M	1,000	31292	
isobutyl alcohol	78-83-1	PTM	2,000	30293		methyl eicosadienoate	2463-02-7	Neat		35058	
isobutylbenzene		M	1,000	30613		methyl eicosatrienoate	55682-88-7	Neat		35059	
isobutylraldehyde-2,4-DNPH	2057-82-1	ACN	100	33084		methyl eicosenoate	2390-09-2	Neat		35057	
isopropylbenzene	98-82-8	PTM	2,000	30294		methyl erucate	1120-34-9	Neat		35063	
jet fuel A	64742-47-8	D	5,000	31215		methyl heneicosanoate	6064-90-0	Neat		35061	
jet fuel A	64742-47-8	D	50,000	31242		methyl heptadecanoate	1731-92-6	Neat		35050	
jet fuel A (5mL)	64742-47-8	D	50,000	31243		methyl heptanoate	106-73-0	Neat		35038	
JP-4 military fuel	8008-20-6	D	5,000	31219							
JP-4 military fuel	8008-20-6	D	50,000	31250							
JP-4 military fuel	8008-20-6	PTM	50,000	30472							

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Single Component Solutions

Packaged 1mL/ampul*	CAS#	Solvent Code	Individual µg/mL*	cat.#	price
methyl laurate	111-82-0	Neat	35043		
methyl lignocerate	2442-49-1	Neat	35064		
methyl linoleate	112-63-0	Neat	35053		
methyl linolenate	301-00-8	Neat	35054		
methyl methacrylate	80-62-6	PTM	2,000	30299	
methyl myristate	124-10-7	Neat	35045		
methyl myristoleate	56219-06-8	Neat	35046		
1-methylnaphthalene	90-12-0	M	1,000	31283	
2-methylnaphthalene	91-57-6	D	1,000	31285	
methyl nervonate	2733-88-2	Neat	35065		
2-methyl-4-nitroaniline	99-55-8	M	1,000	31612	
methyl nonadecanoate	1731-94-8	Neat	35055		
2-methylnonane		D	1,000	31870	
methyl nonanoate	1731-84-6	Neat	35040		
methyl oleate	112-62-9	Neat	35052		
methyl palmitate	112-39-0	Neat	35048		
methyl palmitoleate	1120-25-8	Neat	35049		
methyl pentadecanoate	7132-64-1	Neat	35047		
4-methyl-2-pentanone (MIBK)	108-10-1	PTM	5,000	30400	
3-methylphenol	108-39-4	M	1,000	31403	
N-methylpyrrolidone	872-50-4	DMSO	2.65mg/mL	36405	
methyl stearate	112-61-8	Neat	35051		
methyl tridecanoate	1731-88-0	Neat	35044		
methyl undecanoate	1731-86-8	Neat	35042		
α-methylene-γ-butylolactone (AMGBL)	547-65-9	ACN	1,000	34079	
methylene chloride (dichloromethane)	75-09-2	DMSO	3mg/mL	36404	
methylene chloride (dichloromethane)	75-09-2	PTM	2,000	30401	
methylpyrylon	125-64-4	PTM	1,000	34060	
metolachlor	51218-45-2	M	100	33209	
metolachlor ESA sodium salt	171118-09-5	M	100	33200	
metolachlor OA	152019-73-3	M	100	33201	
metribuzin	21087-64-9	A	1,000	32436	
mineral spirits: 25% weathered	8030-30-6	D	5,000	31226	
mineral spirits: 50% weathered	8030-30-6	D	5,000	31227	
mineral spirits: 75% weathered	8030-30-6	D	5,000	31228	
mineral spirits: unweathered	8030-30-6	D	5,000	31225	
mineral spirits: unweathered	8030-30-6	D	50,000	31260	
mineral spirits: unweathered (5mL)	8030-30-6	D	50,000	31261	
monolein (1-mono[<i>cis</i> -9-octadecenoyl]-rac-glycerol)	111-03-5	pyridine	5,000	33021	
monopalmitin	524-44-9	pyridine	5,000	33026	
morphine	62115-15-0	PTM	1,000	34006	
motor oil composite	64742-47-8	D	50,000	31464	
naphthalene	91-20-3	M	1,000	31280	
naphthalene-d8	1146-65-2	D	2,000	31043	
nicarbazin (bis-nitrophenol urea)	330-95-0	ACN	10	33261	
nicotine	54-11-5	M	1,000	34085	
nitrazepam	146-22-5	PTM	1,000	34053	
nitrobenzene	99-95-3	ACN	1,000	31657	
nitrobenzene-d5	4165-60-0	D	2,000	31044	
nitroglycerin**	55-63-0	M	1,000	31498	
nitroguanidine**	556-88-7	M	1,000	31602	
2-nitrostyrene	603-71-4	M	2,000	33902	
nitromethane	75-52-5	DMSO	0.25mg/mL	36406	
4-nitrophenol	100-02-7	M	1,000	31296	
2-nitropropane	79-46-9	PTM	2,000	30403	
N-nitrosodimethylamine	62-75-9	M	1,000	31427	
N-nitrosodimethylamine-d6	17829-05-9	D	1,000	33910	
N-nitrosodiphenylamine	86-30-6	M	1,000	31429	
N-nitroso-di- <i>n</i> -propylamine	621-64-7	M	1,000	31428	
N-nitrosodi- <i>n</i> -propylamine-d14	93951-96-3	D	1,000	33911	

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Packaged 1mL/ampul*	CAS#	Solvent Code	Individual µg/mL*	cat.#	price
2-nitrotoluene	88-72-2	ACN	1,000	31659	
3-nitrotoluene	99-08-1	ACN	1,000	31660	
4-nitrotoluene	99-99-0	ACN	1,000	31658	
<i>n</i> -nonatriacontane (C39)	7194-86-7	C	3,000	31456	
<i>n</i> -nonatriacontane (C39) (10mL)	7194-86-7	C	3,000	31877	
<i>n</i> -octacosane (C28)	630-02-4	D	10,000	31672	
oxazepam	604-75-1	PTM	1,000	34054	
oxycodeone	124-90-3	PTM	1,000	34007	
oxymorphone	76-41-5	PTM	1,000	34065	
PCB 18 (5mL)	37680-65-2	ACN	50	33255	
PCB 28 (5mL)	7012-37-5	ACN	50	33256	
PCB 52 (5mL)	35693-99-3	ACN	50	33257	
PCB 138 (5mL)	35065-28-2	ACN	50	33262	
PCB 153 (5mL)	35065-27-1	ACN	50	33263	
pentachloroanisole	1825-21-4	M	1,000	32268	
2,2',4,5,5'-pentachlorobiphenyl (BZ #101)	37680-73-2	I	10	32285	
2,3',4,4',5-pentachlorobiphenyl (BZ #118)	31508-00-6	I	10	32293	
pentachloroethane	76-01-7	PTM	2,000	30404	
pentachloronitrobenzene	82-68-8	EA	100	32091	
pentachlorophenol	87-85-6	M	1,000	31297	
<i>n</i> -pentacontane (C50)	6596-40-3	T	10	31685	
pentacosane (C25)	629-99-2	D	10,000	31487	
pentafluorobenzene	363-72-4	PTM	2,000	30031	
pentafluorophenol	771-61-9	D	2,000	31048	
pentazocine	64024-15-3	PTM	1,000	34062	
pentobarbital	76-74-4	PTM	1,000	34036	
perfluorotributylamine (PFTBA)	311-89-7	Neat	1mL	30482	
perfluorotributylamine (PFTBA)	311-89-7	Neat	1g	33027	
PETN (pentaerythritol tetranitrate)**	78-11-5	M	1,000	31600	
phenanthrene	85-01-8	M	1,000	31281	
phenanthren-d10	1517-22-2	D	2,000	31045	
phencyclidine	956-90-1	PTM	1,000	34027	
phendimetrazine	50-58-8	PTM	1,000	34025	
phenmetrazine	1707-14-8	PTM	1,000	34026	
phenobarbital	50-06-6	PTM	1,000	34037	
phenol	108-95-2	M	1,000	31298	
phenol-d6	13127-88-3	D	2,000	31049	
phentermine	1197-21-3	PTM	1,000	34024	
phenylpropanolamine HCl	154-41-6	M	1,000	34073	
picloram	1918-02-1	M	1,000	32265	
picloram methyl ester	14143-55-6	M	1,000	32266	
picric acid**	88-89-1	M	1,000	31499	
Polywax 500	9002-88-4	Neat	1g	36224	
Polywax 655	9002-88-4	Neat	1g	36225	
Polywax 850	9002-88-4	Neat	1g	36226	
Polywax 1000	9002-88-4	Neat	1g	36227	
prazepam	2955-38-6	PTM	1,000	34055	
prometryne	7287-19-6	A	1,000	32449	
propachlor	1918-16-7	M	1,000	32235	
2-propanol	67-63-0	W	50,000	30473	
propazine	139-40-2	A	1,000	32448	
propionaldehyde-2,4-DNPH	725-00-8	ACN	100	33086	
propionitrile	107-12-0	PTM	2,000	30407	
propylene glycol dinitrate (PGDN)	6423-43-4	M	1,000	31821	
pyrene	129-00-0	M	1,000	31282	
pyridine	110-86-1	DMSO	1mg/mL	36407	
pyridine	110-86-1	PTM	2,000	30409	
pyridine-d5	7291-22-7	D	2,000	31046	

Solvent code:

- A = acetone
- ACN = acetonitrile
- C = carbon disulfide
- Cy = cyclohexane
- D = methylene chloride
- DEA = diethylamine
- DMSO = dimethyl sulfoxide
- EA = ethyl acetate
- H = hexane
- I = isoctane
- Ip = isopropanol
- M = methanol
- MTBE = methyl *tert*-butyl ether
- PTM = purge & trap grade methanol
- T = toluene
- TO = transformer oil
- W = water (DI)

REFERENCE STANDARDS

Single Component Solutions

Compound Packaged 1mL/ampul*	Solvent CAS#	Code	$\mu\text{g/mL}^*$	Individual cat.#	price
RDX**	121-82-4	ACN	1,000	31666	
secobarbital	29071-21-4	PTM	1,000	34038	
simazine	122-34-9	A	1,000	32236	
stearyl stearate (10mL)	2778-96-3	Cy	2,000	31636	
stearyl stearate (10mL)	2778-96-3	H	2,000	31681	
stearyl stearate	2778-96-3	Neat	100mg	31860	
Stoddard solvent	8052-41-3	PTM	10,000	30487	
styrene	100-42-5	PTM	2,000	30410	
sulfolane	126-33-0	DMSO	0.8mg/mL	36413	
2,4,5-T	93-76-5	M	200	32243	
2,4,5-T methyl ester	1928-37-6	M	1,000	32244	
talbutal	115-44-6	PTM	1,000	34039	
2,4-TDIP	72375-21-4	DMSO	1,000	33001	
2,6-TDIP	195625-39-9	DMSO	1,000	33000	
temazepam	896-50-4	PTM	1,000	34056	
terbutylazine	5915-41-3	A	1,000	32447	
α -terphenyl	84-15-1	A	2,000	31066	
α -terphenyl	84-15-1	D	10,000	31097	
ρ -terphenyl	92-94-4	D	10,000	31095	
ρ -terphenyl-d14	1718-51-0	D	1,000	31828	
α -terpineol	98-55-5	D	2,000	33912	
2,2',5,5'-tetrachlorobiphenyl (BZ #52)	35693-99-3	I	10	32284	
1,1,1,2-tetrachloroethane	630-20-6	PTM	2,000	30411	
1,1,2,2-tetrachloroethane	79-34-5	PTM	2,000	30412	
tetrachloroethene	127-18-4	PTM	2,000	30413	
2,3,4,6-tetrachlorophenol	58-90-2	M	1,000	31402	
2,4,5,6-tetrachloro- <i>m</i> -xylene	877-09-8	A	200	32027	
2,4,5,6-tetrachloro- <i>m</i> -xylene (5mL)	877-09-8	A	200	32028	
<i>n</i> -tetracontane (C40)	4181-95-7	Neat	100mg	31859	
tetrahydrofuran (THF)	109-99-9	DMSO	3.6mg/mL	36408	
tetrahydrofuran (THF)	109-99-9	PTM	2,000	30414	
tetralin	119-64-2	DMSO	0.5mg/mL	36409	
tetrapentyltin	3765-65-9	D	2,000	31475	
tetra- <i>n</i> -propyltin	2176-98-9	D	2,000	31474	
teryl**	479-45-8	ACN	1,000	31667	
Δ^9 -THC	1972-08-3	M	1,000	34067	
(\pm)11-nor-9-carboxy- Δ^9 -THC	104874-50-2	M	100	34068	
thebaine	115-37-7	PTM	1,000	34009	
thiopental	71-73-8	PTM	1,000	34041	
Tinuvin P	2440-22-4	Ip	51.8	31629	
toluene	108-88-3	DMSO	4.45mg/mL	36410	
toluene	108-88-3	PTM	2,000	30415	
toluene-d8	2037-26-5	PTM	2,000	30224	
toxaphene	8001-35-2	H	1,000	32005	
toxaphene	8001-35-2	I	5,000	32071	
toxaphene	8001-35-2	M	2,000	32015	
2,4,5-TP (Silvex)	93-72-1	M	1,000	32245	
2,4,5-TP (Silvex) methyl ester	4841-20-7	M	1,000	32246	
transformer oil (PCB-free)	64742-53-6	Neat	50mL	32425	
transformer oil (PCB-free)	64742-53-6	Neat	5mL	32424	
<i>n</i> -triactanone-d62 (C30)	638-68-6	D	500	31816	
triazolam	28911-01-5	PTM	1,000	34057	
2,4,6-tribromophenol	118-79-6	M	1,000	31401	
tributylphosphate	126-73-8	A	1,000	32280	
tributyltin chloride	1461-22-9	D	2,000	31478	
tricaprin (1,2,3-tricapryinoylglycerol)	621-71-6	pyridine	8,000	33025	
tricaprin (1,2,3-tricapryinoylglycerol) (5mL)	621-71-6	pyridine	8,000	33033	

Compound Packaged 1mL/ampul*	Solvent CAS#	Code	$\mu\text{g/mL}^*$	Individual cat.#	price
1,2,3-trichlorobenzene	87-61-6	PTM	2,000	30416	
1,2,4-trichlorobenzene	120-82-1	M	1,000	31439	
2,4,4'-trichlorobiphenyl (BZ #28)	7012-37-5	I	10	32283	
1,1,1-trichloroethane	71-55-6	DMSO	50mg/mL	36411	
1,1,1-trichloroethane	71-55-6	PTM	2,000	30418	
1,1,2-trichloroethane	79-00-5	PTM	2,000	30419	
trichloroethene	79-01-6	DMSO	0.4mg/mL	36412	
trichloroethene	79-01-6	PTM	2,000	30420	
trichlorofluoromethane (CFC-11)	75-69-4	PTM	2,000	30421	
2,4,5-trichlorophenol	95-95-4	A	1,000	32017	
2,4,5-trichlorophenol	95-95-4	M	1,000	31299	
2,4,6-trichlorophenol	88-06-2	M	1,000	31400	
1,2,3-trichloropropane	96-18-4	MTBE	1,000	31648	
1,2,3-trichloropropane	96-18-4	PTM	2,000	30429	
1,1,2-trichlorotrifluoroethane (CFC-113)	76-13-1	PTM	2,000	30462	
α,α,α -trifluorotoluene	98-08-8	PTM	2,000	30048	
α,α,α -trifluorotoluene	98-08-8	PTM	2,500	30068	
α,α,α -trifluorotoluene	98-08-8	PTM	10,000	30083	
trifuralin	1582-09-8	M	1,000	32238	
1,2,4-trimethylbenzene	95-63-6	PTM	2,000	30422	
1,3,5-trimethylbenzene	108-67-8	PTM	2,000	30423	
1,2,4-trimethyl-5-nitrobenzene	610-91-3	M	2,000	33903	
2,2,4-trimethylpentane (isooctane)	540-84-1	nonane	5% vol/vol	30671	
1,3,5-trinitrobenzene**	99-35-4	ACN	1,000	31668	
2,4,6-trinitrotoluene**	118-96-7	ACN	1,000	31669	
triolein (1,2-Tri[<i>cis</i> -octadecenoyl] glycerol)	122-32-7	pyridine	5,000	33023	
tripentyltin chloride	3342-67-4	D	2,000	31477	
triphenylmethane (5mL)	519-73-3	ACN	10	33260	
triphenylphosphate	115-86-6	A	1,000	32281	
triphenylphosphate (5mL)	115-86-6	ACN	20	33258	
tri- <i>n</i> -propyltin chloride	995-25-5	D	2,000	31476	
tris(1,3-dichloroisopropyl) phosphate (5mL)	13674-87-8	ACN	50	33259	
<i>n</i> -undecane (C11)		D	1,000	30612	
unleaded gasoline composite	8006-61-9	PTM	2,500	30081	
unleaded gasoline composite	8006-61-9	PTM	50,000	30205	
unleaded gasoline composite (5mL)	8006-61-9	PTM	50,000	30206	
unleaded gasoline: 25% weathered	8006-61-9	PTM	5,000	30097	
unleaded gasoline: 50% weathered	8006-61-9	PTM	5,000	30098	
unleaded gasoline: 75% weathered	8006-61-9	PTM	5,000	30099	
unleaded gasoline: 99% weathered	8006-61-9	PTM	5,000	30436	
unleaded gasoline: unweathered	8006-61-9	PTM	5,000	30096	
used motor oil composite	64742-65-0	D	50,000	31465	
γ -valerolactone	108-29-2	ACN	1,000	34080	
vinyl acetate	108-05-4	PTM	2,000	30216	
vinyl chloride	75-01-4	PTM	2,000	30089	
vinyl chloride	75-01-4	PTM	2,500	30093	
<i>m</i> -xylene	108-38-3	DMSO	6.51mg/mL	36414	
<i>m</i> -xylene	108-38-3	PTM	2,000	30424	
<i>o</i> -xylene	95-47-6	DMSO	0.97mg/mL	36415	
<i>o</i> -xylene	95-47-6	PTM	2,000	30425	
<i>p</i> -xylene	106-42-3	DMSO	1.52mg/mL	36416	
<i>p</i> -xylene	106-42-3	PTM	2,000	30426	

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Solvent code:

A = acetone	I = isoctane
ACN = acetonitrile	Ip = isopropanol
C = carbon disulfide	M = methanol
Cy = cyclohexane	MTBE = methyl <i>tert</i> -butyl ether
D = methylene chloride	PTM = purge & trap grade methanol
DEA = diethylamine	T = toluene
DMSO = dimethyl sulfoxide	TO = transformer oil
EA = ethyl acetate	W = water (DI)
H = hexane	

*Volume is 1mL/ampul unless otherwise noted. Concentration is $\mu\text{g/mL}$ unless otherwise noted.

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500 Series Methods - US EPA Safe Drinking Water Act (SDWA)

US EPA Method No.	Compound Class	US EPA Method No.	Compound Class
501.1, 501.2, 501.3	Trihalomethanes	527	Pesticides & Flame Retardants (GC/MS)
502.1, 502.2	Volatile Halogenated Organics	528	Phenols
504.1	Ethylene Dibromide/Dibromochloropropane	529	Nitroaromatics & Nitramines
505	Organohalide Pesticides & PCBs	531.1, 531.2	Carbamates
506	Phthalate & Adipate Esters	532	Phenylurea Pesticides
507	Nitrogen & Phosphorus Pesticides	535	Chloroacetanilide Herbicide Degradates
508, 508.1, 508A	Chlorinated Pesticides	547	Glyphosate
515, 515.4	Chlorinated Acid Herbicides	549.2	Paraquat/Diquat
521	Nitrosamines	551.1	Chlorinated Pesticides & Herbicides
524.1, 524.2	Volatile Organics	552, 552.1, 552.2, 552.3	Haloacetic Acids and Dalapon
525, 525.1, 525.2	Semivolatile Organics	555	Chlorinated Acids
526	Semivolatile Organics	—	Drinking Water Odor Standard

Method 501.1, 501.2, 501.3 (Trihalomethanes)

501 Trihalomethane Mix (4 components)

bromodichloromethane	chloroform
bromoform	dibromochloromethane
200 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30036 (ea.)	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30211 (ea.)	

DW-VOC Mix #1 (8 components)

benzene	1,1-dichloroethene
carbon tetrachloride	1,1,1-trichloroethane
1,4-dichlorobenzene	trichloroethene
1,2-dichloroethane	v vinyl chloride
200 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30037 (ea.)	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30219 (ea.)	

DW-VOC Mix #2 (12 components)

chlorobenzene	styrene
1,2-dichlorobenzene	tetrachloroethene
cis-1,2-dichloroethene	toluene
trans-1,2-dichloroethene	m-xylene
1,2-dichloropropane	o-xylene
ethylbenzene	p-xylene
200 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30038 (ea.)	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30220 (ea.)	

DW-VOC Mix #3 (3 components)

methylene chloride	1,1,2-trichloroethane
1,2,4-trichlorobenzene	
200 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30209 (ea.)	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30235 (ea.)	

Revised DW-VOC Kit (200 μ g/mL)

Contains 1mL each of these mixtures.
 30036: 501 Trihalomethane Mix
 30037: DW-VOC Mix #1
 30038: DW-VOC Mix #2
 30209: DW-VOC Mix #3



cat. # 30210 (kit)

Quantity discounts not available.

DW-VOC Kit #2 (2,000 μ g/mL)

Contains 1mL each of these mixtures.
 30211: 501 Trihalomethane Mix
 30219: DW-VOC Mix #1
 30220: DW-VOC Mix #2
 30235: DW-VOC Mix #3



cat. # 30221 (kit)

Quantity discounts not available.

also available

Rtx®-502.2 GC Columns
 See page 102 for details.


500 Series Methods

Method 502.1, 502.2 (Volatile Halogenated Organics)

502.2 Internal Standard #1

1-chloro-2-fluorobenzene
2,000 μ g/mL in P&T methanol, 1mL/ampul
cat. # 30040 (ea.)

502.2 Internal Standard Mix #2 (2 components)

2-bromo-1-chloropropane fluorobenzene
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30041 (ea.)

8021/502.2 Surrogate Mix #1 (3 components)

1-bromo-2-chloroethane fluorobenzene
1-chloro-3-fluorobenzene
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30463 (ea.)

8021/502.2 Surrogate Mix #2 (4 components)

1-bromo-2-chloroethane 1-chloro-3-fluorobenzene
4-bromochlorobenzene fluorobenzene
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30464 (ea.)

Volatiles MegaMix® with Gases

(60 components)

benzene
bromobenzene
bromochloromethane
bromodichloromethane
bromoform
bromomethane (methyl bromide)
n-butylbenzene
sec-butylbenzene
tert-butylbenzene
carbon tetrachloride
chlorobenzene
chloroethane (ethyl chloride)
chloroform
chloromethane (methyl chloride)
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
dichlorodifluoromethane (CFC-12)
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
1,3-dichloropropene
2,2-dichloropropene
1,1-dichloropropene
cis-1,3-dichloropropene
trans-1,3-dichloropropene
ethylbenzene
hexachloro-1,3-butadiene
(hexachlorobutadiene)

200 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30603 (ea.)

**502.2 MegaMix®** (54 components)

Includes all target analytes except the six gases, which are available separately as 502.2 Calibration Mix #1.

benzene	1,1-dichloropropene
bromobenzene	<i>cis</i> -1,3-dichloropropene
bromochloromethane	<i>trans</i> -1,3-dichloropropene
bromodichloromethane	ethylbenzene
bromoform	hexachloro-1,3-butadiene (hexachlorobutadiene)
<i>n</i> -butylbenzene	isopropylbenzene (cumene)
<i>sec</i> -butylbenzene	4-isopropyltoluene (<i>p</i> -cymene)
<i>tert</i> -butylbenzene	methylene chloride (dichloromethane)
carbon tetrachloride	naphthalene
chlorobenzene	<i>n</i> -propylbenzene
chloroform	styrene
2-chlorotoluene	1,1,1,2-tetrachloroethane
4-chlorotoluene	1,1,2,2-tetrachloroethane
dibromochloromethane	tetrachloroethene
1,2-dibromo-3-chloropropane (DBCP)	toluene
1,2-dibromoethane	1,2,3-trichlorobenzene
dibromomethane	1,2,4-trichlorobenzene
1,2-dichlorobenzene	1,1,1-trichloroethane
1,3-dichlorobenzene	1,1,2-trichloroethane
1,4-dichlorobenzene	trichloroethene
1,1-dichloroethane	1,2,3-trichloropropane
1,2-dichloroethane	1,2,4-trimethylbenzene
1,1-dichloroethene	1,3,5-trimethylbenzene
<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

200 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30432 (ea.)

2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30431 (ea.)

502.2 Calibration Mix #1 (gases) (6 components)

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

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

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

502.2 Calibration Mix #2 (14 components)

bromodichloromethane	1,3-dichloropropene
bromoform	2,2-dichloropropane
carbon tetrachloride	<i>cis</i> -1,3-dichloropropene
chloroform	<i>trans</i> -1,3-dichloropropene
1,1-dichloroethane	methylene chloride
1,1-dichloroethene	1,1,1-trichloroethane
<i>cis</i> -1,2-dichloroethene	trichloroethene
<i>trans</i> -1,2-dichloroethene	
1,2-dichloropropane	
1,3-dichloropropane	
2,2-dichloropropane	
1,1-dichloropropene	
<i>cis</i> -1,3-dichloropropene	
<i>trans</i> -1,3-dichloropropene	

2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30043 (ea.)

Antifoam Agent for Purge & Trap Samples

Foam generated as purge gas passes through a sample can enter the analytical trap, and possibly 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.

**Method 502.1, 502.2 (Volatile Halogenated Organics),
cont'd**

502.2 Calibration Mix #3 (14 components)

bromochloromethane	1,2-dichloropropane
dibromochloromethane	1,1-dichloropropene
1,2-dibromo-3-chloropropane	1,1,1,2-tetrachloroethane
1,2-dibromoethane	1,1,2,2-tetrachloroethane
dibromomethane	tetrachloroethene
1,2-dichloroethane	1,1,2-trichloroethane
cis-1,2-dichloroethene	1,2,3-trichloropropane
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30044 (ea.)

502.2 Calibration Mix #4 (9 components)

benzene	styrene
tert-butylbenzene	toluene
chlorobenzene	1,3,5-trimethylbenzene
isopropylbenzene	m-xylene
n-propylbenzene	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30045 (ea.)

502.2 Calibration Mix #5 (10 components)

bromobenzene	ethylbenzene
n-butylbenzene	1,2,4-trichlorobenzene
sec-butylbenzene	1,2,4-trimethylbenzene
2-chlorotoluene	<i>o</i> -xylene
1,3-dichlorobenzene	<i>p</i> -xylene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30046 (ea.)

502.2 Calibration Mix #6 (7 components)

4-chlorotoluene	4-isopropyltoluene
1,2-dichlorobenzene	naphthalene
1,4-dichlorobenzene	1,2,3-trichlorobenzene
hexachlorobutadiene	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30047 (ea.)

502.2 VOA Calibration Kit #1 (2,000 μ g/mL)

Contains 1mL each of these mixtures.
 30042: 502.2 Calibration Mix #1
 30043: 502.2 Calibration Mix #2
 30044: 502.2 Calibration Mix #3
 30045: 502.2 Calibration Mix #4
 30046: 502.2 Calibration Mix #5
 30047: 502.2 Calibration Mix #6
 cat. # 30444 (kit)



Quantity discounts not available.

502.2 VOA Calibration Kit #2 (2,000 μ g/mL)

Contains 1mL each of these mixtures.
 30042: 502.2 Calibration Mix #1
 30431: 502.2 MegaMix
 cat. # 30445 (kit)



Quantity discounts not available.

502.2 VOA Calibration Kit #3 (200 μ g/mL)

Contains 1mL each of these mixtures.
 30439: 502.2 Calibration Mix #1
 30432: 502.2 MegaMix
 cat. # 30446 (kit)



Quantity discounts not available.

**Method 504.1 (Ethylene Dibromide/
Dibromochloropropane)**

504.1 Calibration Mix (3 components)

1,2-dibromo-3-chloropropane	1,2,3-trichloropropane
1,2-dibromoethane	
200 μ g/mL each in P&T methanol, 1mL/ampul	cat. # 30239 (ea.)

Method 505 (Organohalide Pesticides & PCBs)

505 Organohalide Pesticide Mix (16 components)

aldrin	heptachlor
alachlor	heptachlor epoxide (isomer B)
atrazine	hexachlorobenzene
γ -BHC (lindane)	hexachlorocyclopentadiene
α -chlordane	methoxychlor
γ -chlordane	cis-nonachlor
dieldrin	trans-nonachlor
endrin	simazine
200 μ g/mL each in methanol, 1mL/ampul	
	cat. # 32024 (ea.)

Toxaphene Solutions

1,000 μ g/mL in hexane, 1mL/ampul	cat. # 32005 (ea.)
2,000 μ g/mL in methanol, 1mL/ampul	cat. # 32015 (ea.)
5,000 μ g/mL in isoctane, 1mL/ampul	cat. # 32071 (ea.)

Method 506 (Phthalate & Adipate Esters)

506 Calibration Mix (7 components)

benzyl butyl phthalate	di-n-octyl phthalate
bis(2-ethylhexyl)adipate	diethylphthalate
bis(2-ethylhexyl)phthalate	dimethylphthalate
di-n-butylphthalate	
1,000 μ g/mL in isoctane, 1mL/ampul	cat. # 31845 (ea.)

506 Laboratory Performance Check Mix (7 components)

benzyl butyl phthalate	250 μ g/mL	di-n-octyl phthalate	650
bis(2-ethylhexyl)adipate	1,200	diethylphthalate	100
bis(2-ethylhexyl)phthalate	250	dimethylphthalate	100
di-n-butylphthalate	100		
In P&T methanol, 1mL/ampul		cat. # 31844 (ea.)	

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500 Series Methods

Method 507 (Nitrogen & Phosphorus Pesticides)

Organonitrogen Pesticide Mix #1 (Rev), Method 525.2

(37 components)

alachlor	molinate
ametryn	napropamide (Devrinol)
atraton	norflurazon
atrazine	pebulate
bromacil	prometon
butachlor	prometryne
butylate	pronamide (propyzamide)
chlorpropham	propachlor
cyanazine (Bladex)	propazine
cycloate	simazine
diphenamid	simetryn
EPTC	tebuthiuron
etridiazole (Terrazole)	terbacil
fenarimol	terbutryn
fluridone (Sonar)	triadimenol
hexazinone (Velpar)	tricyclazole (Beam)
metolachlor	trifluralin
metribuzin	vernolate
MGK-264	

500µg/mL each in acetone, 1mL/ampul

cat. # 33012 (ea.)

Organophosphorus Pesticide Mix #1 (Rev), Method 525.2

(7 components)

chlorpyrifos (Dursban)	methyl paraoxon (parathion methyl-O-analog)
dichlorvos (DDVP)	mevinphos (phosdrin)
disulfoton sulfone	stirofos (tetrachlorvinphos)
ethoprop (ethoprophos)	

500µg/mL each in acetone, 1mL/ampul

cat. # 33013 (ea.)

Method 525.2 Nitrogen/Phosphorus Pesticide Mix #2

(6 components)

carboxin	fenamiphos
diazinon	merphos
disulfoton	terbufos

1,000µg/mL each in acetone, 1mL/ampul

cat. # 32423 (ea.)

Method 508, 508.1, 508A (Chlorinated Pesticides)

508.1 Internal Standard

pentachloronitrobenzene

100µg/mL in ethyl acetate, 1mL/ampul

cat. # 32091 (ea.)

508.1 Surrogate

4,4'-dibromobiphenyl

500µg/mL in ethyl acetate, 1mL/ampul

cat. # 32092 (ea.)

508.1 GC Degradation Check Mix

4,4'-DDT endrin

100µg/mL each in ethyl acetate, 1mL/ampul

cat. # 32093 (ea.)

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Method 508, 508.1, 508A (Chlorinated Pesticides)

cont'd

508 Performance Check Mix (4 components)

δ-BHC	0.4µg/mL	chlorpyrifos	0.02
chlorothalonil	0.5	DCPA (Dacthal)	0.5
In methyl <i>tert</i> -butyl ether, 1mL/ampul			

cat. # 32045 (ea.)

508.1 Calibration Mix #1 (17 components)

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

500µg/mL each in ethyl acetate, 1mL/ampul
cat. # 32094 (ea.)

508.1 Calibration Mix #2 (11 components)

chlorbenzilate	hexachlorobenzene
α-chlordane	cis-permethrin*
γ-chlordane	trans-permethrin*
chlorneb	propachlor
DCPA (Dacthal)	trifluralin

500µg/mL each in ethyl acetate, 1mL/ampul
cat. # 32095 (ea.)

*1,000µg/mL total permethrin. Exact content of each isomer listed on certificate of analysis.

508.1 Calibration Mix #3 (8 components)

alachlor	hexachlorocyclopentadiene
atrazine	metolachlor
chlorthalonil	metribuzin
cyanazine	simazine

500µg/mL each in ethyl acetate, 1mL/ampul
cat. # 32096 (ea.)

Toxaphene Solutions

1,000µg/mL in hexane, 1mL/ampul
cat. # 32005 (ea.)2,000µg/mL in methanol, 1mL/ampul
cat. # 32015 (ea.)5,000µg/mL in isoctane, 1mL/ampul
cat. # 32071 (ea.)

Organochlorine Pesticide System Evaluation Mix (2 components)

4,4'-DDT	200µg/mL
endrin	100µg/mL
In methyl <i>tert</i> -butyl ether, 1mL/ampul	

cat. # 32417 (ea.)

Decachlorobiphenyl, 508A

200µg/mL in acetone, 1mL/ampul
cat. # 32029 (ea.)200µg/mL in acetone, 5mL/ampul
cat. # 32030 (ea.)10µg/mL in isoctane, 1mL/ampul
cat. # 32289 (ea.)

500 Series Methods

Method 521 (Nitrosamines)

Nitrosamine Calibration Mix, Method 521 (7 components)

N-nitrosodiethylamine	N-nitrosomethylethylamine
N-nitrosodimethylamine	N-nitrosopiperidine
N-nitrosodi-n-butylamine	N-nitrosopyrrolidine
N-nitrosodi-n-propylamine	
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31898 (ea.)

N-Nitrosodimethylamine-d6

N-nitrosodimethylamine-d6	α,α,α -trifluorotoluene
1,000 μ g/mL in methylene chloride, 1mL/ampul	2,500 μ g/mL each in P&T methanol, 1mL/ampul

N-Nitrosodi-n-propylamine-d14

N-nitrosodi-n-propylamine-d14	1,2-dichlorobenzene-d4
1,000 μ g/mL in methylene chloride, 1mL/ampul	2,000 μ g/mL in P&T methanol, 1mL/ampul

cat. # 33910 (ea.)

EPA 521 & 522 Cartridge

- Activated charcoal for extraction of nitrosamines and dioxane in drinking water.
- Batch tested to ensure low background and consistent recoveries.
- High quality polypropylene tubes and frits to minimize interference.
- Specially treated charcoal and frits to minimize fines that result in inconsistent recoveries.

See page 394.

Disks are also available on page 397.

Method 524.1, 524.2 (Volatile Organics)

524 Internal Standard/Surrogate Mix (3 components)

4-bromofluorobenzene	fluorobenzene
1,2-dichlorobenzene-d4	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	cat. # 30201 (ea.)

Surrogate Standard (2 components)

4-bromofluorobenzene	α,α,α -trifluorotoluene
2,500 μ g/mL each in P&T methanol, 1mL/ampul	cat. # 30484 (ea.)

524.2 Surrogate Standard (2 components)

1-bromo-4-fluorobenzene	1,2-dichlorobenzene-d4
2,000 μ g/mL in P&T methanol, 1mL/ampul	cat. # 30607 (ea.)

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)

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

No data pack available.

Volatiles MegaMix® with Gases (60 components)

benzene	2,2-dichloropropane
bromobenzene	1,1-dichloropropene
bromochloromethane	cis-1,3-dichloropropene
bromodichloromethane	trans-1,3-dichloropropene
bromoform	ethylbenzene
bromomethane (methyl bromide)	hexachloro-1,3-butadiene
n-butylbenzene	(hexachlorobutadiene)
sec-butylbenzene	isopropylbenzene (cumene)
tert-butylbenzene	4-isopropyltoluene (<i>p</i> -cymene)
carbon tetrachloride	methylene chloride (dichloromethane)
chlorobenzene	naphthalene
chloroethane (ethyl chloride)	n-propylbenzene
chloroform	styrene
chloromethane (methyl chloride)	1,1,1,2-tetrachloroethane
2-chlorotoluene	1,1,2,2-tetrachloroethane
4-chlorotoluene	tetrachloroethene
dibromochloromethane	toluene
1,2-dibromo-3-chloropropane (DBCP)	1,2,3-trichlorobenzene
1,2-dibromoethane (EDB)	1,2,4-trichlorobenzene
dibromomethane	1,1,1-trichloroethane
1,2-dichlorobenzene	1,1,2-trichloroethane
1,3-dichlorobenzene	trichloroethene
1,4-dichlorobenzene	trichlorofluoromethane (CFC-11)
dichlorodifluoromethane (CFC-12)	1,2,3-trichloropropane
1,1-dichloroethane	1,2,4-trimethylbenzene
1,2-dichloroethane	1,3,5-trimethylbenzene
1,1-dichloroethene	vinyl chloride
cis-1,2-dichloroethene	<i>m</i> -xylene
trans-1,2-dichloroethene	<i>o</i> -xylene
1,2-dichloropropane	<i>p</i> -xylene
1,3-dichloropropane	

200 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30603 (ea.)**Antifoam Agent for Purge & Trap Samples**

Foam generated as purge gas passes through a sample can enter the analytical trap, and possibly 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.

Method 524.1, 524.2 (Volatile Organics) cont'd

**Drinking Water VOA MegaMix[®],
524.2 Rev. 4.1** (73 components)

acrylonitrile
allyl chloride
benzene
bromobenzene
bromochloromethane
bromodichloromethane
bromoform
n-butylbenzene
sec-butylbenzene
tert-butylbenzene
carbon disulfide
carbon tetrachloride
chloroacetonitrile
chlorobenzene
1-chlorobutane
chlorodibromomethane
(dibromoethylchloromethane)
chloroform
2-chlorotoluene
4-chlorotoluene
1,2-dibromo-3-chloropropane (DBCP)
1,2-dibromoethane (ethylene
dibromide)
dibromomethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
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)
ethylbenzene
ethyl methacrylate
hexachloro-1,3-butadiene
hexachloroethane
iodomethane (methyl iodide)

2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30601 (ea.)



isopropylbenzene (cumene)
4-isopropyltoluene (*p*-cymene)
methacrylonitrile
methyl acrylate
methyl *tert*-butyl ether (MTBE)
methylene chloride (dichloromethane)
methyl methacrylate
naphthalene
nitrobenzene
2-nitropropane
pentachloroethane
propionitrile (ethylcyanide)
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
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
m-xylene
o-xylene
p-xylene

502.2 Calibration Mix #1 (gases) (6 components)

bromomethane dichlorodifluoromethane (CFC-12)
chloroethane trichlorofluoromethane (CFC-11)
chloromethane vinyl chloride
200 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30439 (ea.)

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

Ketones Mix, 524.2 Rev. 4.1 (5 components)

acetone 2-hexanone
2-butanone (MEK) 4-methyl-2-pentanone (MIBK)
1,1-dichloro-2-propanone
5,000 μ g/mL each in 90% P&T methanol:10% water, 1mL/ampul
cat. # 30602 (ea.)

Oxygenates Standard (5 components)

diisopropyl ether (DIPE)	2,000 μ g/mL
ethyl- <i>tert</i> -butyl ether (ETBE)	2,000
<i>tert</i> -amyl ethyl ether (TAAE)	2,000
<i>tert</i> -amyl methyl ether (TAME)	2,000
<i>tert</i> -butyl alcohol (TBA)	10,000

In P&T methanol, 1mL/ampul

cat. # 30619 (ea.)

524 Calibration Mix #7A (5 components)

acetone	4-methyl-2-pentanone (MIBK)
2-butanone (MEK)	tetrahydrofuran
2-hexanone	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30300 (ea.)

524 Calibration Mix #7B (7 components)

acrylonitrile	methyl methacrylate
allyl chloride (3-chloropropene)	nitrobenzene
ethyl methacrylate	pentachloroethane
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30304 (ea.)

524 Calibration Mix #7 Kit

Contains 1mL each of these mixtures.
30300: 524 Calibration Mix #7A
30304: 524 Calibration Mix #7B
cat. # 30202 (kit)



Quantity discounts not available.

524 Calibration Mix #8 (12 components)

carbon disulfide	hexachloroethane
chloroacetonitrile	iodomethane (methyl iodide)
1-chlorobutane	methacrylonitrile
<i>trans</i> -1,4-dichloro-2-butene	methyl <i>tert</i> -butyl ether
1,1-dichloro-2-propanone	2-nitropropane
diethyl ether	propionitrile
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30203 (ea.)

524 Rev. 4.0 Volatile Organics Kit (2,000 μ g/mL)

Contains 1mL each of these mixtures.
30201: 524 Internal Standard/Surrogate Mix
30042: 502.2 Calibration Mix #1
30043: 502.2 Calibration Mix #2
30044: 502.2 Calibration Mix #3
30045: 502.2 Calibration Mix #4
30046: 502.2 Calibration Mix #5
30047: 502.2 Calibration Mix #6
30300: 524 Calibration Mix #7A
30304: 524 Calibration Mix #7B
30203: 524 Calibration Mix #8
cat. # 30204 (kit)



Quantity discounts not available.

524 Rev. 4.0 VOA Kit #2 (2,000 μ g/mL)

Contains 1mL each of these mixtures.
30042: 502.2 Calibration Mix #1
30431: 502.2 MegaMix
30300: 524 Calibration Mix #7A
30304: 524 Calibration Mix #7B
30203: 524 Calibration Mix #8
30201: 524 Surrogate/Internal Standard Mix
cat. # 30447 (kit)



Quantity discounts not available.

Note: For a listing of additional individual VOA surrogate and internal standards, see page 467.

500 Series Methods

Method 525, 525.1, 525.2 (Semivolatile Organics)

Method 525.2 Internal Standard Mix (3 components)

acenaphthene-d10 phenanthrene-d10
 chrysene-d12
 1,000 μ g/mL each in acetone, 1mL/ampul
 cat. # 31825 (ea.)

Method 525.2 Surrogate Standard Mix (4 components)

2-nitro-m-xylene pyrene-d10
 perylene-d12 triphenylphosphate
 1,000 μ g/mL each in acetone, 1mL/ampul
 cat. # 31826 (ea.)

Method 525.2 Herbicide Analytes

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
acetochlor	M	100	33208	
alachlor	M	100	33207	
metolachlor	M	100	33209	

M = methanol

Method 525.2 Herbicide Mix (3 components)

acetochlor metolachlor
 alachlor
 100 μ g/mL in methanol, 1mL/ampul
 cat. # 33211 (ea.)

Method 525.2 Semivolatile Mix (revised) (28 components)

acenaphthylene	di-n-butylphthalate
anthracene	2,4-dinitrotoluene
benzo(a)anthracene	2,6-dinitrotoluene
benzo(a)pyrene	di-n-octylphthalate
benzo(b)fluoranthene	fluoranthene
benzo(ghi)perylene	fluorene
benzo(k)fluoranthene	hexachlorobenzene
benzylbutylphthalate	hexachlorocyclopentadiene
bis(2-ethylhexyl)adipate	indeno(1,2,3-cd)pyrene
bis(2-ethylhexyl)phthalate	isophorone
chrysene	naphthalene
dibenzo(a,h)anthracene	pentachlorophenol*
diethylphthalate	phenanthrene
dimethylphthalate	pyrene

1,000 μ g/mL each in acetone, 1mL/ampul
 cat. # 31899 (ea.)

*pentachlorophenol at 4,000 μ g/mL.

Method 525.2 PCB Congener Mix (8 components)

2-chlorobiphenyl (BZ#1)
 2,3-dichlorobiphenyl (BZ#5)
 2,4,5-trichlorobiphenyl (BZ#29)
 2,2',4,4'-tetrachlorobiphenyl (BZ#47)
 2,2',3,4,6-pentachlorobiphenyl (BZ#98)
 2,2',4,4',5,6-hexachlorobiphenyl (BZ#154)
 2,2',3,3',4,4'-heptachlorobiphenyl (BZ#171)
 2,2',3,3',4,5',6,6'-octachlorobiphenyl (BZ#200)
 200 μ g/mL each in acetone, 1mL/ampul
 cat. # 32420 (ea.)

Organochlorine Pesticide Mix AB # 3 (20 components)

aldrin	ieldrin
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.)	

Organonitrogen Pesticide Mix #1 (Rev), Method 525.2

(37 components)

alachlor	molinate
ametryn	napropamide (Devrinol)
atraton	norflurazon
atrazine	pebulate
bromacil	prometon
butachlor	prometryne
butylate	pronamide (propyzamide)
chlorpropham	propachlor
cyanazine (Bladex)	propazine
cycloate	simazine
diphenamid	simetryn
EPTC	tebuthiuron
etridiazole (Terrazole)	terbacil
fenarimol	terbutryn
fluridone (Sonar)	triadimefon
hexazinone (Velpar)	tricyclazole (Beam)
metolachlor	trifluralin
metribuzin	vernolate
MGK-264	
500 μ g/mL each in acetone, 1mL/ampul cat. # 33012 (ea.)	

Organophosphorus Pesticide Mix #1 (Rev), Method 525.2

(7 components)

chlorpyrifos (Dursban)	methyl paraoxon (parathion methyl-O-analog)
dichlorvos (DDVP)	mevinphos (phosdrin)
disulfoton sulfone	stirofos (tetrachlorvinphos)
ethoprop (ethoprophos)	
500 μ g/mL each in acetone, 1mL/ampul cat. # 33013 (ea.)	

Method 525.2 Nitrogen/Phosphorus Pesticide Mix #2

(6 components)

carboxin	fenamiphos
diazinon	merphos
disulfoton	terbufos
1,000 μ g/mL each in acetone, 1mL/ampul cat. # 32423 (ea.)	



also available

Try our CLPesticides columns for these applications.

See pages 88-90 for details.

also available

See pages 452-453 for 502.2 MegaMix® and 502.2 calibration mixes.

Method 525, 525.1, 525.2 (Semivolatile Organics)
cont'd

Organochlorine Pesticide Mix #2 (Rev), Method 525.2

(8 components)

chlorobenzilate	heptachlor epoxide (isomer A)
chloroneb	<i>trans</i> -nonachlor
chlorothalonil	<i>cis</i> -permethrin
DCPA (Dacthal)	<i>trans</i> -permethrin
500 μ g/mL each in acetone, 1mL/ampul	
	cat. # 33011 (ea.)

Method 525.2 Fortification Recovery Standard

p-terphenyl-d14

1,000 μ g/mL in methylene chloride, 1mL/ampul	
	cat. # 31828 (ea.)

Method 525.2 GC/MS Performance Check Mix (3 components)

4,4'-DDT

DFTPP (decafluorotriphenylphosphine)

endrin

1,000 μ g/mL each in acetone, 1mL/ampul

cat. # 31827 (ea.)

Method 526 (Semivolatile Organics)

Internal Standard Mix, EPA 526 (3 components)

acenaphthene-d10

phenanthrene-d10

chrysene-d12

500 μ g/mL each in acetone, 1mL/ampul

cat. # 31692 (ea.)

Surrogate Standard Mix, EPA 526 (2 components)

2-nitro-*m*-xylene

triphenylphosphate

500 μ g/mL each in acetone, 1mL/ampul

cat. # 31693 (ea.)

Semivolatile Calibration Mix, EPA 526 (11 components)

acetochlor

fonofos

cyanazine

nitrobenzene

diazinon

prometon

2,4-dichlorophenol

terbufos

1,2-diphenylhydrazine

2,4,6-trichlorophenol

disulfoton

200 μ g/mL each in ethyl acetate, 1mL/ampul

cat. # 31691 (ea.)

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Method 527 (Pesticides & Flame Retardants-GC/MS)

Internal Standard, Method 527 (3 components)

acenaphthene-d10	phenanthrene-d10
chrysene-d12	
500 μ g/mL each in acetone, 1mL/ampul	cat. # 33010 (ea.)

Method 525.2 Internal Standard Mix (3 components)

acenaphthene-d10	phenanthrene-d10
chrysene-d12	
1,000 μ g/mL each in acetone, 1mL/ampul	cat. # 31825 (ea.)

Surrogate Standard, Method 527 (3 components)

1,3-dimethyl-2-nitrobenzene	triphenylphosphate
perylene-d12	
500 μ g/mL each in acetone, 1mL/ampul	cat. # 33009 (ea.)

Method 525.2 Surrogate Standard Mix (4 components)

2-nitro- <i>m</i> -xylene	pyrene-d10
perylene-d12	triphenylphosphate
1,000 μ g/mL each in acetone, 1mL/ampul	cat. # 31826 (ea.)

PBDE Mix (5 components)

2,2',4,4',5-pentabromodiphenyl ether (BDE-99)	
2,2',4,4',5,5'-hexabromobiphenyl	
2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153)	
2,2',4,4',5-pentabromodiphenyl ether (BDE-100)	
2,2',4,4'-tetrabromodiphenyl ether (BDE-47)	

50 μ g/mL each in isoctane:ethyl acetate (4:1), 1mL/ampul	
	cat. # 33098 (ea.)

Quantity discounts not available.

Pesticides Mix #1, Method 527 (16 components)

atrazine	mirex
bifenthrin	nitrofen
esbiol (Bioallethrin, S-cyclopentyl isomer)	norflurazon
bromacil	oxychlordane
esfenvalerate	prometryne
fenvvalate	propazine
hexazinone	thiobencarb
kepone	vinclozolin

500 μ g/mL each in ethyl acetate, 1mL/ampul	
	cat. # 33007 (ea.)

Pesticides Mix #2, Method 527 (5 components)

chloropyrifos (Dursban)	parathion
dimethoate	terbufos sulfone
malathion	

500 μ g/mL each in ethyl acetate, 1mL/ampul	
	cat. # 33008 (ea.)

Reference Standards Search

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500 Series Methods

Method 528 (Phenols)

Internal Standard Mix, EPA 528 (2 components)

3-nitro- <i>o</i> -xylene	1,000 μ g/mL
2,3,4,5-tetrachlorophenol	2,000
In methylene chloride, 1mL/ampul	

cat. # 31696 (ea.)

Surrogate Standard Mix, EPA 528 (3 components)

2-chlorophenol-d4	1,000 μ g/mL
2,4-dimethylphenol-3,5,6-d3	1,000
2,4,6-tribromophenol	2,000

In methanol, 1mL/ampul

cat. # 31697 (ea.)

Phenol Calibration Mix, EPA 528 (12 components)

4-chloro-3-methylphenol	2-methyl-4,6-dinitrophenol
2-chlorophenol	2-nitrophenol
<i>o</i> -cresol	4-nitrophenol
2,4-dichlorophenol	pentachlorophenol
2,4-dimethylphenol	phenol
2,4-dinitrophenol	2,4,6-trichlorophenol
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31694 (ea.)

Phenols Fortification Mix, EPA 528 (12 components)

4-chloro-3-methylphenol	100 μ g/mL	2-methyl-4,6-dinitrophenol	500
2-chlorophenol	100	2-nitrophenol	100
<i>o</i> -cresol	100	4-nitrophenol	500
2,4-dichlorophenol	100	pentachlorophenol	500
2,4-dimethylphenol	100	phenol	100
2,4-dinitrophenol	500	2,4,6-trichlorophenol	100

In methanol, 1mL/ampul

cat. # 31695 (ea.)

Method 529 (Nitroaromatics & Nitramines)

529 Internal Standard Mix

3,4-dinitrotoluene	
2,000 μ g/mL in ethyl acetate, 1mL/ampul	cat. # 33901 (ea.)

529 Surrogate Standard #1

2-nitromethylene	
2,000 μ g/mL in methanol, 1mL/ampul	cat. # 33902 (ea.)

529 Surrogate Standard #2

1,2,4-trimethyl-5-nitrobenzene	
2,000 μ g/mL in methanol, 1mL/ampul	cat. # 33903 (ea.)

529 Surrogate Standard #3

nitrobenzene-d5	
2,000 μ g/mL in methylene chloride, 1mL/ampul	cat. # 33904 (ea.)

Nitroaromatics and Nitramine Explosives in Drinking Water

(14 components)

3,5-dinitroaniline	2-nitrotoluene
1,3-dinitrobenzene	3-nitrotoluene
2-amino-4,6-dinitrotoluene	4-nitrotoluene
4-amino-2,6-dinitrotoluene	RDX
2,4-dinitrotoluene	tetryl
2,6-dinitrotoluene	1,3,5-trinitrobenzene
nitrobenzene	2,4,6-trinitrotoluene
1,000 μ g/mL each in acetonitrile, 1mL/ampul	

cat. # 33900 (ea.)

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Method 531.1, 531.2 (Carbamates)

Internal Standard

4-bromo-3,5-dimethylphenyl-N-methylcarbamate (BDMC)
 100 μ g/mL in methanol, 1mL/ampul
 cat. # 32274 (ea.)

531.1 Performance Check Mix (4 components)

aldicarb sulfoxide	100 μ g/mL	3-hydroxycarbofuran	2
BDMC	10	methiocarb	20
In methanol, 1mL/ampul			
cat. # 32275 (ea.)			

531.1 Carbamate Pesticide Calibration Mixture (10 components)

aldicarb	3-hydroxycarbofuran
aldicarb sulfone	methiocarb
aldicarb sulfoxide	methomyl
carbaryl (Sevin)	oxamyl
carbofuran	propoxur (Baygon)
100 μ g/mL each in methanol, 1mL/ampul	
cat. # 32273 (ea.) \$42	

531.2 Carbamate Pesticide Calibration Mixture (11 components)

aldicarb	methiocarb
aldicarb sulfone	methomyl
aldicarb sulfoxide	1-naphthol
carbaryl (Sevin)	oxamyl
carbofuran	propoxur (Baygon)
3-hydroxycarbofuran	
100 μ g/mL in acetonitrile, 1mL/ampul	
cat. # 32435 (ea.)	

Method 532 (Phenylurea Pesticides)

Phenylurea Surrogate Mixture (2 components)

carbazole	monuron
500 μ g/mL each in methanol:acetonitrile (50:50), 1mL/ampul	
cat. # 32433 (ea.)	

Phenylurea Pesticide Mixture (8 components)

diflubenzuron	propanil
diuron	siduron
fluometuron	tebuthiuron
linuron	thidiazuron
200 μ g/mL each in acetonitrile:acetone (90:10), 1mL/ampul	
cat. # 32434 (ea.)	

Method 535 (Chloroacetanilide Herbicide Degradates)

Method 535 Internal Standard

butachlor ESA sodium salt
 100 μ g/mL in methanol, 1mL/ampul
 cat. # 33202 (ea.)

Method 535 Surrogate Standard

dimethachlor ESA sodium salt
 100 μ g/mL in methanol, 1mL/ampul
 cat. # 33203 (ea.)

Method 535 Individual Compounds

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
acetochlor ESA sodium salt	M	100	33092	
acetochlor OA	M	100	33094	
alachlor ESA sodium salt	M	100	33096	
alachlor OA	M	100	33099	
metolachlor ESA sodium salt	M	100	33200	
metolachlor OA	M	100	33201	

M = methanol

Method 547 (Glyphosate)

Glyphosate Standard

glyphosate	1,000 μ g/mL in DI water, 1mL/ampul
cat. # 32426 (ea.)	
1,000 μ g/mL in DI water, 5mL/ampul	cat. # 32427 (ea.)

AMPA (glyphosate metabolite)

aminomethyl phosphonic acid (AMPA)	100 μ g/mL in DI water, 1mL/ampul
cat. # 32428 (ea.)	

Method 549.2 (Paraquat/Diquat)

Paraquat & Diquat Calibration Mix (2 components)

diquat dibromide	paraquat dichloride
1,000 μ g/mL each in water, 1mL/ampul	
cat. # 32437 (ea.)	

Ultra Quat Reagent Solution

Use with Ultra Quat HPLC column. Dilute to 1 liter, per instructions.

In water, 20mL/bottle	cat. # 32441 (ea.)
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500 Series Methods

Method 551.1 (Chlorinated Pesticides & Herbicides)

551.1 Internal Standard

1-bromo-4-fluorobenzene

1,000 μ g/mL in acetone, 1mL/ampul

cat. # 31854 (ea.)

551.1 Surrogate Standard

decafluorobiphenyl

1,000 μ g/mL in acetone, 1mL/ampul

cat. # 31855 (ea.)

Method 551.1 Pesticide/Herbicide Mix (16 components)

alachlor	heptachlor
atrazine	heptachlor epoxide (isomer B)
bromacil	hexachlorobenzene
cyanazine (Bladex)	hexachlorocyclopentadiene
endrin	methoxychlor
endrin aldehyde	metolachlor
endrin ketone	simazine
γ -BHC (lindane)	trifluralin
1,000 μ g/mL each in acetone, 1mL/ampul	
	cat. # 32438 (ea.)

Disinfection By-Product and Chlorinated Solvents Mix

(19 components)

bromochloroacetonitrile	dichloroacetonitrile
bromodichloromethane	1,1-dichloro-2-propanone
bromoform	tetrachloroethylene
carbon tetrachloride	trichloroacetonitrile
chloroform	1,1,1-trichloroethane
chloropicrin	1,1,2-trichloroethane
dibromoacetonitrile	trichloroethylene
dibromochloromethane	1,2,3-trichloropropane
1,2-dibromo-3-chloropropane (DBCP)	1,1,1-trichloro-2-propanone
1,2-dibromoethane (EDB)	
2,000 μ g/mL each in acetone, 1mL/ampul	
	cat. # 30615 (ea.)

Chloral Hydrate

chloral hydrate

1,000 μ g/mL in acetonitrile, 1mL/ampul

cat. # 30609 (ea.)

Disinfection By-Product Mix (7 components)

bromochloroacetonitrile	1,1-dichloro-2-propanone
chloropicrin	trichloroacetonitrile
dibromoacetonitrile	1,1,1-trichloro-2-propanone
dichloroacetonitrile	
2,000 μ g/mL each in acetone, 1mL/ampul	
	cat. # 30616 (ea.)

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Methods 552, 552.1, 552.2, 552.3 (Haloacetic Acids and Dalapon)**Haloacetic Acid Mix** (9 components)

bromochloroacetic acid	monobromoacetic acid
bromodichloroacetic acid	monochloroacetic acid
chlorodibromoacetic acid	tribromoacetic acid
dibromoacetic acid	trichloroacetic acid
dichloroacetic acid	
1,000 μ g/mL each in methyl <i>tert</i> -butyl ether, 1mL/ampul	
	cat. # 31896 (ea.)

Haloacetic Acid Methyl Ester Mix (9 components)

methyl bromochloroacetate	methyl monobromoacetate
methyl bromodichloroacetate	methyl monochloroacetate
methyl chlorodibromoacetate	methyl tribromoacetate
methyl dibromoacetate	methyl trichloroacetate
methyl dichloroacetate	
1,000 μ g/mL each in methyl <i>tert</i> -butyl ether, 1mL/ampul	
	cat. # 31897 (ea.)

Haloacetic Acid Mix #1 (6 components)

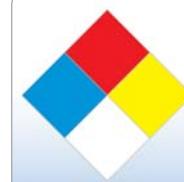
bromochloroacetic acid	monobromoacetic acid
dibromoacetic acid	monochloroacetic acid
dichloroacetic acid	trichloroacetic acid
2,000 μ g/mL each in methyl <i>tert</i> -butyl ether, 1mL/ampul	
	cat. # 31644 (ea.)

Haloacetic Acid Methyl Ester Mix #1 (6 components)

methyl bromochloroacetate	methyl monobromoacetate
methyl dibromoacetate	methyl monochloroacetate
methyl dichloroacetate	methyl trichloroacetate
1,000 μ g/mL each in methyl <i>tert</i> -butyl ether, 1mL/ampul	
	cat. # 31645 (ea.)

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Methods 552, 552.1, 552.2, 552.3 (Haloacetic Acids and Dalapon) cont'd

Haloacetic Acid Mix #2 (9 components)

bromochloroacetic acid	400 μ g/mL	monobromoacetic acid	400
bromodichloroacetic acid	400	monochloroacetic acid	600
chlorodibromoacetic acid	1,000	tribromoacetic acid	2,000
dibromoacetic acid	200	trichloroacetic acid	200
dichloroacetic acid	600		
In methyl <i>tert</i> -butyl ether, 1mL/ampul			
	cat. # 31646	(ea.)	

Haloacetic Acid Methyl Ester Mix #2 (9 components)

methyl bromochloroacetate	400 μ g/mL	methyl monobromoacetate	400
methyl bromodichloroacetate	400	methyl monochloroacetate	600
methyl chlorodibromoacetate	1,000	methyl tribromoacetate	2,000
methyl dibromoacetate	200	methyl trichloroacetate	200
methyl dichloroacetate	600		
In methyl <i>tert</i> -butyl ether, 1mL/ampul			
	cat. # 31647	(ea.)	

Dalapon (2,2-dichloropropionic acid)

dalapon

1,000 μ g/mL in acetonitrile, 1mL/ampul	cat. # 32432	(ea.)
1,000 μ g/mL in methanol, 1mL/ampul	cat. # 32253	(ea.)
2,000 μ g/mL in methanol, 1mL/ampul	cat. # 32056	(ea.)

Dalapon Methyl Ester

dalapon methyl ester

1,000 μ g/mL in methanol, 1mL/ampul	cat. # 32254	(ea.)
2,000 μ g/mL in hexane, 1mL/ampul	cat. # 32057	(ea.)

Internal Standards and Surrogates

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
Internal Standard:				
1,2,3-trichloropropane	MTBE	1,000	31648	
Surrogates for Method 552, 552.1:				
2,3-dichloropropionic acid	MTBE	1,000	31650	
3,5-dichlorobenzoic acid	MTBE	1,000	31652	
3,5-dichlorobenzoic acid methyl ester	MTBE	1,000	31649	
2,3-dichloropropionic acid methyl ester	MTBE	1,000	31651	
Surrogates for Method 552.2:				
2-bromopropionic acid	MTBE	1,000	31653	
2,3-dibromopropionic acid	MTBE	1,000	31655	
methyl-2,3-dibromopropionate	MTBE	1,000	31656	
Surrogates for Method 552.3:				
2-bromobutanoic acid	MTBE	2,000	31881	
2-bromobutyrate	MTBE	2,000	31882	

MTBE = methyl *tert*-butyl ether

Method 555 (Chlorinated Acids)

Chlorinated Acids by HPLC, Mix A (8 components)

acifluorfen (Blazer)	dicamba
bentazon	diclorprop
chloramben	picloram
2,4-D	2,4,5-TP (Silvex)
1,000 μ g/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
1,000 μ g/mL each in acetonitrile, 1mL/ampul	cat. # 32430 (ea.)

Chlorinated Acid Herbicide Mix (2 components)

2,4-dichlorophenoxyacetic acid (2,4-D)	
2,4,5-TP (Silvex)	
1,000 μ g/mL each in acetonitrile, 1mL/ampul	cat. # 32429 (ea.)

Drinking Water Odor Standard

Unpleasant odor in drinking water is associated with the growth and decay of microorganisms. The threshold value for these compounds is low (10 ppt) and purge and trap analyses usually are used to quantify them.

(+/-)-geosmin	2-methyisoborneol
100 μ g/mL in P&T methanol, 1mL/ampul	cat. # 30608 (ea.)

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600 Series Methods

600 Series Methods - US EPA Clean Water Act (CWA)

US EPA Method No.	Compound Class	US EPA Method No.	Compound Class
601	Purgeable Hydrocarbons	609	Nitroaromatics/Isophorone
602	Purgeable Aromatics	610	Polycyclic Aromatic Hydrocarbons (PAHs)
603	Acrolein/Acrylonitrile	611	Haloethers
604	Phenols	612	Chlorinated Hydrocarbons
605	Benzidine/3,3'-Dichlorobenzidine	615	Chlorinated Acid Herbicides
606	Phthalate Esters	624	Purgeable Halocarbons
607	Nitrosamines	625	Semivolatiles
608	Organochlorine Pesticides and PCBs		

Method 601 (Purgeable Hydrocarbons)

VOA Purgeable Halocarbon Mix #1 (23 components)

bromodichloromethane	1,1-dichloroethene
bromoform	<i>trans</i> -1,2-dichloroethene
carbon tetrachloride	1,2-dichloropropane
chlorobenzene	<i>cis</i> -1,3-dichloropropene
2-chloroethyl vinyl ether	<i>trans</i> -1,3-dichloropropene
chloroform	methylene chloride
dibromochloromethane	1,1,2,2-tetrachloroethane
1,2-dichlorobenzene	tetrachloroethene
1,3-dichlorobenzene	1,1,1-trichloroethane
1,4-dichlorobenzene	1,1,2-trichloroethane
1,1-dichloroethane	trichloroethene
1,2-dichloroethane	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30212 (ea.)	

Method 602 (Purgeable Aromatics)

602 Purgeable Aromatics Calibration Mix (7 components)

benzene	1,4-dichlorobenzene
chlorobenzene	ethylbenzene
1,2-dichlorobenzene	
1,3-dichlorobenzene	toluene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30035 (ea.)	

Method 603 (Acrolein/Acrylonitrile)

Acrolein/Acrylonitrile (2 components)

acrolein	acrylonitrile
2,000 μ g/mL each in DI water, 1mL/ampul	
cat. # 30600 (ea.)	

Must ship overnight on ice.

Acrolein

5,000 μ g/mL in P&T methanol, 1mL/ampul	
cat. # 30645 (ea.)	
5,000 μ g/mL in water, 1mL/ampul	
cat. # 30646 (ea.)	

Acrylonitrile

2,000 μ g/mL in P&T methanol, 1mL/ampul	
cat. # 30246 (ea.)	

Method 604 (Phenols)

604 Phenols Calibration Mix (11 components)

4-chloro-3-methylphenol	2-nitrophenol
2-chlorophenol	4-nitrophenol
2,4-dichlorophenol	pentachlorophenol
2,4-dimethylphenol	phenol
2,4-dinitrophenol	2,4,6-trichlorophenol
2-methyl-4,6-dinitrophenol	
2,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31029 (ea.)	

Method 605 (Benzidine/3,3'-Dichlorobenzidine)

605 Benzidines Calibration Mix (2 components)

benzidine	3,3'-dichlorobenzidine
2,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31030 (ea.)	

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

Method 606 (Phthalate Esters)

606 Phthalate Esters Calibration Mix (6 components)

bis(2-ethylhexyl)phthalate	dimethyl phthalate
butyl benzyl phthalate	di- <i>n</i> -butyl phthalate
diethyl phthalate	di- <i>n</i> -octyl phthalate
2,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31031 (ea.)	

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Method 607 (Nitrosamines)

607 Nitrosamines Calibration Mix (3 components)	
N-nitrosodimethylamine	N-nitrosodiphenylamine
N-nitroso-di-n-propylamine	
2,000 μ g/mL each in methanol, 1mL/ampul	
cat. # 31032 (ea.)	

Method 608 (Organochlorine Pesticides & PCBs)

608 Calibration Mix (16 components)	
aldrin	dieldrin
α -BHC	endosulfan I
β -BHC	endosulfan II
δ -BHC	endosulfan sulfate
γ -BHC (lindane)	endrin
4,4'-DDD	endrin aldehyde
4,4'-DDE	heptachlor
4,4'-DDT	heptachlor epoxide (isomer B)
200 μ g/mL each in hexane:toluene (1:1), 1mL/ampul	
cat. # 32022 (ea.)	

Organochlorine Pesticide System Evaluation Mix (2 components)

4,4'-DDT	200 μ g/mL	endrin	100 μ g/mL
In methyl tert-butyl ether, 1mL/ampul			
cat. # 32417 (ea.)			

608 Complete Kit

Contains 1mL each of these mixtures.

32022: 608 Calibration Mix
32006: Aroclor 1016
32007: Aroclor 1221
32008: Aroclor 1232
32009: Aroclor 1242
32010: Aroclor 1248
32011: Aroclor 1254
32012: Aroclor 1260
32005: toxaphene
32021: chlordane (technical)

cat. # 32060 (kit)



Quantity discounts not available.

Please see page 469 for individual Aroclor, toxaphene, and chlordane information.

Method 609 (Nitroaromatics/Isophorone)

609 Nitroaromatics & Isophorone Calibration Mix (4 components)	
2,4-dinitrotoluene	2,6-dinitrotoluene
isophorone	nitrobenzene
2,000 μ g/mL each in hexane, 1mL/ampul	
cat. # 31033 (ea.)	

quantity discounts

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Quantity discounts are not available on all reference standards.

Method 610 (Polycyclic Aromatic Hydrocarbons [PAHs])

SV Calibration Mix #5 / 610 PAH Mix (16 components)

acenaphthene	chrysene
acenaphthylene	dibenz(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

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

610 PAH Calibration Mix A (16 components)

For HPLC/fluorescence detection.

acenaphthene	1,000 μ g/mL	chrysene	500
acenaphthylene	1,000	dibenz(a,h)anthracene	500
anthracene	1,000	fluoranthene	500
benzo(a)anthracene	500	fluorene	1,000
benzo(a)pyrene	500	indeno(1,2,3-cd)pyrene	500
benzo(b)fluoranthene	500	naphthalene	1,000
benzo(k)fluoranthene	500	phenanthrene	500
benzo(ghi)perylene	500	pyrene	500

In methylene chloride, 1mL/ampul
cat. # 31264 (ea.)

610 PAH Calibration Mix B (16 components)

For HPLC/UV detection.

acenaphthene	1,000 μ g/mL	chrysene	100
acenaphthylene	2,000	dibenz(a,h)anthracene	200
anthracene	100	fluoranthene	200
benzo(a)anthracene	100	fluorene	200
benzo(a)pyrene	100	indeno(1,2,3-cd)pyrene	100
benzo(b)fluoranthene	200	naphthalene	1,000
benzo(k)fluoranthene	100	phenanthrene	100
benzo(ghi)perylene	200	pyrene	100

In methylene chloride:methanol (1:1), 1mL/ampul
cat. # 31455 (ea.)

Method 611 (Haloethers)

611 Haloethers Calibration Mix (5 components)

bis(2-chloroethoxy)methane	4-bromophenyl phenyl ether
bis(2-chloroethyl)ether	4-chlorophenyl phenyl ether
bis(2-chloroisopropyl)ether	
2,000 μ g/mL each in acetone, 1mL/ampul	
cat. # 31034 (ea.)	

Method 612 (Chlorinated Hydrocarbons)

612 Chlorinated Hydrocarbons Calibration Mix (9 components)

2-chloronaphthalene	hexachlorobutadiene
1,2-dichlorobenzene	hexachlorocyclopentadiene
1,3-dichlorobenzene	hexachloroethane
1,4-dichlorobenzene	1,2,4-trichlorobenzene
hexachlorobenzene	

2,000 μ g/mL each in isoctane, 1mL/ampul
cat. # 31035 (ea.)



600 Series Methods

Method 615 (Chlorinated Acid Herbicides)

Herbicide Surrogate**Free Acid Form**

2,4-dichlorophenylacetic acid (DCAA)

200 μ g/mL in methanol, 1mL/ampul

cat. # 32049 (ea.)

1,000 μ g/mL in acetone, 1mL/ampul

cat. # 32439 (ea.)

Derivatized Form

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

200 μ g/mL in hexane, 1mL/ampul

cat. # 32050 (ea.) \$27

Herbicide Mix #1 (7 components)**Free Acid Form**

2,4-D

2,4-DB

2,4,5-T

2,4,5-TP

200 μ g/mL each in methanol, 1mL/ampul

cat. # 32054 (ea.)

dicamba

dichlorprop

dinoseb

Derivatized Form

2,4-D methyl ester

2,4-DB methyl ester

2,4,5-T methyl ester

2,4,5-TP methyl ester

200 μ g/mL each in hexane, 1mL/ampul

cat. # 32055 (ea.)

dicamba methyl ester

dichlorprop methyl ester

dinoseb methyl ether

Herbicide Mix #2**Free Acid Form**

dalapon

1,000 μ g/mL in acetonitrile, 1mL/ampul

cat. # 32432 (ea.)

1,000 μ g/mL in methanol, 1mL/ampul

cat. # 32253 (ea.)

2,000 μ g/mL in methanol, 1mL/ampul

cat. # 32056 (ea.)

Derivatized Form

dalapon methyl ester

2,000 μ g/mL in hexane, 1mL/ampul

cat. # 32057 (ea.)

1,000 μ g/mL in methanol, 1mL/ampul

cat. # 32254 (ea.)

Herbicide Mix #3 (2 components)**Free Acid Form**

MCPP

20,000 μ g/mL each in methanol, 1mL/ampul

cat. # 32058 (ea.)

MCPP

Derivatized Form

MCPP methyl ester

MCPP methyl ester

20,000 μ g/mL each in hexane, 1mL/ampul

cat. # 32059 (ea.)

also available

Additional chlorinated acid herbicides mixes:

see Method 555, page 463

and Method 8321, page 484

Method 624 (Purgeable Halocarbons)

Volatiles MegaMix®, EPA Method 624 (26 components)

benzene	1,1-dichloroethene
bromodichloromethane	<i>trans</i> -1,2-dichloroethene
bromoform	1,2-dichloropropane
carbon tetrachloride	<i>cis</i> -1,3-dichloropropene
chlorobenzene	<i>trans</i> -1,3-dichloropropene
2-chloroethyl vinyl ether	ethylbenzene
chloroform	methylene chloride
dibromochloromethane	1,1,2,2-tetrachloroethane
1,2-dichlorobenzene	tetrachloroethene
1,3-dichlorobenzene	toluene
1,4-dichlorobenzene	1,1,1-trichloroethane
1,1-dichloroethane	1,1,2-trichloroethane
1,2-dichloroethane	trichloroethene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30497 (ea.)

624 Internal Standard Mix (3 components)

bromochloromethane	1,4-dichlorobutane
2-bromo-1-chloropropane	
1,500 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30023 (ea.)

624 Surrogate Standard Mix (3 components)

4-bromofluorobenzene	pentafluorobenzene
fluorobenzene	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30243 (ea.)

Surrogate Standard (2 components)

4-bromofluorobenzene	α,α,α -trifluorotoluene
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30484 (ea.)

624 Calibration Mix #1 (gases) (5 components)

bromomethane	trichlorofluoromethane (CFC-11)
chloroethane	vinyl chloride
chloromethane	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30020 (ea.)

624 Calibration Mix #2 (12 components)

benzene	1,1-dichloroethene
carbon tetrachloride	1,2-dichloropropane
chlorobenzene	methylene chloride
2-chloroethyl vinyl ether	tetrachloroethene
dibromochloromethane	1,1,2-trichloroethane
1,1-dichloroethane	trichloroethene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30021 (ea.)

624 Calibration Mix #3 (14 components)

bromodichloromethane	<i>trans</i> -1,2-dichloroethene
bromoform	<i>cis</i> -1,3-dichloropropene
chloroform	<i>trans</i> -1,3-dichloropropene
1,2-dichlorobenzene	ethylbenzene
1,3-dichlorobenzene	1,1,2,2-tetrachloroethane
1,4-dichlorobenzene	toluene
1,2-dichloroethane	1,1,1-trichloroethane
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30022 (ea.)

Method 624 (Purgeable Halocarbons) cont'd

624 Complete Kit

Contains 1mL each of these mixtures.

30020: 624 Calibration Mix #1

30021: 624 Calibration Mix #2

30022: 624 Calibration Mix #3

30023: 624 Internal Standard Mix

30243: 624 Surrogate Standard Mix

cat. # 30244 (kit)



Quantity discounts not available.

624 Kit

Contains 1mL each of these mixtures.

30020: 624 Calibration Mix #1

30021: 624 Calibration Mix #2

30022: 624 Calibration Mix #3

30023: 624 Internal Standard Mix

cat. # 30055 (kit)



Quantity discounts not available.

Individual VOA Surrogate and Internal Standards for EPA Methods

Volume is 1mL/ampul. Concentration is $\mu\text{g/mL}$.

Compound	Solvent	Conc.	cat.# (ea.)	price
benzene-d6	PTM	2,000	30025	
2-bromochlorobenzene	PTM	2,000	30228	
4-bromochlorobenzene	PTM	2,000	30230	
bromochloromethane	PTM	2,000	30225	
2-bromo-1-chloropropane	PTM	2,000	30226	
4-bromofluorobenzene	PTM	2,000	30026	
chlorobenzene-d5	PTM	2,000	30223	
1-chloro-2-fluorobenzene	PTM	2,000	30040	
1,2-dichlorobenzene-d4	PTM	2,000	30049	
1,4-dichlorobutane	PTM	2,000	30227	
1,2-dichloroethane-d4	PTM	2,000	30027	
1,4-difluorobenzene	PTM	2,000	30032	
ethylbenzene-d5	PTM	2,000	30028	
ethylbenzene-d10	PTM	2,000	30029	
fluorobenzene	PTM	2,000	30030	
pentafluorobenzene	PTM	2,000	30031	
toluene-d8	PTM	2,000	30224	
α,α,α -trifluorotoluene	PTM	2,000	30048	

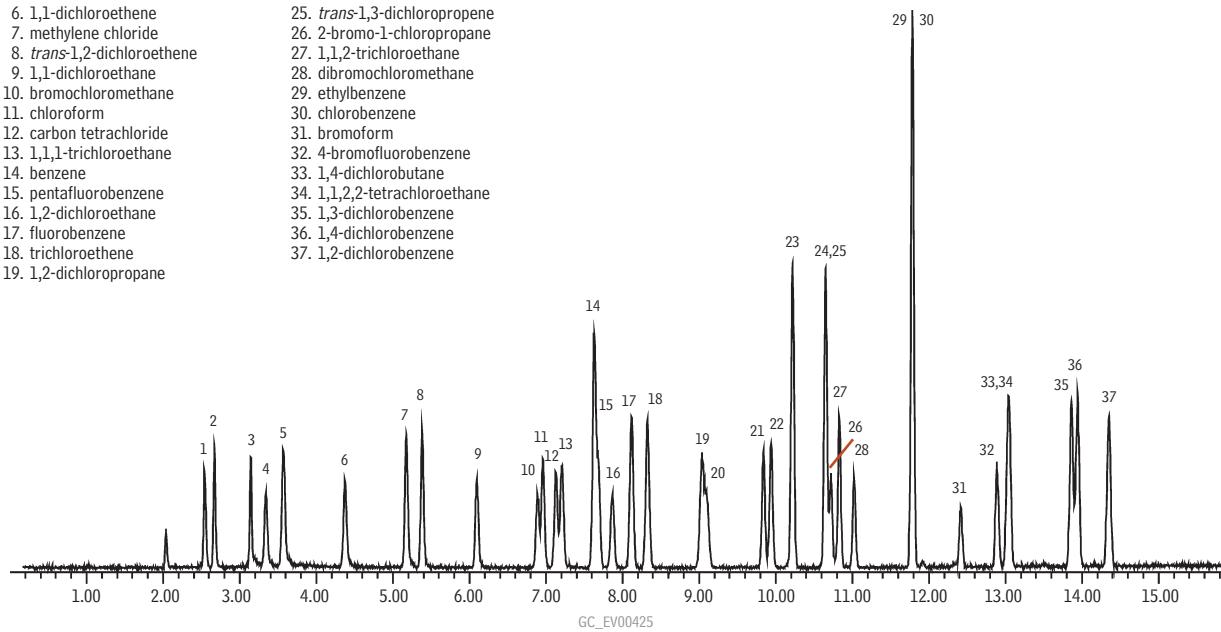
PTM = Purge & trap grade methanol

EPA Method 624 on an Rtx®-VMS column.

- | | |
|-------------------------------------|---------------------------------------|
| 1. chloromethane | 20. bromodichloromethane |
| 2. vinyl chloride | 21. 2-chloroethyl vinyl ether |
| 3. bromomethane | 22. <i>cis</i> -1,3-dichloropropene |
| 4. chloroethane | 23. toluene |
| 5. trichlorofluoromethane | 24. tetrachloroethene |
| 6. 1,1-dichloroethene | 25. <i>trans</i> -1,3-dichloropropene |
| 7. methylene chloride | 26. 2-bromo-1-chloropropane |
| 8. <i>trans</i> -1,2-dichloroethene | 27. 1,1,2-trichloroethane |
| 9. 1,1-dichloroethane | 28. dibromochloromethane |
| 10. bromochloromethane | 29. ethylbenzene |
| 11. chloroform | 30. chlorobenzene |
| 12. carbon tetrachloride | 31. bromoform |
| 13. 1,1,1-trichloroethane | 32. 4-bromofluorobenzene |
| 14. benzene | 33. 1,4-dichlorobutane |
| 15. pentafluorobenzene | 34. 1,1,2,2-tetrachloroethane |
| 16. 1,2-dichloroethane | 35. 1,3-dichlorobenzene |
| 17. fluorobenzene | 36. 1,4-dichlorobenzene |
| 18. trichloroethene | 37. 1,2-dichlorobenzene |
| 19. 1,2-dichloropropane | |

Our Rtx®-VMS capillary GC column is optimized for EPA Method 624!

See page 100 for more information.



Column: Rtx®-VMS, 30m, 0.25mm ID, 1.40 μm (cat#19915)
 Conc.: 20 ppb in 5mL of RO water
 Concentrator: Tekmar LSC-3000 Purge and Trap
 Trap: Vocarb 3000 (type K)
 Purge: 11 min. @ 40mL/min. (ambient temperature)
 Dry purge: 1 min. @ 40mL/min. (MCS bypassed using SilcoSteel® tubing)
 Desorb preheat: 245°C
 Desorb: 250°C for 2 min., Flow 10mL/min.
 Bake: 260°C for 8 min.

GC Interface: 1:10 split at injection port. 1mm ID liner.
 GC: Agilent 6890
 Oven temp.: 40°C (hold 4 min.) to 95°C @ 24°C/min. (hold 3 min.), to 210°C @ 40°C/min. (hold 6 min.)
 Carrier gas: helium @ ~1mL/min. constant flow
 Adjust dichlorodifluoromethane to a retention time of 2.54 min. @ 40°C
 Detector: Agilent 5973 MSD
 Scan range: 25-300 amu



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600 Series Methods

Method 625 (Semivolatiles)

Semivolatiles MegaMix[®], EPA**Method 625** (54 components)

acenaphthene
acenaphthylene
anthracene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(ghi)perylene
benzo(k)fluoranthene
benzyl butyl phthalate
bis(2-chloroethoxy)methane
bis(2-chloroethyl)ether
bis(2-chloroisopropyl)ether
bis(2-ethylhexyl)phthalate
4-bromophenyl phenyl ether
4-chloro-3-methylphenol
2-chloronaphthalene
2-chlorophenol
4-chlorophenyl phenyl ether
chrysene
dibenzo(a,h)anthracene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
2,4-dichlorophenol
diethylphthalate
2,4-dimethylphenol
dimethylphthalate
di-n-butylphthalate
4,6-dinitro-2-methylphenol
2,4-dinitrophenol
2,4-dinitrotoluene
2,6-dinitrotoluene
di-n-octylphthalate
diphenylamine*



1,000 μ g/mL each in methylene chloride, 1mL/ampul
cat. # 31829 (ea.)

*Listed as an "additional compound" in Method 625 (listed compound N-nitrosodiphenylamine decomposes to MegaMix component diphenylamine). The six other "additional compounds" are components in other Restek reference mixes used for Method 625: benzidine is included in cat. # 31030 (page 464); β -BHC, δ -BHC, endosulfan I, endosulfan II, endrin are in cat. # 32291 (page 472) and cat. # 32415 (page 473).

**625 Kit**

Because most laboratories do not routinely analyze pesticides, PCBs, toxaphene, and chlordane in their calibration mixtures for Method 625, these mixtures are not included in the 625 Kit. They may be purchased separately or in the 608 Complete Kit.

See page 465.

Contains 1mL each of these mixtures.

31029: 604 Phenols Mix
31030: 605 Benzidines Mix
31031: 606 Phthalate Esters Mix
31032: 607 Nitrosamines Mix
31033: 609 Nitroaromatics/Isophorone Mix
31011: 610 PAH Mix (SV Calibration Mix #5)
31034: 611 Haloethers Mix
31035: 612 Chlorinated Hydrocarbons Mix
cat. # 31036 (kit)

Quantity discounts not available.

Kit components described on pages 464–465.

**Individual Semivolatile Surrogate and Internal Standards for EPA Methods**

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
anthracene-d10	D	2,000	31037	
decafluorobiphenyl	D	2,000	31041	
decafluorobiphenyl	A	1,000	31855	
4,4'-dibromobiphenyl	D	2,000	31039	
4,4'-dibromooctafluorobiphenyl	D	2,000	31040	
2-fluorobiphenyl	D	2,000	31091	
1-fluoronaphthalene	D	2,000	31092	
2-fluorophenol	D	2,000	31047	
naphthalene-d8	D	2,000	31043	
nitrobenzene-d5	D	2,000	31044	
pentafluorophenol	D	2,000	31048	
phenanthrene-d10	D	2,000	31045	
phenol-d6	D	2,000	31049	
pyridine-d5	D	2,000	31046	
p-terphenyl-d14	D	1,000	31828	
2,4,6-tribromophenol	M	1,000	31401	

A = acetone; D = methylene chloride; M = methanol

SV Internal Standard Mix (6 components)

Each	15-pk.	25-pk.
2,000 μ g/mL each in methylene chloride, 1mL/ampul 31206 \$42	31206.15	31206.25
4,000 μ g/mL each in methylene chloride, 1mL/ampul 31006 \$80	31006.15	31006.25

Antifoam Agent for Purge & Trap Samples

Foam generated as purge gas passes through a sample can enter the analytical trap, and possibly 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**

Try Restek's Rx[®]-5Sil MS columns for EPA Methods 625 and 8270. Guaranteed for low GC/MS bleed, excellent phenol response, and the resolution needed to quantify critical pairs and structural isomers.

See **page 87** for more information.

Tuning Mixtures

VOA Tuning Compound

4-bromofluorobenzene

5,000 μ g/mL in P&T methanol, 1mL/ampul

cat. # 30003 (ea.)

SV Tuning Compound

decafluorotriphenylphosphine (DFTPP)

2,500 μ g/mL in methylene chloride, 1mL/ampul

cat. # 31001 (ea.)

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)

Neat, 1mL/ampul

cat. # 30482 (ea.)

Neat, 1g

cat. # 33027 (ea.)

No data pack available.

GC/MS Tuning Mixture (4 components)

benzidine	decafluorotriphenylphosphine (DFTPP)
4,4'-DDT	pentachlorophenol

1,000 μ g/mL each in methylene chloride, 1mL/ampul

cat. # 31615 (ea.)

Technical Chlordane, Toxaphene Solutions

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
chlordane (technical)	H	1,000	32021	
chlordane (technical)	I	5,000	32072	
chlordane (technical)	M	2,000	32016	
toxaphene	H	1,000	32005	
toxaphene	I	5,000	32071	
toxaphene	M	2,000	32015	

H = hexane; I = isoctane; M = methanol

Aroclor Solutions

Volume is 1mL/ampul. Concentration is μ g/mL unless otherwise noted.

Compound	Solvent	Conc.	cat.# (ea.)	price
Aroclor 1016	H	1,000	32006	
Aroclor 1016	I	200	32064	
Aroclor 1016	TO	50mg/kg	32075	
Aroclor 1016	TO	500mg/kg	32076	
Aroclor 1221	H	1,000	32007	
Aroclor 1221	I	200	32065	
Aroclor 1221	TO	50mg/kg	32077	
Aroclor 1221	TO	500mg/kg	32078	
Aroclor 1232	H	1,000	32008	
Aroclor 1232	I	200	32066	
Aroclor 1232	TO	50mg/kg	32079	
Aroclor 1232	TO	500mg/kg	32080	
Aroclor 1242	H	1,000	32009	
Aroclor 1242	I	200	32067	
Aroclor 1242	TO	50mg/kg	32081	
Aroclor 1242	TO	500mg/kg	32082	
Aroclor 1248	H	1,000	32010	
Aroclor 1248	I	200	32068	
Aroclor 1248	TO	50mg/kg	32083	
Aroclor 1248	TO	500mg/kg	32084	
Aroclor 1254	H	1,000	32011	
Aroclor 1254	I	200	32069	
Aroclor 1254	TO	50mg/kg	32085	
Aroclor 1254	TO	500mg/kg	32086	
Aroclor 1260	H	1,000	32012	
Aroclor 1260	I	200	32070	
Aroclor 1260	TO	50mg/kg	32087	
Aroclor 1260	TO	500mg/kg	32088	
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 = isoctane; TO = transformer oil (PCB-free)

also available

For a complete listing of solutions of individual environmental compounds, please see **pages 443-448**.

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8000 Series Methods

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	Aldehydes/Ketones-DNPH by HPLC
8061A	Phthalate Esters	8321	Chlorinated Acids by HPLC
8080, 8081	Chlorinated Pesticides	8330	Nitroaromatics and Nitramines by HPLC
8082, 8082A	PCBs		

Method 418.1 (Total Recoverable Petroleum Hydrocarbons [TRPH])

418.1 Calibration Mix (3 components)

chlorobenzene	25.0% (v/v)	isooctane	37.5%
<i>n</i> -hexadecane	37.5%		
1mL/ampul			
cat. # 30080 (ea.)			

Method 1311 (Toxicity Characteristics Leaching Procedure [TCLP])

TCLP VOA Mix (11 components)

benzene	1,2-dichloroethane
2-butanol (MEK)	1,1-dichloroethene
carbon tetrachloride	tetrachloroethylene
chlorobenzene	trichloroethylene
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 (6 components)

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 (5 components)

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 components)

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 (2 components)

hexadecane	stearic acid
4,000µg/mL each in acetone, 5mL/ampul	
cat. # 31457 (ea.)	

Resprep Oil & Grease SPE Disks also available. See page 397.

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 479-482.

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 available. See page 467.

624 Internal Standard Mix (3 components)

bromochloromethane	1,4-dichlorobutane
2-bromo-1-chloropropane	
1,500 μ g/mL each in P&T methanol, 1mL/ampul	

cat. # 30023 (ea.)

502.2 Calibration Mix #1 (gases) (6 components)

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

200 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30439 (ea.)

2,000 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30042 (ea.)

8010A Calibration Mix #2 (15 components)

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

2,000 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30056 (ea.)

8010A Calibration Mix #3 (13 components)

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

2,000 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30057 (ea.)

BTEX Standard (6 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
toluene	<i>p</i> -xylene

200 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30051 (ea.)

2,000 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30213 (ea.)

2,000 μ g/mL each in P&T methanol (*m*-xylene and *p*-xylene at 1,000 μ g/mL), 1mL/ampul

cat. # 30488 (ea.)



To analyze compounds listed in Methods 8010 and 8020 concurrently, add BTEX Standard to the calibration curve mix.

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Method 8010 (Halogenated Volatile Organics) cont'd

BTEX Gas Mix (6 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
toluene	<i>p</i> -xylene

Cylinder Construction: aluminum
Cylinder Fitting: CGA-180 outlet

Spectra 104L Cylinders:

Size: 8 x 24 cm
 Volume/Pressure:
 104 liters of gas
 @ 1,800 psi
 Weight: 1.5 lbs/0.7 kg



Scotty 110L Cylinders (Pi-marked Cylinders for EU Regulations):

Size: 8.3 x 29.5 cm
 Volume/Pressure:
 110 liters of gas
 @ 1,800 psi
 Weight: 2.2 lbs/1 kg
 US DOT Specs: 3AL2216



1ppm in nitrogen, 104 liters @ 1,800psi
 cat. # 34414 (ea.)

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

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

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

Requires a high-purity VOC single-stage regulator. See page 433.

No data pack available.

Quantity discounts not available.

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

8011 Calibration Mix—EDB/DBCP (2 components)

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

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

Method 8020 (Aromatic Volatile Organics)

Internal and Surrogate Standards

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
4-bromofluorobenzene	PTM	2,000	30026	
1,4-difluorobenzene	PTM	2,000	30032	
fluorobenzene	PTM	2,000	30030	
α,α,α -trifluorotoluene	PTM	2,000	30048	

PTM = Purge & trap grade methanol

8020A Calibration Mix (10 components)

benzene	ethylbenzene
chlorobenzene	toluene
1,2-dichlorobenzene	<i>m</i> -xylene
1,3-dichlorobenzene	<i>o</i> -xylene
1,4-dichlorobenzene	<i>p</i> -xylene

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



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8000 Series Methods

Method 8021 (Volatile Organics)

502.2 Internal Standard Mix #2 (2 components)

2-bromo-1-chloropropane fluorobenzene
 2,000 μ g/mL each in P&T methanol, 1mL/ampul
 cat. # 30041 (ea.)

8021 Surrogate Mix (2 components)

2-bromochlorobenzene 1,4-dichlorobutane
 1,500 μ g/mL each in P&T methanol, 1mL/ampul
 cat. # 30086 (ea.)

8021/502.2 Surrogate Mix #1 (3 components)

1-bromo-2-chloroethane fluorobenzene
 1-chloro-3-fluorobenzene
 2,000 μ g/mL each in P&T methanol, 1mL/ampul
 cat. # 30463 (ea.)

8021/502.2 Surrogate Mix #2 (4 components)

1-bromo-2-chloroethane 1-chloro-3-fluorobenzene
 4-bromochlorobenzene fluorobenzene
 2,000 μ g/mL each in P&T methanol, 1mL/ampul
 cat. # 30464 (ea.)

Method 8040 (Phenols)

8040 Surrogate Mix (2 components)

2-fluorophenol 2,4,6-tribromophenol
 2,000 μ g/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
 2,000 μ g/mL each in isopropanol, 1mL/ampul
 cat. # 31088 (ea.)

8040 Phenols Mix #2 (9 components)

sec-butyl-4,6-dinitrophenol (dinoseb) 2-methylphenol
 2-chlorophenol 4-methylphenol
 2,6-dichlorophenol 2,3,4,6-tetrachlorophenol
 2,4-dimethylphenol 2,4,5-trichlorophenol
 2,4-dinitrophenol
 2,000 μ g/mL each in isopropanol, 1mL/ampul
 cat. # 31089 (ea.) \$33

Method 8061A (Phthalate Esters)

8061A Matrix Spike Solution (2 components)

benzyl butyl phthalate bis(2-ethylhexyl)phthalate
 2,000 μ g/mL each in acetone, 1mL/ampul
 cat. # 31846 (ea.)

Benzyl Benzoate (Internal Standard)

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

Method 8061A (Phthalate Esters) cont'd**8061A Surrogate Standard** (3 components)

dibenzyl phthalate diphenyl phthalate
 diphenyl isophthalate
 500 μ g/mL each in acetone, 1mL/ampul
 cat. # 31848 (ea.)

EPA 8061A Phthalate Esters Mixture (15 components)

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

1,000 μ g/mL each in hexane:acetone (80:20), 1mL/ampul
 cat. # 33227 (ea.)

EPA 8061A Hexyl 2-Ethylhexyl Phthalate Standard

hexyl 2-ethylhexyl phthalate
 1,000 μ g/mL in hexane:acetone (80:20), 1mL/ampul
 cat. # 33228 (ea.)

**EPA 8061A Phthalate Esters Kit**

Contains 1mL each of these mixtures.
 33227: EPA 8061A Phthalate Esters Mixture
 33228: EPA 8061A Hexyl 2-Ethylhexyl Phthalate Standard
 cat. # 33229 (kit)

Quantity discounts not available.

Method 8080, 8081 (Chlorinated Pesticides)

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.)

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Method 8080, 8081 (Chlorinated Pesticides) cont'd

Organochlorine Pesticide Mix AB #2 (20 components)

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

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.)

Pesticide Surrogate Mix (2 components)

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

200 μ g/mL each in acetone, 5mL/ampul
cat. # 32457 (ea.)

Pesticide Surrogate Mix (2 components)

decachlorobiphenyl	200 μ g/mL	2,4,5,6-tetrachloro- <i>m</i> -xylene	100
In acetone, 1mL/ampul	cat. # 32453 (ea.)		

Method 8082, 8082A (PCBs)

PCB Congener Mix, Method 8082A (19 components)

2-chlorobiphenyl (BZ #1)	
2,2-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'-nonachlorobiphenyl (BZ #206)	

100 μ g/mL each in isoctane, 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	1,000 μ g/mL in methanol, 1mL/ampul
	cat. # 31452 (ea.)

8095 Surrogate

2-methyl-4-nitroaniline	1,000 μ g/mL in methanol, 1mL/ampul
	cat. # 31612 (ea.)

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-trinitrobenzene
2,6-dinitrotoluene	2,4,6-trinitrotoluene
200 μ g/mL each in acetonitrile (*HMX at 2,000 μ g/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	
1,000 μ g/mL each in acetonitrile (*3,5-dinitroaniline at 200 μ g/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
1,000 μ g/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	
5,000 μ g/mL each in acetonitrile (*3,5-dinitroaniline at 1,000 μ g/mL), 1mL/ampul	
	cat. # 31608 (ea.)

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

References (Not available from Restek.)

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

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

also available

Method 8095 single-component explosives solutions. See next page.



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8000 Series Methods

Method 8095 (Explosives by GC) cont'd

Single-Component Explosives SolutionsVolume is 1mL/ampul. Concentration is $\mu\text{g}/\text{mL}$.

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

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

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

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
1,000 $\mu\text{g}/\text{mL}$ 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
2,000 $\mu\text{g}/\text{mL}$ each in methylene chloride, 1mL/ampul	
	cat. # 31011 (ea.)

**also available**

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

See page 91 for details.

Methods 8140, 8141 (Organophosphorus Pesticides)

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

- OP standards have a maximum of 12 months shelf life due to their volatility. It is our policy to ship standards with no less than 3 months shelf life remaining.
- Solvents are assayed to ensure low water content.
- Reference mixtures are stored in deactivated amber ampules, under an inert atmosphere.
- Purity is determined by a combination of methods: GC/FID, GC/FPD, GC/NPD, DSC, and HPLC/UV.

8140/8141 Internal Standards & Surrogates**NPD Detector:**

Internal Standard: 1-bromo-2-nitrobenzene (cat. # 32279)

Surrogate: 4-chloro-3-nitrobenzotrifluoride (cat. # 32282)

1,000 $\mu\text{g}/\text{mL}$ in acetone, 1mL/ampul
cat. # 32279 (ea.)1,000 $\mu\text{g}/\text{mL}$ in acetone, 1mL/ampul
cat. # 32282 (ea.)**FPD Detector:**

Internal Standard: none recommended

Surrogate: tributylphosphate (cat. # 32280) and triphenylphosphate (cat. # 32281)

1,000 $\mu\text{g}/\text{mL}$ in acetone, 1mL/ampul
cat. # 32280 (ea.)1,000 $\mu\text{g}/\text{mL}$ in acetone, 1mL/ampul
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

200 $\mu\text{g}/\text{mL}$ each in hexane:acetone (95:5), 1mL/ampul
cat. # 32277 (ea.)**8141 OP Pesticide Calibration Mix B** (7 components)

dimethoate	parathion
EPN	sulfotep
malathion	TEPP
monocrotophos	

200 $\mu\text{g}/\text{mL}$ each in hexane:acetone (95:5), 1mL/ampul
cat. # 32278 (ea.)**also available**

Additional nitrogen/phosphorus pesticide mixes are listed on page 458.

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

Herbicide Internal Standard

4,4'-dibromo octafluorobiphenyl	
250 μ g/mL in hexane, 1mL/ampul	
cat. # 32053 (ea.)	
2,000 μ g/mL in methylene chloride, 1mL/ampul	
cat. # 31040 (ea.)	
2,000 μ g/mL in methyl <i>tert</i> -butyl ether, 1mL/ampul	
cat. # 31856 (ea.)	

Herbicide Surrogate

Free Acid Form	
2,4-dichlorophenylacetic acid (DCAA)	
200 μ g/mL in methanol, 1mL/ampul	
cat. # 32049 (ea.)	
1,000 μ g/mL in acetone, 1mL/ampul	
cat. # 32439 (ea.)	

Derivatized Form

2,4-dichlorophenyl acetic acid methyl ester (DCAA methyl ester)	
200 μ g/mL in hexane, 1mL/ampul	
cat. # 32050 (ea.)	

Herbicide Mix #1 (7 components)

Free Acid Form	
2,4-D	dicamba
2,4-DB	dichlorprop
2,4,5-T	
2,4,5-TP	dinoseb
200 μ g/mL each in methanol, 1mL/ampul	
cat. # 32054 (ea.)	

Derivatized Form

2,4-D methyl ester	dicamba methyl ester
2,4-DB methyl ester	dichlorprop methyl ester
2,4,5-T methyl ester	
2,4,5-TP methyl ester	dinoseb methyl ether
200 μ g/mL each in hexane, 1mL/ampul	
cat. # 32055 (ea.)	

Herbicide Mix #2

Free Acid Form	
dalapon	
1,000 μ g/mL in acetonitrile, 1mL/ampul	
cat. # 32432 (ea.)	
1,000 μ g/mL in methanol, 1mL/ampul	
cat. # 32253 (ea.)	
2,000 μ g/mL in methanol, 1mL/ampul	
cat. # 32056 (ea.)	

Derivatized Form

dalapon methyl ester	
2,000 μ g/mL in hexane, 1mL/ampul	
cat. # 32057 (ea.)	
1,000 μ g/mL in methanol, 1mL/ampul	
cat. # 32254 (ea.)	

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Additional chlorinated acid herbicides mixes:

see Method 555, page 463
and Method 8321, page 484

8000 Series Methods

Method 8240 (Volatile Organic Compounds [VOC])

502.2 Calibration Mix #1 (gases) (6 components)

bromomethane	dichlorodifluoromethane (CFC-12)
chloroethane	trichlorofluoromethane (CFC-11)
chloromethane	vinyl chloride
200 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30439 (ea.)
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30042 (ea.)

VOA Calibration Mix #1 (ketones) (4 components)

acetone	2-hexanone
2-butanon (MEK)	4-methyl-2-pentanone (MIBK)
5,000 μ g/mL each in P&T methanol:water (90:10), 1mL/ampul	
	cat. # 30006 (ea.)

VOA Purgeable Halocarbon Mix #1 (23 components)

bromodichloromethane	1,1-dichloroethene
bromoform	trans-1,2-dichloroethene
carbon tetrachloride	1,2-dichloropropane
chlorobenzene	cis-1,3-dichloropropene
2-chloroethyl vinyl ether	trans-1,3-dichloropropene
chloroform	methylene chloride
dibromochemicalmethane	1,1,2,2-tetrachloroethane
1,2-dichlorobenzene	tetrachloroethene
1,3-dichlorobenzene	1,1,1-trichloroethane
1,4-dichlorobenzene	1,1,2-trichloroethane
1,1-dichloroethane	trichloroethene
1,2-dichloroethane	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30212 (ea.)

8240 Volatiles Mix #1A (12 components)

allyl chloride	trans-1,4-dichloro-2-butene
benzyl chloride	1,4-dioxane
1,2-dibromo-3-chloropropane	iodomethane
1,2-dibromoethane	pentachloroethane
dibromomethane	1,1,1,2-tetrachloroethane
cis-1,4-dichloro-2-butene	1,2,3-trichloropropane
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30217 (ea.)

8240 Volatiles Mix #2A (3 components)

carbon disulfide	pyridine
2-picoline	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30218 (ea.)

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 477.

8240 Nitriles Mix (7 components)

acrylonitrile	methyl methacrylate
ethyl methacrylate	propionitrile
malononitrile	styrene
methacrylonitrile	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30215 (ea.)

8240 Alcohols Mix (5 components)

allyl alcohol	isobutyl alcohol
2-chloroethanol	propargyl alcohol
ethanol	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30214 (ea.)

Glycols Standard (2 components)

ethylene glycol	propylene glycol
50,000 μ g/mL each in DI water, 1mL/ampul	
	cat. # 30471 (ea.)

BTEX Standard (6 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
toluene	<i>p</i> -xylene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30051 (ea.)
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30213 (ea.)
2,000 μ g/mL each in P&T methanol (<i>m</i> -xylene and <i>p</i> -xylene at 1,000 μ g/mL), 1mL/ampul	
	cat. # 30488 (ea.)

BTEX Gas Mix (6 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
toluene	<i>p</i> -xylene

Cylinder Construction:

aluminum CGA-180 outlet

Spectra 104L Cylinder

Size: 8 x 24 cm
 Volume/Pressure:
 104 liters of gas
 @ 1,800 psi
 Weight: 1.5 lbs/0.7 kg

**Scotty 110L Cylinders
(Pi-marked Cylinders
for EU Regulations):**

Size: 8.3 x 29.5 cm
 Volume/Pressure:
 110 liters of gas
 @ 1,800 psi
 Weight: 2.2 lbs/1 kg
 US DOT Specs: 3AL2216



1ppm in nitrogen, 104 liters @ 1,800psi
 cat. # 34414 (ea.)

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

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

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

Requires a high-purity VOC single-stage regulator. See page 433.

No data pack available.

Quantity discounts not available.

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

8260A Internal Standard Mix (3 components)

chlorobenzene-d5	fluorobenzene
1,4-dichlorobenzene-d4	
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30241 (ea.)	

8260 Internal Standard Mix (4 components)

chlorobenzene-d5	1,4-difluorobenzene
1,4-dichlorobenzene-d4	pentafluorobenzene
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30074 (ea.)	

8260A Surrogate Mix (4 components)

4-bromofluorobenzene	1,2-dichloroethane-d4
dibromofluoromethane	toluene-d8
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30240 (ea.)	

8260 Surrogate Mix (3 components)

4-bromofluorobenzene	toluene-d8
dibromofluoromethane	
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30073 (ea.)	

8260B Matrix Spike Mix (5 components)

benzene	toluene
chlorobenzene	trichloroethylene
1,1-dichloroethene	
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30479 (ea.)	

8240/8260 System Performance Check Mix (5 components)

bromoform	1,1-dichloroethane
chlorobenzene	1,1,2,2-tetrachloroethane
chloromethane	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30075 (ea.)	

4-Bromofluorobenzene

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

1,4-Dioxane-d8

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

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)	
Neat, 1mL/ampul	
cat. # 30482 (ea.)	
Neat, 1g	
cat. # 33027 (ea.)	
No data pack available.	

8260B MegaMix® Calibration Mix (76 components)

acetonitrile	<i>trans</i> -1,3-dichloropropene
acrylonitrile	diethyl ether (ethyl ether)
allyl chloride	1,4-dioxane
benzene	ethylbenzene
bromobenzene	ethyl methacrylate
bromochloromethane	hexachloro-1,3-butadiene
bromodichloromethane	iodomethane
bromoform	isobutyl alcohol
<i>n</i> -butylbenzene	isopropylbenzene (cumene)
<i>sec</i> -butylbenzene	4-isopropyl toluene (<i>p</i> -cymene)
<i>tert</i> -butylbenzene	methacrylonitrile
carbon disulfide	methyl acrylate
carbon tetrachloride	methyl methacrylate
chlorobenzene	methylene chloride (dichloromethane)
2-chloroethanol	naphthalene
chloroform	nitrobenzene
chloroprene	2-nitropropane
2-chlorotoluene	pentachloroethane
4-chlorotoluene	propionitrile
dibromochloromethane	<i>n</i> -propylbenzene
1,2-dibromo-3-chloropropane (DBCP)	styrene
1,2-dibromoethane (EDB)	1,1,1,2-tetrachloroethane
dibromomethane	1,1,2,2-tetrachloroethane
1,2-dichlorobenzene	tetrachloroethene
1,3-dichlorobenzene	tetrahydrofuran
1,4-dichlorobenzene	toluene
<i>cis</i> -1,4-dichloro-2-butene	1,2,3-trichlorobenzene
<i>trans</i> -1,4-dichloro-2-butene	1,2,4-trichlorobenzene
1,1-dichloroethane	1,1,1-trichloroethane
1,2-dichloroethane	1,1,2-trichloroethane
1,1-dichloroethene	trichloroethene
<i>cis</i> -1,2-dichloroethene	1,2,3-trichloropropane
<i>trans</i> -1,2-dichloroethene	1,1,2-trichlorotrifluoroethane (CFC-113)
1,2-dichloropropane	1,2,4-trimethylbenzene
1,3-dichloropropane	1,3,5-trimethylbenzene
2,2-dichloropropane	<i>m</i> -xylene
1,1-dichloropropene	<i>o</i> -xylene
<i>cis</i> -1,3-dichloropropene	<i>p</i> -xylene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30633 (ea.)	

2-Chloroethyl Vinyl Ether

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



8260B MegaMix® Calibration Mix Kit

Contains 1mL each of these mixtures.

30633: 8260B MegaMix

30265: 2-chloroethyl vinyl ether

cat. # 30475 (kit)

Quantity discounts not available.

8240/8260 Calibration Check Mix (6 components)

chloroform	ethylbenzene
1,1-dichloroethene	toluene
1,2-dichloropropane	vinyl chloride
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30427 (ea.)	

502.2 Calibration Mix #1 (gases) (6 components)

bromomethane	dichlorodifluoromethane (CFC-12)
chloroethane	trichlorofluoromethane (CFC-11)
chloromethane	vinyl chloride
200 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30439 (ea.)	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30042 (ea.)	

8000 Series Methods

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

VOA Calibration Mix #1 (ketones) (4 components)

acetone	2-hexanone
2-butane (MEK)	4-methyl-2-pentanone (MIBK)
5,000µg/mL each in P&T methanol:water (90:10), 1mL/ampul	
cat. # 30006 (ea.)	

8260B Acetate Mix (5 components)

vinyl acetate	<i>n</i> -propyl acetate
ethyl acetate	<i>n</i> -butyl acetate
isopropyl acetate	
2,000µg/mL each in P&T methanol, 1mL/ampul	
cat. # 30477 (ea.)	

8260B Acetate Mix (Revised) (7 components)

<i>n</i> -amyl acetate	methyl acetate
butyl acetate	propyl acetate
ethyl acetate	vinyl acetate
isopropyl acetate	
2,000µg/mL each in P&T methanol, 1mL/ampul	
cat. # 30489 (ea.)	

California Oxygenates Mix (5 components)

diisopropyl ether (DIPE)	2,000µg/mL	tert-butyl alcohol	10,000
ethyl- <i>tert</i> -butyl ether (ETBE)	2,000	methyl <i>tert</i> -butyl ether (MTBE)	2,000
<i>tert</i> -amyl methyl ether (TAME)	2,000		
In P&T methanol, 1mL/ampul			
cat. # 30465 (ea.)			

Oxygenates (6 components)

tert-amyl ethyl ether (TAAE)	2,000µg/mL	diisopropyl ether (DIPE)	2,000
tert-amyl methyl ether (TAME)	2,000	ethyl- <i>tert</i> -butyl ether (ETBE)	2,000
tert-butyl alcohol (TBA)	10,000	methyl <i>tert</i> -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	Conc.	cat.# (ea.)	price
ethanol	W	10,000	30466	\$27
methanol	W	10,000	30467	\$25
<i>tert</i> -amyl alcohol	PTM	10,000	30631	\$25
ethanol	PTM	2,000	30288	\$24
methyl <i>tert</i> -butyl ether (MTBE)	PTM	2,000	30402	\$24
<i>tert</i> -amyl ethyl ether (TAAE)	PTM	2,000	30617	\$24
diisopropyl ether (DIPE)	PTM	2,000	30627	\$24
ethyl- <i>tert</i> -butyl ether (ETBE)	PTM	2,000	30628	\$24
<i>tert</i> -amyl methyl ether (TAME)	PTM	2,000	30629	\$24
<i>tert</i> -butanol-d9	PTM	20,000	30618	\$27
<i>tert</i> -butanol	PTM	50,000	30470	\$24

PTM = purge & trap grade methanol; W = DI water

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 100 for more information.

Acrolein

5,000µg/mL in P&T methanol, 1mL/ampul	cat. # 30645 (ea.)
5,000µg/mL in water, 1mL/ampul	cat. # 30646 (ea.)

1,2-Dichlorotetrafluoroethane (CFC-114)

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

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

2,000µg/mL in P&T methanol, 1mL/ampul	cat. # 30216 (ea.)
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**8260A Volatile Organics Kit (2,000µg/mL)**

Changes in this revision of the method include modification of the recommended internal standard and surrogate solutions.

Contains 1mL each of these mixtures.

30042: 502.2 Calibration Mix #1
30043: 502.2 Calibration Mix #2
30044: 502.2 Calibration Mix #3
30045: 502.2 Calibration Mix #4
30046: 502.2 Calibration Mix #5
30047: 502.2 Calibration Mix #6
30067: 4-bromofluorobenzene (2,500µg/mL)
30240: 8260A Surrogate Mix (2,500µg/mL)
30241: 8260A Internal Standard Mix (2,500µg/mL)
30075: 8240/8260 System Performance Check Mix
30005: VOA Matrix Spike Mix (2,500µg/mL)
cat. # 30242 (kit)

Quantity discounts not available.

Components are listed on pages 452, 453, 477, and 486.

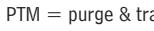
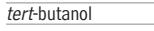
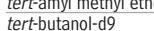
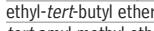
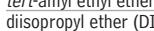
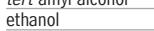
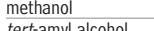
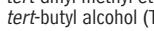
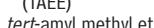
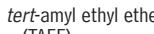
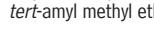
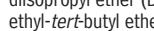
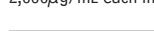
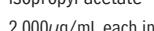
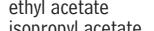
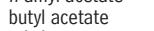
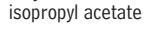
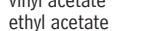
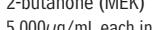
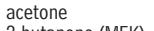
**8260 Volatile Organics Kit (2,000µg/mL)**

Contains 1mL each of these mixtures.

30042: 502.2 Calibration Mix #1
30043: 502.2 Calibration Mix #2
30044: 502.2 Calibration Mix #3
30045: 502.2 Calibration Mix #4
30046: 502.2 Calibration Mix #5
30047: 502.2 Calibration Mix #6
30067: 4-bromofluorobenzene (2,500µg/mL)
30073: 8260 Surrogate Mix (2,500µg/mL)
30074: 8260 Internal Standard Mix (2,500µg/mL)
30075: 8240/8260 System Performance Check Mix
30005: VOA Matrix Spike Mix (2,500µg/mL)
cat. # 30076 (kit)

Quantity discounts not available.

Components are listed on pages 452, 453, 477, and 486.



Method 8270D, 8270C (Semivolatile Organic Compounds)

SV Internal Standard Mix (6 components)

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

Each	15-pk.	25-pk.
2,000 μ g/mL each in methylene chloride, 1mL/ampul 31206	31206.15	31206.25
4,000 μ g/mL each in methylene chloride, 1mL/ampul 31006	31006.15	31006.25

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	

Each	15-pk.	25-pk.
2,000 μ g/mL each in methylene chloride, 1mL/ampul 31885	31885.15	31885.25
4,000 μ g/mL each in methylene chloride, 1mL/ampul 31886	31886.15	31886.25

B/N Surrogate Mix (4/89 SOW) (3 components)

2-fluorobiphenyl	p-terphenyl-d14
nitrobenzene-d5	

Each	15-pk.	25-pk.
1,000 μ g/mL each in methylene chloride, 1mL/ampul 31024	31024.15	31024.25
5,000 μ g/mL each in methylene chloride, 1mL/ampul 31062	31062.15 \$462	31062.25
5,000 μ g/mL each in methylene chloride, 5mL/ampul 31086	31086.15	31086.25
5,000 μ g/mL each in methylene chloride, 10mL/ampul 33028	33028.15	33028.25

Revised B/N Surrogate Mix (4 components)

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

Each	15-pk.	25-pk.
1,000 μ g/mL each in methylene chloride, 1mL/ampul 31887	31887.15	31887.25
5,000 μ g/mL each in methylene chloride, 1mL/ampul 31888	31888.15	31888.25
5,000 μ g/mL each in methylene chloride, 5mL/ampul 31889	31889.15	31889.25

Acid Surrogate Mix (4/89 SOW) (3 components)

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

Each	15-pk.	25-pk.
2,000 μ g/mL each in methanol, 1mL/ampul 31025	31025.15	31025.25
10,000 μ g/mL each in methanol, 1mL/ampul 31063	31063.15	31063.25
10,000 μ g/mL each in methanol, 5mL/ampul 31087	31087.15	31087.25
10,000 μ g/mL each in methanol, 10mL/ampul 33029	33029.15	33029.25

B/N Matrix Spike Mix (6 components)

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

Each	15-pk.	25-pk.
1,000 μ g/mL each in methanol, 1mL/ampul 31004	31004.15	31004.25
5,000 μ g/mL each in methanol, 1mL/ampul 31074	31074.15	31074.25
5,000 μ g/mL each in methanol, 5mL/ampul 31084 \$94	31084.15	31084.25
5,000 μ g/mL each in methanol, 10mL/ampul 33030	33030.15	33030.25

Acid Matrix Spike Mix (5 components)

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

Each	15-pk.	25-pk.
2,000 μ g/mL each in methanol, 1mL/ampul 31014	31014.15	31014.25
10,000 μ g/mL each in methanol, 1mL/ampul 31061	31061.15	31061.25
10,000 μ g/mL each in methanol, 5mL/ampul 31071	31071.15	31071.25
10,000 μ g/mL each in methanol, 10mL/ampul 33031	33031.15	33031.25

GC/MS Tuning Mixture (4 components)

benzidine	DFTPP
4,4'-DDT	pentachlorophenol
1,000 μ g/mL each in methylene chloride, 1mL/ampul cat. # 31615 (ea.)	

SV Tuning Compound

decafluorotriphenylphosphine (DFTPP)
2,500 μ g/mL in methylene chloride, 1mL/ampul cat. # 31001 (ea.) \$25

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)
Neat, 1mL/ampul
cat. # 30482 (ea.)
Neat, 1g
cat. # 33027 (ea.)

No data pack available.



Special pricing on
multi-packs of 15 & 25!

EPA 8270 Internal,
Surrogate & Spike Mixes!



- 8270 Matrix Spike Mix
- SV Internal Standard Mix
- Revised SV Internal Standard Mix
- B/N Surrogate Mix (4/89 SOW)
- Revised B/N Surrogate Mix
- Acid Surrogate Mix (4/89 SOW)
- B/N Matrix Spike Mix

8000 Series Methods

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

8270 B/N Calibration Check Mix (7 components)

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

8270 Acid Calibration Check Mix (6 components)

4-chloro-3-methylphenol	pentachlorophenol
2,4-dichlorophenol	phenol
2-nitrophenol	2,4,6-trichlorophenol
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31617 (ea.)

SV System Performance Check Mix (SPCC) (4 components)

2,4-dinitrophenol	4-nitrophenol
hexachlorocyclopentadiene	N-nitroso-di-n-propylamine
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31689 (ea.)

605 Benzidines Calibration Mix (2 components)

benzidine	3,3'-dichlorobenzidine
2,000 μ g/mL each in methanol, 1mL/ampul	
	cat. # 31030 (ea.)
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31834 (ea.)

8270 Benzidines Mix (3 components)

benzidine	3,3'-dimethylbenzidine
3,3'-dichlorobenzidine	
2,000 μ g/mL each in methanol, 1mL/ampul	
	cat. # 31688 (ea.)
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31852 (ea.)

8270 MegaMix® (76 components)

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

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

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

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

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



also available

Our Rxi®-5SiL MS columns provide high response for 2,4-dinitrophenol, show excellent peak shape of pyridine, and produce outstanding resolution of PAHs.

See page 87.

8270 Matrix Spike Mix (76 components)

Same list as 8270 MegaMix above.

Each	15-pk	25-pk
200 μ g/mL each in methanol:methylene chloride (80:20), 5mL/ampul** 31687	31687.15	31687.25
200 μ g/mL each in methanol:methylene chloride (80:20), 10mL/ampul** 33073	33073.15	33073.25

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



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

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

8270/Appendix IX Kit

Contains 1mL each of these mixtures.

31850: 8270 MegaMix

31834: 605 Benzidines Calibration Mix

31625: Appendix IX Mix #1

31806: Appendix IX Mix #2

cat. # 31815 (kit)

Quantity discounts not available.



Benzic Acid

2,000 μ g/mL in methylene chloride, 1mL/ampul

cat. # 31879 (ea.)

Appendix IX Mix #1 (18 components)

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

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

Appendix IX Mix #2 (32 components)

acetophenone	hexachloropropene
Aramite	isodrin
atrazine	isosafrole (cis & trans)
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	1,2,4,5-tetrachlorobenzene
ethyl methacrylate	1,3,5-trinitrobenzene
ethyl methanesulfonate	

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

Organophosphorus Pesticide Mix, 8270/Appendix IX

(9 components)

dimethoate	parathion (ethyl parathion)
disulfoton	phorate
famphur	sulfotep
methyl parathion	zinophos (thionazine)

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

Reference Standards Search

Search by compound name, synonym, or CAS #.

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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.)

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	

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

8270 Calibration Mix #2 (11 components)

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

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

*N-nitrosodiphenylamine (8270-listed analyte) 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	

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



quantity discounts

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Order 5 or more of any one reference standard and receive a **20% discount!**

Quantity discounts are not available on all reference standards.

8000 Series Methods

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

8270 Calibration Mix #4 (22 components)

acetophenone	2,6-dinitrotoluene
azobenzene*	ethyl methanesulfonate
benzyl alcohol	isophorone
bis(2-ethylhexyl)phthalate	isosafrole (<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-n-butyl phthalate	phenacetin
di-n-octyl phthalate	safrole
2,4-dinitrotoluene	1,3,5-trinitrobenzene
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31621 (ea.)

*1,2-diphenylhydrazine (8270-listed analyte) decomposes to azobenzene (mix component) in the injector.

8270 Calibration Mix #5 (19 components)

acenaphthene	fluoranthene
acenaphthylene	fluorene
anthracene	ideno(1,2,3-cd)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	

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

8270 Calibration Mix #6 (10 components)

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

Aramite

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

**Documentation Search**

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www.restek.com/documents

- Material safety data sheets
- Certificates of analysis
- Datapacks (by catalog number and/or lot number)

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

Contains 1mL each of these mixtures.

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

cat. # 31627 (kit)

Quantity discounts not available.

8270 Calibration Kit (2,000 μ g/mL)

Contains 1mL each of these mixtures.

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

cat. # 31626 (kit)

Quantity discounts not available.

Aroclor Solutions

Volume is 1mL/ampul. Concentration is μ g/mL unless otherwise noted.

Compound	Solvent	Conc.	cat.# (ea.)	price
Aroclor 1016	H	1,000	32006	
Aroclor 1016	I	200	32064	
Aroclor 1016	TO	50mg/kg	32075	
Aroclor 1016	TO	500mg/kg	32076	
Aroclor 1221	H	1,000	32007	
Aroclor 1221	I	200	32065	
Aroclor 1221	TO	50mg/kg	32077	
Aroclor 1221	TO	500mg/kg	32078	
Aroclor 1232	H	1,000	32008	
Aroclor 1232	I	200	32066	
Aroclor 1232	TO	50mg/kg	32079	
Aroclor 1232	TO	500mg/kg	32080	
Aroclor 1242	H	1,000	32009	
Aroclor 1242	I	200	32067	
Aroclor 1242	TO	50mg/kg	32081	
Aroclor 1242	TO	500mg/kg	32082	
Aroclor 1248	H	1,000	32010	
Aroclor 1248	I	200	32068	
Aroclor 1248	TO	50mg/kg	32083	
Aroclor 1248	TO	500mg/kg	32084	
Aroclor 1254	H	1,000	32011	
Aroclor 1254	I	200	32069	
Aroclor 1254	TO	50mg/kg	32085	
Aroclor 1254	TO	500mg/kg	32086	
Aroclor 1260	H	1,000	32012	
Aroclor 1260	I	200	32070	
Aroclor 1260	TO	50mg/kg	32087	
Aroclor 1260	TO	500mg/kg	32088	
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 = isoctane; TO = transformer oil (PCB-free)

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.) \$25

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	hexaldehyde-DNPH
acetone-DNPH	isovaleraldehyde-DNPH
acrolein-DNPH	propionaldehyde-DNPH
benzaldehyde-DNPH	m-tolualdehyde-DNPH
n-butylaldehyde-DNPH	o-tolualdehyde-DNPH
crotonaldehyde-DNPH	p-tolualdehyde-DNPH
2,5-dimethylbenzaldehyde-DNPH	valeraldehyde-DNPH
formaldehyde-DNPH	

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

cat. # 31808 (ea.) \$54

*Concentration calculated as the aldehyde/ketone.

Formaldehyde-DNPH Mix

formaldehyde-DNPH

500µg/mL in acetonitrile, 1mL/ampul*

cat. # 31837 (ea.) \$28

*Concentration calculated as the aldehyde/ketone.

Quantity discounts not available.

CARB 1004 Aldehyde/Ketone-DNPH Calibration Standard

(13 components)

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

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

cat. # 33093 (ea.)

*Concentration calculated as the aldehyde/ketone.

DNPH Reference Materials

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

Compound	Solvent	Conc.	cat.# (ea.)	price
acetaldehyde-2,4-DNPH	ACN	100	33074	
acetone-2,4-DNPH	ACN	100	33075	
benzaldehyde-2,4-DNPH	ACN	100	33077	
n-butylaldehyde-2,4-DNPH	ACN	100	33079	
crotonaldehyde-2,4-DNPH	ACN	100	33080	
formaldehyde-2,4-DNPH	ACN	100	33082	
glycolaldehyde-2,4-DNPH	ACN	100	33091	
hexaldehyde-2,4-DNPH	ACN	100	33083	
isobutylaldehyde-2,4-DNPH	ACN	100	33084	
methacrolein-2,4-DNPH	ACN	100	33095	
propionaldehyde-2,4-DNPH	ACN	100	33086	
m-tolualdehyde-2,4-DNPH	ACN	100	33088	

ACN = acetonitrile

*Concentration calculated as the aldehyde/ketone.



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8000 Series Methods

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)
1,000 μ g/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
MCPP	2,4,5-T
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 32430 (ea.)

Chlorinated Acid Herbicide Mix (2 components)

2,4-dichlorophenoxyacetic acid (2,4-D)	
2,4,5-TP (Silvex)	
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 32429 (ea.)

Dalapon (2,2-dichloropropionic acid)

1,000 μ g/mL in acetonitrile, 1mL/ampul	
	cat. # 32432 (ea.)
1,000 μ g/mL in methanol, 1mL/ampul	
	cat. # 32253 (ea.)
2,000 μ g/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	
1,000 μ g/mL in methanol, 1mL/ampul	
	cat. # 31452 (ea.)
1,4-dinitrobenzene	
2,000 μ g/mL in acetonitrile, 1mL/ampul	
	cat. # 33205 (ea.)

8330 Surrogate

1,2-dinitrobenzene	
1,000 μ g/mL in methanol, 1mL/ampul	
	cat. # 31453 (ea.)

also available

See page 469 for chlordane and toxaphene reference materials.

Method 8330**(Nitroaromatics and Nitramines by HPLC) cont'd****8330B Nitroaromatics and Nitramine Mix** (17 components)**

2-amino-4,6-dinitrotoluene	2-nitrotoluene
4-amino-2,6-dinitrotoluene	3-nitrotoluene
3,5-dinitroaniline	4-nitrotoluene
1,3-dinitrobenzene	PETN
2,4-dinitrotoluene	RDX
2,6-dinitrotoluene	tetryl
HMX	1,3,5-trinitrobenzene
nitrobenzene	2,4,6-trinitrotoluene
nitroglycerin	
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 33204 (ea.)

Nitroaromatics and Nitramine Explosives by HPLC

(14 components)**

1,3-dinitrobenzene	2-nitrotoluene
2-amino-4,6-dinitrotoluene	3-nitrotoluene
4-amino-2,6-dinitrotoluene	4-nitrotoluene
2,4-dinitrotoluene	RDX
2,6-dinitrotoluene	tetryl
HMX	1,3,5-trinitrobenzene
nitrobenzene	2,4,6-trinitrotoluene
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 33905 (ea.)

8330 Calibration Mix #1 (7 components)**

1,3-dinitrobenzene	RDX
2,4-dinitrotoluene	1,3,5-trinitrobenzene
HMX	2,4,6-trinitrotoluene
nitrobenzene	
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 31450 (ea.)

8330 Calibration Mix #2 (7 components)**

2-amino-4,6-dinitrotoluene	3-nitrotoluene
4-amino-2,6-dinitrotoluene	4-nitrotoluene
2,6-dinitrotoluene	tetryl
2-nitrotoluene	
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 31451 (ea.)

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

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.

Method 8330 (Nitroaromatics and Nitramines by HPLC) cont'd

Single-Component Explosives Solutions

Volume is 1mL/ampul. Concentration is $\mu\text{g}/\text{mL}$.

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

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

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

8330 Nitroaromatics Kit (1,000 $\mu\text{g}/\text{mL}$)

Contains 1mL each of these mixtures.

31450: 8330 Calibration Mix #1

31451: 8330 Calibration Mix #2

31452: 8330 Internal Standard Mix

31453: 8330 Surrogate Mix

cat. # 31454 (kit)



Quantity discounts not available.

also available

Ultra II® Aromax HPLC columns, page 161

Ultra C18 HPLC columns, page 182



Ultra II®
LC Columns

also available

See materials for GC Method 8095 on pages 473-474.

Ultra II® Aromax columns separate all 17 target compounds and can be used alone (MS) or with a confirmation column (UV).

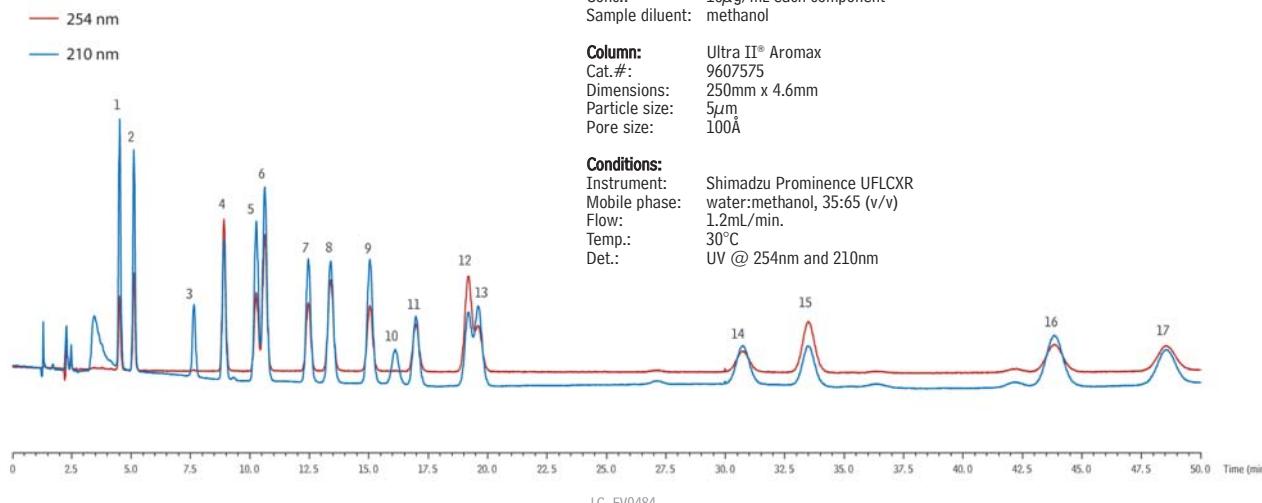
- 1. HMX
- 2. RDX
- 3. nitroglycerin
- 4. nitrobenzene
- 5. 4-amino-2,6-dinitrotoluene
- 6. 3,5-dinitroaniline
- 7. 2-nitrotoluene
- 8. 2-amino-4,6-dinitrotoluene
- 9. 3-nitrotoluene
- 10. PETN
- 11. 4-nitrotoluene
- 12. 1,3-dinitrobenzene
- 13. 2,6-dinitrotoluene
- 14. tetryl
- 15. 2,4-dinitrotoluene
- 16. 1,3,5-trinitrobenzene
- 17. 2,4,6-trinitrotoluene



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For more information, download our *Analysis of Explosives by Liquid Chromatography* applications note from www.restek.com

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

SOM01.1 (Volatile), 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	viny chloride-d3
1,1-dichloroethene-d2	
500 μ g/mL each in deuterated methanol (MeOD), 1mL/ampul	
	cat. # 30624 (ea.)

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

SOM01.1 VOA Ketone Deuterated Monitoring Compounds

(2 components)	
2-butane-d5	2-hexanone-d5
500 μ g/mL each in deuterium oxide (D ₂ O), 1mL/ampul	
	cat. # 30625 (ea.)

SOM01.1 VOA DMC Kit

500 μ g/mL, 1mL each of these mixtures.
30624: Non-Ketones
30625: Ketones



cat. # 30630 (kit)

Quantity discounts not available.

**04.2, 04.1, and 10/92 SOW (Volatile), QA Mixes****CLP 04.1 VOA Internal Standard/SMC Spike Mix** (6 components)

bromochloromethane	1,2-dichloroethane-d4
4-bromofluorobenzene	1,4-difluorobenzene
chlorobenzene-d5	toluene-d8
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30457 (ea.)

VOA Internal Standard Mix (3 components)

bromochloromethane	chlorobenzene-d5
1,4-difluorobenzene	
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30011 (ea.)

VOA Surrogate Spike Mix (3 components)

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

04.2, 04.1, and 10/92 SOW (Volatile), QA Mixes cont'd**VOA Matrix Spike Mix** (5 components)

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

VOA Screening Mix #1 (5 components)

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

VOA Screening Mix #2 (2 components)

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

VOA Tuning Compound

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

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)	
Neat, 1mL/ampul	
	cat. # 30482 (ea.)
Neat, 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	tetrachloroethylene
1,2-dibromoethane	1,1,2-trichloroethane
1,4-dichlorobenzene	trichloroethylene
1,2-dichloroethane	
2,500 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30092 (ea.)

L/C VOA Lab Control Sample #2

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

L/C VOA Internal Standard Mix (3 components)

chlorobenzene-d5	1,4-difluorobenzene
1,4-dichlorobenzene-d4	
2,500 μ g/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
bromodichloromethane
bromoform
carbon disulfide
carbon tetrachloride
chlorobenzene
chloroform
cyclohexane
dibromochloromethane
1,2-dibromo-3-chloropropane (DBCP)
1,2-dibromoethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
cis-1,2-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
cis-1,3-dichloropropene
trans-1,3-dichloropropene
ethylbenzene
isopropylbenzene
methyl acetate
methyl *tert*-butyl ether (MTBE)
methylcyclohexane
methylene chloride
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30456 (ea.)



styrene
1,1,2,2-tetrachloroethane
tetrachloroethene
toluene
1,2,4-trichlorobenzene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene
1,1,2-trichloro-1,2,2-trifluoroethane
(CFC-113)
m-xylene
o-xylene
p-xylene

502.2 Calibration Mix #1 (gases) (6 components)

bromomethane
chloroethane
chloromethane
200 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30439 (ea.)

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

VOA Calibration Mix #1 (ketones) (4 components)

acetone
2-hexanone
2-butanol (MEK)
4-methyl-2-pentanone (MIBK)
5,000 μ g/mL each in P&T methanol:water (90:10), 1mL/ampul
cat. # 30006 (ea.)

CLP 04.1 VOA Kit #3

Contains 1mL each of these mixtures.
30006: VOA Calibration Mix #1 (ketones)
30042: 502.2 Calibration Mix #1 (gases)
30456: CLP 04.1 VOA CAL2000 MegaMix
cat. # 30460 (kit)

Quantity discounts not available.



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3/90 SOW (Volatiles), Calibration Mixes

CLP VOA CAL2000 MegaMix® (28 components)

benzene
bromodichloromethane
bromoform
carbon disulfide
carbon tetrachloride
chlorobenzene
chloroform
dibromochloromethane
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
cis-1,2-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30632 (ea.)

Vinyl Acetate

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



CLP VOA CAL2000 MegaMix® Kit

Contains 1mL each of these mixtures.
30632: CLP VOA CAL2000 MegaMix
30216: vinyl acetate

cat. # 30438 (kit)

Quantity discounts not available.

VOA Calibration Mix #2 (7 components)

benzene
carbon disulfide
ethylbenzene
toluene
vinyl acetate
o-xylene
p-xylene
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30007 (ea.)

VOA Calibration Mix #3 (10 components)

carbon tetrachloride
chlorobenzene
chloroform
1,1-dichloroethane
1,1-dichloroethene
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30008 (ea.)



VOA Calibration Mix #4 (12 components)

bromodichloromethane
bromoform
dibromochloromethane
1,2-dichloroethane
cis-1,2-dichloroethene
trans-1,2-dichloroethene
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30009 (ea.)

VOA Calibration Mix #5 (gases) (4 components)

bromomethane
chloroethane
chloromethane
2,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30010 (ea.)

CLP VOA Calibration Kit #2

Contains 1mL each of these mixtures.
30006: VOA Calibration Mix #1 (ketones)
30010: VOA Calibration Mix #5 (gases)
30632: CLP VOA CAL2000 MegaMix
30216: vinyl acetate

cat. # 30442 (kit)

Quantity discounts not available.



OLC 03.2 (Volatiles), Calibration Mixes

OLC 03.2 VOA MegaMix®

(42 components)

benzene
bromochloromethane
bromodichloromethane
bromoform
carbon disulfide
carbon tetrachloride
chlorobenzene
chloroform
cyclohexane
dibromochloromethane
(chlorodibromomethane)
1,2-dibromo-3-chloropropane (DBCP)
1,2-dibromoethane (EDB)
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
cis-1,2-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
cis-1,3-dichloropropene
trans-1,3-dichloropropene
ethylbenzene
isopropylbenzene (cumene)
methyl acetate
methylcyclohexane
methyl *tert*-butyl ether (MTBE)



methylene chloride (dichloromethane)
styrene
1,1,2,2-tetrachloroethane
tetrachloroethene
toluene
1,2,3-trichlorobenzene
1,2,4-trichlorobenzene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene
1,1,2-trichlorotrifluoroethane
(CFC-113)
m-xylene*
o-xylene
p-xylene*

2,000µg/mL each (**m*- & *p*-xylene at 1,000µg/mL) in P&T methanol, 1mL/ampul
cat. # 30492 (ea.)

L/C VOA Calibration Mix #6 (6 components)

bromochloromethane	1,2-dichlorobenzene
1,2-dibromo-3-chloropropane (DBCP)	1,3-dichlorobenzene
1,2-dibromoethane	1,4-dichlorobenzene

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 486–487 for mix compositions.

SOM01.1 (Semivolatiles), QA Mixes

SOM01.1 Deuterated Monitoring Compound Mix

SIM Compounds (2 components)

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.)

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

SV Internal Standard Mix (6 components)

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

Each	15-pk.	25-pk.
2,000µg/mL each in methylene chloride, 1mL/ampul 31206	31206.15	31206.25
4,000µg/mL each in methylene chloride, 1mL/ampul 31006	31006.15	31006.25

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	

Each	15-pk.	25-pk.
2,000µg/mL each in methylene chloride, 1mL/ampul 31885	31885.15	31885.25
4,000µg/mL each in methylene chloride, 1mL/ampul 31886	31886.15	31886.25

Acid Surrogate Standard Mix (3/90 SOW) (4 components)

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) (3 components)

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

Each	15-pk.	25-pk.
2,000µg/mL each in methanol, 1mL/ampul 31025 \$30	31025.15 \$315	31025.25
10,000µg/mL each in methanol, 1mL/ampul 31063 \$44	31063.15 \$462	31063.25
10,000µg/mL each in methanol, 5mL/ampul 31087 \$115	31087.15 \$1208	31087.25
10,000µg/mL each in methanol, 10mL/ampul 33029 \$215	33029.15 \$2258	33029.25

Revised B/N Surrogate Mix (4 components)

2-fluorobiphenyl	<i>p</i> -terphenyl-d14
nitrobenzene-d5	pyrene-d10

Each	15-pk.	25-pk.
1,000µg/mL each in methylene chloride, 1mL/ampul 31887 \$32	31887.15 \$336	31887.25
5,000µg/mL each in methylene chloride, 1mL/ampul 31888 \$43	31888.15 \$452	31888.25
5,000µg/mL each in methylene chloride, 5mL/ampul 31889 \$114	31889.15 \$1197	31889.25

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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	1,500 μ g/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) (4 components)

1,2-dichlorobenzene-d4	nitrobenzene-d5		
2-fluorobiphenyl	p-terphenyl-d14		
1,000 μ g/mL each in methylene chloride, 1mL/ampul			
cat. # 31002 (ea.)			
5,000 μ g/mL each in methylene chloride, 1mL/ampul			
cat. # 31072 (ea.)			
5,000 μ g/mL each in methylene chloride, 5mL/ampul			
cat. # 31082 (ea.)			

B/N Surrogate Mix (4/89 SOW) (3 components)

2-fluorobiphenyl	p-terphenyl-d14	
nitrobenzene-d5		
Each	15-pk.	25-pk.
1,000 μ g/mL each in methylene chloride, 1mL/ampul 31024	31024.15	31024.25
5,000 μ g/mL each in methylene chloride, 1mL/ampul 31062	31062.15	31062.25
5,000 μ g/mL each in methylene chloride, 5mL/ampul 31086	31086.15	31086.25
5,000 μ g/mL each in methylene chloride, 10mL/ampul 33028	33028.15	33028.25

Acid Matrix Spike Mix (5 components)

4-chloro-3-methylphenol	pentachlorophenol	
2-chlorophenol	phenol	
4-nitrophenol		
1,500 μ g/mL each in methanol, 1mL/ampul cat. # 31005 (ea.)		
7,500 μ g/mL each in methanol, 1mL/ampul cat. # 31075 (ea.)		
7,500 μ g/mL each in methanol, 5mL/ampul cat. # 31085 (ea.)		

CLP 04.1 B/N Matrix Spike Mix (4 components)

acenaphthene	N-nitroso-di-n-propylamine	
2,4-dinitrotoluene	pyrene	
1,000 μ g/mL each in methanol, 1mL/ampul		
cat. # 31492 (ea.)		

B/N Matrix Spike Mix (6 components)

acenaphthene	N-nitroso-di-n-propylamine	
1,4-dichlorobenzene	pyrene	
2,4-dinitrotoluene	1,2,4-trichlorobenzene	
Each	15-pk.	25-pk.
1,000 μ g/mL each in methanol, 1mL/ampul 31004	31004.15	31004.25
5,000 μ g/mL each in methanol, 1mL/ampul 31074	31074.15	31074.25
5,000 μ g/mL each in methanol, 5mL/ampul 31084	31084.15	31084.25
5,000 μ g/mL each in methanol, 10mL/ampul 33030	33030.15	33030.25

Low Concentration Semivolatiles, QA Mixes

L/C Acid Lab Control Sample (3 components)

2-chlorophenol	2,4,6-trichlorophenol
phenol	
2,000 μ g/mL each in methanol, 1mL/ampul	cat. # 31212 (ea.)

L/C B/N Lab Control Sample Mix A (11 components)

benzo(a)pyrene	isophorone
bis(2-chloroethyl)ether	naphthalene
diethylphthalate	N-nitrosodiphenylamine
2,4-dinitrotoluene	N-nitroso-di-n-propylamine
hexachlorobenzene	1,2,4-trichlorobenzene
hexachloroethane	
1,000 μ g/mL each in methylene chloride:methanol (85:15), 1mL/ampul	cat. # 30310 (ea.)

L/C Aniline Mix B

4-chloroaniline

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

L/C B/N Lab Control Sample Kit

Contains 1mL each of these mixtures.
30310: L/C B/N Lab Control Sample Mix A
31211: L/C Aniline Mix B

cat. # 31241 (kit)

Quantity discounts not available.



SV Tuning Compound

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

PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)	
Neat, 1mL/ampul	cat. # 30482 (ea.)
Neat, 1g	cat. # 33027 (ea.)

No data pack available.



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EPA 8270 Internal, Surrogate & Spike Mixes!

- **8270 Matrix Spike Mix**
- **SV Internal Standard Mix**
- **Revised SV Internal Standard Mix**
- **B/N Surrogate Mix (4/89 SOW)**
- **Revised B/N Surrogate Mix**
- **Acid Surrogate Mix (4/89 SOW)**
- **B/N Matrix Spike Mix**

4/89 and 3/90 SOW (Semivolatiles), Calibration Mixes

SV Calibration Mix #1 (5 components)

benzyl alcohol	3-nitroaniline
4-chloroaniline	4-nitroaniline
2-nitroaniline	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31007 (ea.)

SV Calibration Mix #2 (15 components)

benzoic acid	4-methylphenol
4-chloro-3-methylphenol	2-nitrophenol
2-chlorophenol	4-nitrophenol
2,4-dichlorophenol	pentachlorophenol
2,4-dimethylphenol	phenol
2,4-dinitrophenol	2,4,5-trichlorophenol
2-methyl-4,6-dinitrophenol	2,4,6-trichlorophenol
2-methylphenol	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31008 (ea.)

SV Calibration Mix #3 (14 components)

bis(2-chloroethoxy)methane	4-chlorophenyl phenyl ether
bis(2-chloroethyl)ether	dimethylphthalate
bis(2-chloroisopropyl)ether	di-n-butylphthalate
bis(2-ethylhexyl)phthalate	di-n-octylphthalate
4-bromophenyl phenyl ether	N-nitrosodimethylamine
butyl benzyl phthalate	N-nitrosodi-n-propylamine
2-chloronaphthalene	N-nitrosodiphenylamine
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31009 (ea.)

SV Calibration Mix #4 (13 components)

carbazole	hexachlorocyclopentadiene
dibenzofuran	hexachloroethane
diethyl phthalate	isophorone
2,4-dinitrotoluene	2-methylnaphthalene
2,6-dinitrotoluene	nitrobenzene
hexachlorobenzene	1,2,4-trichlorobenzene
hexachlorobutadiene	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31010 (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
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31011 (ea.)

SV Calibration Mix #6 (18 components)

aldrin	endosulfan I
α -BHC	endosulfan II
β -BHC	endosulfan sulfate
δ -BHC	endrin
γ -BHC (lindane)	endrin aldehyde
4,4'-DDD	endrin ketone
4,4'-DDE	heptachlor
4,4'-DDT	heptachlor epoxide (isomer B)
dielein	methoxychlor
2,000 μ g/mL each in toluene:hexane (1:1), 1mL/ampul	
	cat. # 31012 (ea.)

SV Calibration Mix #7 (3 components)

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

3,3'-Dichlorobenzidine

2,000 μ g/mL in methanol, 1mL/ampul	
	cat. # 31026 (ea.)

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

605 Benzidines Calibration Mix (2 components)

benzidine	3,3'-dichlorobenzidine
2,000 μ g/mL each in methanol, 1mL/ampul	
	cat. # 31030 (ea.)

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

8270 Benzidines Mix (3 components)

benzidine	3,3'-dimethylbenzidine
3,3'-dichlorobenzidine	
2,000 μ g/mL each in methanol, 1mL/ampul	
	cat. # 31688 (ea.)

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

CLP Semivolatile Calibration Kit #2 (without pesticides)

Contains 1mL each of these mixtures.
31007: SV Calibration Mix #1 (anilines)
31008: SV Calibration Mix #2 (phenols)
31009: SV Calibration Mix #3 (base neutrals)
31010: SV Calibration Mix #4 (base neutrals)
31011: SV Calibration Mix #5 (PAHs)
31013: SV Calibration Mix #7 (dichlorobenzenes)
31026: 3,3'-dichlorobenzidine

cat. # 31462 (kit)



Quantity discounts not available.

Semivolatile Calibration Kit #3 (with benzidine)

Contains 1mL each of these mixtures.
31007: SV Calibration Mix #1 (anilines)
31008: SV Calibration Mix #2 (phenols)
31009: SV Calibration Mix #3 (base neutrals)
31010: SV Calibration Mix #4 (base neutrals)
31011: SV Calibration Mix #5 (PAHs)
31013: SV Calibration Mix #7 (dichlorobenzenes)
31030: 605 Benzidines Calibration Mix (benzidine & 3,3'-dichlorobenzidine)

cat. # 31463 (kit)



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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
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31810 (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	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31813 (ea.)	

3,3'-Dichlorobenzidine

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

Hexachlorophene

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

did you know?

Our **Pesticide Matrix Spike Mix** (cat.# 32018, [page 494](#)) can be used as a GPC calibration verification solution.

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Low Concentration Semivolatiles, Calibration Mixes**L/C Phenol Mix A** (6 components)

2,4-dinitrophenol*	pentachlorophenol*
2-methyl-4,6-dinitrophenol*	2,4,6-tribromophenol (SS)*
4-nitrophenol*	2,4,5-trichlorophenol*
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31208 (ea.)	

*Must be calibrated at a level different from the other listed semivolatile 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 (SS)
2-fluorophenol	2,4,6-trichlorophenol
2-methylphenol	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31209 (ea.)	

L/C Aniline Mix A (3 components)

2-nitroaniline*	4-nitroaniline*
3-nitroaniline*	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31210 (ea.)	

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

L/C Aniline Mix B

4-chloroaniline	
2,000 μ g/mL in methylene chloride, 1mL/ampul	
cat. # 31211 (ea.)	

Additional Required SV Calibration Mixes:

See pages 489 and 491 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.

CLP GPC Calibration Mix (5 components)

bis(2-ethylhexyl) phthalate	10mg/mL	perylene	0.2
corn oil	250	sulfur	0.8
methoxychlor	2.0		
In methylene chloride, 1mL/ampul			
cat. # 32019 (ea.)			

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

No data pack available.

Revised GPC Calibration Mix (5 components)

bis(2-ethylhexyl) phthalate	5mg/mL	perylene	0.2
corn oil	250	sulfur	0.8
methoxychlor	1.0		
In methylene chloride, 1mL/ampul			
cat. # 32041 (ea.)			

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

No data pack available.

SOM01.1 (Pesticides), QA Mixes

Pesticide Surrogate Mix (2 components)

decachlorobiphenyl	200 μ g/mL
2,4,5,6-tetrachloro- <i>m</i> -xylene	100
In acetone, 1mL/ampul	
cat. # 32453 (ea.)	

Organochlorine Pesticide Resolution Check Mix

(with surrogates) (22 components)

aldrin	10 μ g/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 (SS)	20	heptachlor epoxide (isomer B)	10
dieldrin	20	methoxychlor	100
4,4'-DDD	20	2,4,5,6-tetrachloro- <i>m</i> -xylene (SS)	10
4,4'-DDE	20		
4,4'-DDT	20		

In hexane:toluene (90:10), 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 (2 components)

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

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

200 μ g/mL in acetone, 1mL/ampul

cat. # 32027 (ea.)

200 μ g/mL in acetone, 5mL/ampul

cat. # 32028 (ea.)

Decachlorobiphenyl (BZ #209)

200 μ g/mL in acetone, 1mL/ampul

cat. # 32029 (ea.)

200 μ g/mL in acetone, 5mL/ampul

cat. # 32030 (ea.)

10 μ g/mL in isoctane, 1mL/ampul

cat. # 32289 (ea.)

Dibutylchlorendate

200 μ g/mL in acetone, 1mL/ampul

cat. # 32025 (ea.)

Florisil® Cartridge Check Standard

2,4,5-trichlorophenol

1,000 μ g/mL in acetone, 1mL/ampul

cat. # 32017 (ea.)

Organochlorine Pesticide System Evaluation Mix

(2 components)

4,4'-DDT	200 μ g/mL	endrin 100 μ g/mL
In methyl <i>tert</i> -butyl ether, 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	1 μ g/mL	endosulfan sulfate	2
4,4'-DDE	2	endrin ketone	2
dieldrin	2	methoxychlor	10
endosulfan I	1		

In hexane, 1mL/ampul

cat. # 32001 (ea.)

Pesticide Resolution Check Mix w/Surrogates (9 components)

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

In hexane, 1mL/ampul

cat. # 32073 (ea.)

Pesticide Performance Evaluation Mix (6 components)

α -BHC	1 μ g/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	1 μ g/mL	decachlorobiphenyl (SS)	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 (SS)	2

In hexane, 1mL/ampul

cat. # 32074 (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 isoctane 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, QA Mixes

Pesticide Matrix Spike Mix (6 components)

aldrin	25 μ g/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) (6 components)

aldrin	200 μ g/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) (4 components)

aldrin	4,4'-DDT	dieldrin	500
dibutylchlorendate (SS)		endrin	
100 μ g/mL each in hexane, 1mL/ampul			
cat. # 32032 (ea.)			

See complete listing of PCBs, pages 495-496.

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.)			

CLP Pesticides Mixtures, Calibration Mixes

Pesticide Standard Mix A (2/88 SOW) (10 components)

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

CLP Pesticides Mixtures, Calibration Mixes cont'd

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.)			

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



also available

Use our Rtx®-CLPesticides/Rtx®-CLPesticides2 capillary column pair to analyze all twenty organochlorine pesticides and their surrogates simultaneously. See **pages 88-89**.

See **page 496** for our complete listing of PCBs and congeners.

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 (SS)	16	2,4,5,6-tetrachloro- <i>m</i> -xylene (SS)	8
dieldrin	16		
In hexane, 1mL/ampul			
		cat. # 32003 (ea.)	

Pesticide Standard Mix B w/Surrogates (13 components)

aldrin	8 μ g/mL	endosulfan II	16
β -BHC	8	endosulfan sulfate	16
δ -BHC	8	endrin aldehyde	16
α -chlordane	8	endrin ketone	16
γ -chlordane	8	heptachlor epoxide (isomer B)	8
4,4'-DDE	16	2,4,5,6-tetrachloro- <i>m</i> -xylene (SS)	8
decachlorobiphenyl (SS)	16		
In hexane, 1mL/ampul			
		cat. # 32004 (ea.)	

Pesticide Kit #3

Calibration mixes only for CLP 04.1. Includes pesticide standard mixes A & B at 16x CRQL with surrogates.

Contains 1mL each of these mixtures.

32003: Pesticide Standard Mix A w/Surrogates

32004: Pesticide Standard Mix B w/Surrogates

32005: Toxaphene

32007: Aroclor 1221

32008: Aroclor 1232

32009: Aroclor 1242

32010: Aroclor 1248

32011: Aroclor 1254

32039: Aroclor 1016/1260

cat. # 32404 (kit)

Quantity discounts not available.



Technical Chlordane, Toxaphene Solutions

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
chlordanne (technical)	H	1,000	32021	
chlordanne (technical)	I	5,000	32072	
chlordanne (technical)	M	2,000	32016	
toxaphene	H	1,000	32005	
toxaphene	I	5,000	32071	
toxaphene	M	2,000	32015	

H = hexane; I = isoctane; M = methanol

quantity discounts

Order 3 or 4 of any one reference standard and receive a **10% discount!**

Order 5 or more of any one reference standard and receive a **20% discount!**

Quantity discounts are not available on all reference standards.

Aroclor Solutions

Volume is 1mL/ampul. Concentration is μ g/mL unless otherwise noted.

Compound	Solvent	Conc.	cat.# (ea.)	price
Aroclor 1016	H	1,000	32006	
Aroclor 1016	I	200	32064	
Aroclor 1016	TO	50mg/kg	32075	
Aroclor 1016	TO	500mg/kg	32076	
Aroclor 1221	H	1,000	32007	
Aroclor 1221	I	200	32065	
Aroclor 1221	TO	50mg/kg	32077	
Aroclor 1221	TO	500mg/kg	32078	
Aroclor 1232	H	1,000	32008	
Aroclor 1232	I	200	32066	
Aroclor 1232	TO	50mg/kg	32079	
Aroclor 1232	TO	500mg/kg	32080	
Aroclor 1242	H	1,000	32009	
Aroclor 1242	I	200	32067	
Aroclor 1242	TO	50mg/kg	32081	
Aroclor 1242	TO	500mg/kg	32082	
Aroclor 1248	H	1,000	32010	
Aroclor 1248	I	200	32068	
Aroclor 1248	TO	50mg/kg	32083	
Aroclor 1248	TO	500mg/kg	32084	
Aroclor 1254	H	1,000	32011	
Aroclor 1254	I	200	32069	
Aroclor 1254	TO	50mg/kg	32085	
Aroclor 1254	TO	500mg/kg	32086	
Aroclor 1260	H	1,000	32012	
Aroclor 1260	I	200	32070	
Aroclor 1260	TO	50mg/kg	32087	
Aroclor 1260	TO	500mg/kg	32088	
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 = isoctane; TO = transformer oil (PCB-free)

please note

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



tech tip

Achieving the Best Results from Gas Standards

In order to achieve the best results from gas standards, proper handling and storage of gas solutions is of vital importance. Use the following tips to help ensure trouble-free performance:

- Before opening the sealed ampul, warm it to room temperature and invert the ampul several times. This will redissolve any gases that may have migrated into the headspace of the ampul.
- When diluting a gas standard, always add it to a solvent. Adding the gas standard to an empty vessel prior to adding solvent will result in the loss of gas compounds.
- When diluting a gas standard in solvent, make sure the pipette or needle tip is directly above, or immersed below, the solvent surface.
- We recommend that any unused portion of gas standard be disposed of after it has been removed from the sealed ampul. If it is necessary to store the unused portion, place it into a tightly capped vial and store it in the freezer.
- We recommend that any gas solutions that have been stored outside of a sealed ampul be disposed of after 7 days.



PCBs, Organotin

PCB Kits

PCB Kit #1

1,000 μ g/mL each in hexane, 1mL/ampul
 32006: Aroclor 1016
 32007: Aroclor 1221
 32008: Aroclor 1232
 32009: Aroclor 1242
 32010: Aroclor 1248
 32011: Aroclor 1254
 32012: Aroclor 1260



cat. # 32089 (kit)

Quantity discounts not available.

PCB Kit #2

200 μ g/mL each in isoctane, 1mL/ampul
 32064: Aroclor 1016
 32065: Aroclor 1221
 32066: Aroclor 1232
 32067: Aroclor 1242
 32068: Aroclor 1248
 32069: Aroclor 1254
 32070: Aroclor 1260



cat. # 32090 (kit)

Quantity discounts not available.

PCB Kit #3

1,000 μ g/mL each in hexane, 1mL/ampul
 32007: Aroclor 1221
 32008: Aroclor 1232
 32009: Aroclor 1242
 32010: Aroclor 1248
 32011: Aroclor 1254
 32039: Aroclor 1016/1260



cat. # 32400 (kit)

Quantity discounts not available.

PCB Kit #4

200 μ g/mL each in isoctane, 1mL/ampul
 32065: Aroclor 1221
 32066: Aroclor 1232
 32067: Aroclor 1242
 32068: Aroclor 1248
 32069: Aroclor 1254
 32299: Aroclor 1016/1260



cat. # 32401 (kit)

Quantity discounts not available.

PCB Congeners

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
2,4,4'-trichlorobiphenyl (BZ #28)	I	10	32283	
2,2',5,5'-tetrachlorobiphenyl (BZ #52)	I	10	32284	
2,2',4,5,5'-pentachlorobiphenyl (BZ #101)	I	10	32285	
2,3,4,4',5-pentachlorobiphenyl (BZ #118)	I	10	32293	
2,2',3,4,4',5-hexachlorobiphenyl (BZ #138)	I	10	32286	
2,2',4,4',5,5'-hexachlorobiphenyl (BZ #153)	I	10	32287	
2,2',3,4,4',5,5'-heptachlorobiphenyl (BZ #180)	I	10	32288	
decachlorobiphenyl (BZ #209)	I	10	32289	

I = isoctane

PCB Congeners cont'd

PCB Congener Standard #1 (6 components)

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)

10 μ g/mL each in isoctane, 1mL/ampul

cat. # 32290 (ea.)

PCB Congener Standard #2 (7 components)

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)

10 μ g/mL each in isoctane, 1mL/ampul

cat. # 32294 (ea.)

also available

Additional PCB congener mixes:

See EPA Method 8082: cat.# 32416 page 473.

See EPA Method 525: cat.# 32420 page 458.

Organotin Mixes

Butyltin Chloride Calibration Mixture (4 components)

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

Tributyltin Chloride Calibration Mixture

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

Phenyltin Chloride Calibration Mixture (4 components)

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

Tri-n-propyltin Chloride Surrogate

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

Tripentyltin Chloride Surrogate

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

Tetra-n-propyltin Internal Standard

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

Tetrapentyltin Internal Standard

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

Minnesota Department of Agriculture List 1 Pesticides

Minnesota Ag List 1 Pesticides Mix A (16 components)

acetochlor	metolachlor
alachlor	metribuzin
atrazine	pendimethalin
cyanazine	prometon
desethylatrazine	propachlor
desisopropylatrazine	propazine
dimethenamid*	simazine
ethalfluralin	trifluralin
200ppm each in acetone, 1mL/ampul	
	cat. # 32406 (ea.)

*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 Ag List 1 Pesticides Mix B (6 components)

chloryrifos	phorate
EPTC	terbufos
fonofos	triallate
200ppm each in acetone, 1mL/ampul	
	cat. # 32407 (ea.)

**Minnesota Ag List 1 Pesticide Kit**

Contains 1mL each of these mixtures.
32406: Minnesota Ag List Pesticides Mix A
32407: Minnesota Ag List Pesticides Mix B

cat. # 32408 (kit)

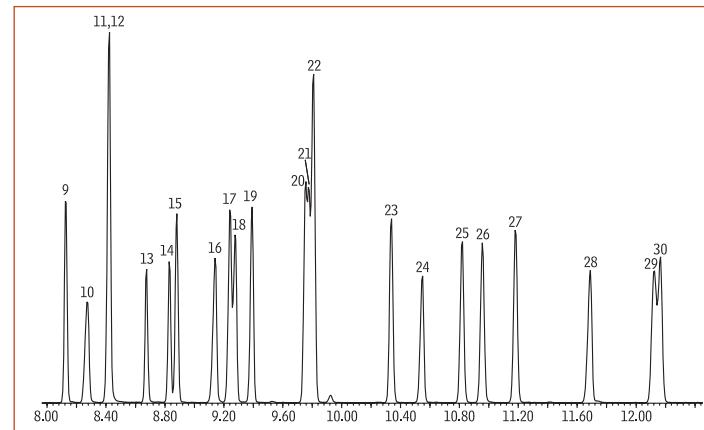
Quantity discounts not available.

also available

See page 41 for our Rxi®-1ms capillary columns.

Minnesota Dept. of Agriculture List 1 Pesticides on an Rxi®-1ms column.

- | | |
|--------------------------------|---------------------------|
| 1. 2-fluorophenol (SS) | 19. propazine |
| 2. phenol-d6 (SS) | 20. terbufos |
| 3. 1,4-dichlorobenzene-d4 (IS) | 21. fonofos |
| 4. nitrobenzene-d5 (SS) | 22. phenanthrene-d10 (IS) |
| 5. naphthalene-d8 (IS) | 23. triallate |
| 6. EPTC | 24. metribuzin |
| 7. 2-fluorobiphenyl (SS) | 25. dimethenamid |
| 8. acenaphthene-d10 (IS) | 26. acetochlor |
| 9. propachlor | 27. alachlor |
| 10. desisopropyl atrazine | 28. cyanazine |
| 11. desethyl atrazine | 29. metolachlor |
| 12. 2,4,6-tribromophenol (SS) | 30. chloryrifos |
| 13. ethalfluralin | 31. pendimethalin |
| 14. trifluralin | 32. p-terphenyl-d14 (SS) |
| 15. phorate | 33. chrysene-d12 (IS) |
| 16. simazine | 34. perylene-d12 (IS) |
| 17. prometon | |
| 18. atrazine | |



Column: Rxi®-1ms, 30m, 0.25mm ID, 0.25µm
(cat.# 13323)

Sample: Minnesota Ag List 1 Pesticides Mix A
(cat.# 32406),
Minnesota Ag List 1 Pesticides Mix B
(cat.# 32407),
SV Internal Standard Mix (cat.# 31206),
B/N Surrogate Mix (4/89 SOW)
(cat.# 31024),
Acid Surrogate Mix (4/89 SOW)
(cat.# 31025)

Inj.: 1.0µL, 10µg/mL each analyte
(internal standards 25µg/mL), split (10:1)
4mm Drilled Uniliner® inlet liner
(hole near bottom) (cat.# 20771)

Instrument: Agilent 6890
Inj. temp.: 250°C

Carrier gas: helium, constant flow

Flow rate: 1.2mL/min.

Oven temp.: 70°C (hold 1 min.) to 180°C @ 20°C/min., to 230°C @ 5°C/min., to 325°C @ 40°C/min. (hold 3.5 min.)

Det.: Agilent 5973 MSD

Transfer line

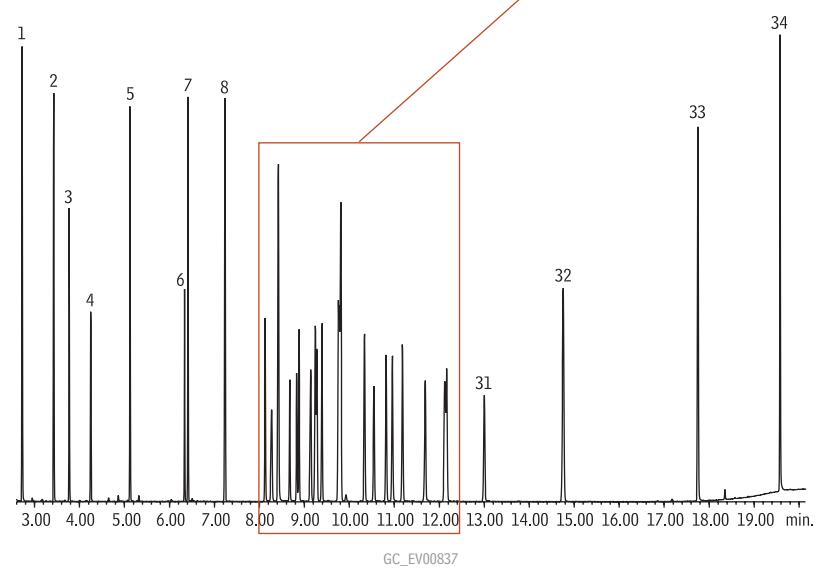
temp.: 280°C

Scan range: 35-550amu

Solvent delay: 2.50 min.

Tune: DFTPP

Ionization: EI



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International Mixes

International Environmental Mixes

Country/Miscellaneous	Compound Class
Canada: CCME	Alkanes; PAHs
Canada: Drinking Water	Volatiles; Pesticides
Canada: RBCA - Atlantic Provinces	Aromatics; Aliphatics; PAHs
European Union	Pesticides
Japan	Odor Compounds
ISO/DIS-9377 Water Quality Testing	Hydrocarbons

Canada

C50 in Toluene

n-pentacontane (C50)
10 μ g/mL in toluene, 1mL/ampul
cat. # 31685 (ea.)

CCME F1 Surrogate Standard

n-undecane (C11)
1,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 30612 (ea.)

CCME F2 Surrogate Standard

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

CCME F1 Retention Time Marker (3 components)

<i>n</i> -decane (C10)	toluene
<i>n</i> -hexane (C6)	
2,000 μ g/mL each in methanol, 1mL/ampul	
	cat. # 30611 (ea.)

CCME PHC Calibration Mix (3 components)

<i>n</i> -decane (C10)	<i>n</i> -tetratriacontane (C34)
<i>n</i> -hexadecane (C16)	
5,000 μ g/mL each in toluene, 1mL/ampul	
	cat. # 31684 (ea.)

Canada cont'd

Canadian Drinking Water Triazine Herbicides Mix

(7 components)
alachlor
atrazine
cyanazine (Bladex)
metolachlor
500 μ g/mL each in acetone, 1mL/ampul
cat. # 31864 (ea.)

Canadian Drinking Water Phenoxyacid Herbicides Mix

(11 components)
bromoxynil
2,4-D
dicamba
2,4-dichlorophenol
diclofop methyl
dinoceb
1,000 μ g/mL each in acetone, 1mL/ampul
cat. # 31868 (ea.)

Canadian Drinking Water Carbamates Mix (5 components)

aldicarb	carbofuran
bendiocarb	triatlate
carbaryl (Sevin)	
100 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 31865 (ea.)

Canadian Drinking Water Chlorinated Pesticides Mix

(14 components)
aldrin
 γ -BHC (lindane)
 α -chlordane
 γ -chlordane
2,4'-DDE
4,4'-DDE
2,4'-DDT
4,4'-DDT
200 μ g/mL each in hexane:toluene, 1mL/ampul
cat. # 31866 (ea.)

Canadian Drinking Water OP Pesticides Mix (9 components)

azinphos methyl (Guthion)	parathion (ethyl)
chlorpyrifos (Dursban)	phorate
Diazinon	temephos (Abate)
dimethoate	terbufos
malathion	
1,000 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 31867 (ea.)

REFINED

Petroleum & Sulfur Standards!

See pages 518-521 for more information.

Documentation Search

Find what you need fast at
www.restek.com/documents

- Material safety data sheets
- Certificates of analysis
- Datapacks (by catalog number and/or lot number)

Canada - Atlantic Provinces

Atlantic RBCA EPH Mix (11 components)

acenaphthene	n-dotriacontane (C32)
anthracene	n-heneicosane (C21)
benzo(a)pyrene	n-hexadecane (C16)
chrysene	n-octacosane (C28)
n-decane (C10)	naphthalene
n-dodecane (C12)	
1,000µg/mL each in hexane:methylene chloride, 1mL/ampul	
	cat. # 31872 (ea.)

Atlantic RBCA EPH Surrogate Standard (2 components)

n-dotriacontane (C32)	isobutylbenzene
1,000µg/mL each in methylene chloride, 1mL/ampul	

Atlantic RBCA VPH Mix (12 components)

benzene	n
n-decane (C10)	toluene
ethylbenzene	1,2,4-trimethylbenzene
n-heptane (C7)	1,3,5-trimethylbenzene
n-hexane (C6)	o-xylene
1-methyl-3-ethylbenzene	p-xylene
1,000µg/mL each in P&T methanol, 1mL/ampul	
	cat. # 31871 (ea.)

Atlantic RBCA VPH Surrogate Standard

isobutylbenzene	
1,000µg/mL in P&T methanol, 1mL/ampul	

Europe

Organophosphorus Pesticide Mix, European Formulation

(16 components)

acephate	200µg/mL	methamidophos	500
azinphos methyl (Guthion)	400	methidathion	200
chlorpyrifos	100	omethoate	1,000
demeton-s-methyl	200	pirimiphos methyl	100
dichlorvos (DDVP)	500	profenfos	200
dimethoate	200	pyrazophos	500
ethion	200	tokuthion (prothifos)	200
malathion	200	tolclofos-methyl	100
In acetone, 1mL/ampul			
	cat. # 32418 (ea.)		

PCB Congener Standard #1 (6 components)

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 isoctane, 1mL/ampul	
cat. # 32290 (ea.)	

PCB Congener Standard #2 (7 components)

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 isoctane, 1mL/ampul	
cat. # 32294 (ea.)	

Europe cont'd

Desethyl-atrazine

1,000µg/mL in acetone, 1mL/ampul	
cat. # 32445 (ea.)	

Desisopropylatrazine

1,000µg/mL in acetone, 1mL/ampul	
cat. # 32446 (ea.)	

Terbutylazine

1,000µg/mL in acetone, 1mL/ampul	
cat. # 32447 (ea.)	

Propazine

1,000µg/mL in acetone, 1mL/ampul	
cat. # 32448 (ea.)	

Prometryne

1,000µg/mL in acetone, 1mL/ampul	
----------------------------------	--

also available

EP 2.4.22 Composition of Fatty Acids by GC Mixes

See page 533 for more information.

Japan

Japan Calibration Mix (9 components)

acrylonitrile	dichloromethane
benzene	tetrachloroethylene
1,3-butadiene	trichloroethylene
chloroform	vinyl chloride
1,2-dichloroethane	

Cylinder Construction:

aluminum
CGA-180 outlet

Spectra 104L Cylinders:

Size: 8 x 24 cm
Volume/Pressure:
104 liters of gas
@ 1,800 psi

Scotty 110L Cylinders (Pi-marked Cylinders for EU Regulations):
Size: 8.3 x 29.5 cm
Volume/Pressure:
110 liters of gas
@ 1,800 psi

Weight: 2.2 lbs/1 kg
US DOT Specs: 3AL2216

1ppm in nitrogen, 104 liters @ 1,800psi

cat. # 34418 (ea.)

1ppm in nitrogen, 110 liters @ 1,800psi (Pi-marked Cylinder)

cat. # 34418-PI (ea.) \$1267

Requires a high-purity VOC single-stage regulator. See page 433.

No data pack available.

Quantity discounts not available.

Drinking Water Odor Standard (2 components)

Unpleasant odor in drinking water is associated with the growth and decay of microorganisms. The threshold value for these compounds is low (10 ppt) and purge and trap analyses usually are used to quantify them.

(+/-)-geosmin	2-methylisoborneol
100µg/mL in P&T methanol, 1mL/ampul	

cat. # 30608 (ea.)



Underground Storage Tank Monitoring (UST): General

Category	Compound Class
Retention Time Standards	.Hydrocarbons
Fuel Composite Standards	.Hydrocarbons
Motor Oil Composite Standards	.Hydrocarbons
Single Source Fuel Standards	.Hydrocarbons
Military Fuels (Jet Propellant)	.Hydrocarbons
Fuel Oil Degradation Test	.Hydrocarbons
Mineral Spirits	.Hydrocarbons
PVOC, GRO and BTEX	.Hydrocarbons
Gasoline Surrogate and Internal Standards	.Volatiles
Diesel Surrogate and Internal Standards	.Hydrocarbons
Diesel/Biodiesel Blend	.Hydrocarbons

Retention Time Standards

Used during initial sample screening, to determine retention time windows for each petroleum product. Gasoline generally elutes in the window from C6 to C10 (or C12), and diesel fuel from C10 (or C12) to C24 (or C28). Retention above C24 (or C28) indicates oil or lubricant contamination.

Leaking Underground Storage Tank Retention Time Standard

(7 components)	
n-hexane (C6)	n-octacosane (C28)
n-decane (C10)	n-triacontane (C30)
n-dodecane (C12)	n-tetracontane (C40)
n-tetracosane (C24)	
25 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31200 (ea.)	

Retention Time Marker Standard (3 components)

n-decane (C10)	n-hexatriacontane (C36)
n-pentacosane (C25)	
1,000 μ g/mL each in hexane, 1mL/ampul	
cat. # 31637 (ea.)	

Retention Time Marker (3 components)

n-hexane (C6)	n-dodecane (C12)
n-decane (C10)	
1,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30483 (ea.)	

TNRCC 1005 Retention Time Markers Mix (4 components)

n-hexane (C6)	n-octacosane (C28)
n-dodecane (C12)	n-pentatriacontane (C35)
200 μ g/mL each in pentane, 1mL/ampul	
cat. # 31698 (ea.)	

Retention Time Marker - Alaska (4 components)

n-hexane (C6)	n-pentacosane (C25)
n-decane (C10)	n-hexatriacontane (C36)
1,000 μ g/mL in methylene chloride, 1mL/ampul	
cat. # 31819 (ea.)	

Fuel Composite Standards

Unleaded Gasoline Composite Standard

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

Diesel Fuel #2 Composite Standard

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

Kerosene Composite Standard

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

Motor Oil Composite Standards

Motor Oil Composite Standard

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

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

Used Motor Oil Composite Standard

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

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

also available

Other fuels, oils and lubricant oils available on request as custom products.



UST Monitoring

Single Source Fuels

Unleaded Gasoline Standard

Prepared from a single source (one refinery) product.

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

Kerosene Standard

Prepared from a single source (one refinery) product.

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

Diesel Fuel #2 Standard

Prepared from a single source (one refinery) product.

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

Fuel Oil #4 Standard

Fuel oil #4 is typically used in limited applications in which the fuel cannot be preheated prior to burning. The fuel is a blend of distillate (fuel oil #2) and residual (fuel oil #6) to meet ASTM viscosity specifications. Fuel oil #4 used to prepare this mixture has a kinematic viscosity of 21.9 at 38°C (100°F), measured using ASTM D-445.

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

Fuel Oil #5 Standard

Fuel oil #5 is typically used in applications in which there is little or no preheating of the fuel prior to burning. A blend of distillate (fuel oil #2) and residual (fuel oil #6), the fuel oil #5 used to prepare this mixture has a kinematic viscosity of 106.5 at 38°C (100°F), measured using ASTM D-445.

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31217 (ea.)
50,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31246 (ea.)

Fuel Oil #6 Standard

This fuel, sometimes called bunker C or residual, is a black viscous oil. Applications in which it may be used require the ability to preheat the fuel prior to pumping and burning.

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

Diesel/Biodiesel 80:20 Blend Standard

The biodiesel component is methyl soyate.

diesel/biodiesel 80:20

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

Single Source Fuels cont'd

Aviation Gas Standard

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

2,500 μ g/mL in P&T methanol, 1mL/ampul
cat. # 30094 (ea.)

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

50,000 μ g/mL in P&T methanol, 5mL/ampul
cat. # 30208 (ea.)

Jet Fuel A Standard

Commercial jet fuel A.

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31215 (ea.)

50,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31242 (ea.)

50,000 μ g/mL in methylene chloride, 5mL/ampul
cat. # 31243 (ea.)

Creosote Oil Standard

Creosote oil, a widely used wood preservative produced by distilling coal tar, contains chemicals that are classified as carcinogens (e.g., benzo(a)pyrene). We offer this high concentration standard.

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

Hydraulic Oil Standard

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

Military Fuels (Jet Propellant)

JP-4 Military Fuel Standard

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31219 (ea.)

50,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31250 (ea.)

50,000 μ g/mL in P&T methanol, 1mL/ampul

JP-5 Military Fuel Standard

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31220 (ea.)

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

50,000 μ g/mL in methylene chloride, 5mL/ampul
cat. # 31253 (ea.)

JP-8 Military Fuel Standard

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31262 (ea.)

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

Fuel Oil Degradation Test

Subsurface degradation of fuel oil spills can be estimated by examining the ratios of C17/pristane and C18/phytane.¹ To assist in identifying these four compounds from the complex fuel oil analysis, we offer a product that contains these compounds for retention time determination.

Fuel Oil Degradation Mix (4 components)

heptadecane (C17)
octadecane (C18)
pristane (2,6,10,14-tetramethylpentadecane)
phytane (2,6,10,14-tetramethylhexadecane)

2,000 μ g/mL each in methylene chloride, 1mL/ampul
cat. # 31240 (ea.)

¹Interpretation of Gas Chromatographic Data in Subsurface Hydrocarbon Investigations, R. Senn and M. Johnson, Ground Water Monitoring Review, Winter 1987.

Mineral Spirits

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

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

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

Mineral Spirits Standards (Unweathered)

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31225 (ea.)

50,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31260 (ea.)

50,000 μ g/mL in methylene chloride, 5mL/ampul
cat. # 31261 (ea.)

Stoddard Solvent Standard

Stoddard solvent is also known as Type I mineral spirits, Texsolve S, or Varsol® 1 mineral spirits. We offer this reference material for those who need to calibrate Stoddard solvent separately. This standard is dissolved in methanol for analysis by either direct injection or purge and trap.

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

Custom Reference Standards Quotes

Visit us at www.restek.com/solutions

Petroleum Volatile Organic Compounds (PVOC), Gasoline Range Organics (GRO), & Benzene-Toluene-Ethylbenzene-Xylenes (BTEX)

PVOC Mix (California) (7 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
methyl <i>tert</i> -butyl ether (MTBE)	<i>p</i> -xylene
toluene	

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

PVOC/GRO Mix (Wisconsin) (10 components)

benzene	1,2,4-trimethylbenzene
ethylbenzene	1,3,5-trimethylbenzene
methyl <i>tert</i> -butyl ether (MTBE)	<i>m</i> -xylene
naphthalene	<i>o</i> -xylene
toluene	<i>p</i> -xylene

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

GRO Mix (9 components)

benzene	1,2,4-trimethylbenzene
ethylbenzene	2,2,4-trimethylpentane (isooctane)
3-methylpentane	<i>m</i> -xylene
naphthalene	<i>o</i> -xylene
toluene	

1,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30069 (ea.)

GRO Mix (EPA) (9 components)

benzene	500 μ g/mL	1,2,4-trimethylbenzene	1,000
ethylbenzene	500	2,2,4-trimethylpentane	1,500
heptane	500	<i>m</i> -xylene	1,000
2-methylpentane	1,500	<i>o</i> -xylene	1,000
toluene	1,500		

In P&T methanol, 1mL/ampul
cat. # 30065 (ea.)

BTEX Standard (6 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
toluene	<i>p</i> -xylene

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

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

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

BTEX Gas Mix (6 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
toluene	<i>p</i> -xylene

1ppm in nitrogen, 104 liters @ 1,800psi
cat. # 34414 (ea.) \$548

100ppb in nitrogen, 104 liters @ 1,800psi
cat. # 34428 (ea.) \$643

1ppm in nitrogen, 110 liters @ 1,800psi
(Pi-marked Cylinder)

cat. # 34414-PI (ea.) \$736

100ppb in nitrogen, 110 liters @ 1,800psi
(Pi-marked Cylinder)

cat. # 34428-PI (ea.) \$843

Requires a high-purity VOC single-stage regulator. See page 433.

No data pack available.

Quantity discounts not available.

cylinder design

Spectra 104L Cylinders:
Aluminum construction.
Size: 8 x 24 cm
Volume/Pressure:
104 liters of gas @ 1,800 psi
CGA-180 outlet fitting.
Weight: 1.5 lbs/0.7 kg

Scotty 110L Cylinders:
Aluminum construction.
Size: 8.3 x 29.5 cm
Volume/Pressure:
110 liters of gas @ 1,800 psi
CGA-180 outlet fitting.
Weight: 2.2 lbs/1 kg
US DOT Specs: 3AL2216



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UST Monitoring

Petroleum Volatile Organic Compounds (PVOC),
Gasoline Range Organics (GRO), & Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) *cont'd*

Gasoline Component Standard (10 components)

benzene	500 μ g/mL	1,2,4-trimethylbenzene	1,000
ethylbenzene	500	2,2,4-trimethylpentane	1,500
heptane	500	<i>m</i> -xylene	1,000
2-methylpentane	1,500	<i>o</i> -xylene	1,000
toluene	1,500	<i>p</i> -xylene	1,000
10,000 μ g/mL total in P&T methanol, 1mL/ampul			
cat. # 30486 (ea.)			

Certified BTEX in Unleaded Gas Composite Standard

(9 components)

Certified for:

benzene*	toluene*
ethylbenzene*	<i>m</i> -xylene*
isopropyl benzene*	<i>o</i> -xylene*
methyl <i>tert</i> -butyl ether (MTBE)*	<i>p</i> -xylene*
naphthalene*	
5,500ppm gasoline in P&T methanol, 1mL/ampul	
cat. # 30237 (ea.)	

*Concentration differs lot-to-lot. See on-line Certificate of Analysis for certified concentrations.

Certified Aromatics in Gasoline (16 components)**Certified for:**

benzene*	<i>n</i> -propylbenzene*
ethylbenzene*	toluene*
<i>m</i> -ethyltoluene*	1,2,3-trimethylbenzene*
<i>o</i> -ethyltoluene*	1,2,4-trimethylbenzene*
<i>p</i> -ethyltoluene*	1,3,5-trimethylbenzene*
isopropylbenzene*	<i>m</i> -xylene*
methyl <i>tert</i> -butyl ether (MTBE)*	<i>o</i> -xylene*
naphthalene*	<i>p</i> -xylene*
5,500ppm gasoline in P&T methanol, 1mL/ampul	
cat. # 30485 (ea.)	

*Concentration differs lot-to-lot. See on-line Certificate of Analysis for certified concentrations.

Certified PAHs in Diesel (7 components)**Certified PAHs**

acenaphthene*	2-methylnaphthalene*
acenaphthylene*	naphthalene*
fluorene*	phenanthrene*
1-methylnaphthalene*	

50,000ppm diesel #2 in methylene chloride, 1mL/ampul
cat. # 31673 (ea.) \$63

*Concentration differs lot-to-lot. See on-line Certificate of Analysis for certified concentrations.

Gasoline Surrogate and Internal StandardsVolume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
4-bromofluorobenzene	PTM	2,500	30067	
4-bromofluorobenzene	PTM	10,000	30082	
1-chlorooctane	PTM	10,000	30084	
α,α,α -trifluorotoluene	PTM	2,500	30068	
α,α,α -trifluorotoluene	PTM	10,000	30083	

Recommended Internal Standard (PID) for EPA GRO Method

Compound	Solvent	Conc.	cat.# (ea.)	price
1-chloro-4-fluorobenzene	PTM	2,500	30066	

PTM = Purge & trap grade methanol

Diesel Surrogate and Internal StandardsVolume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
1-chlorooctadecane	D	10,000	31098	
2-fluorobiphenyl	D	10,000	31096	
<i>o</i> -terphenyl	D	10,000	31097	
<i>p</i> -terphenyl	D	10,000	31095	

Recommended Internal Standards

Compound	Solvent	Conc.	cat.# (ea.)	price
5- <i>o</i> -androstane	D	2,000	31065	
<i>o</i> -terphenyl	A	2,000	31066	

A = acetone; D = methylene chloride

Diesel/Biodiesel Standard**Diesel/Biodiesel 80:20 Blend Standard**

The biodiesel component is methyl soyate.

5,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31880 (ea.)**also available**

ASTM Method D6584-00 and EN14105 Biodiesel Standards.

See page 516.

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

State	Compound Class
Alaska	.Hydrocarbons
Arizona	.Hydrocarbons
California/Los Angeles	.Hydrocarbons
Connecticut	.Hydrocarbons
Florida	.Hydrocarbons
Massachusetts	.Hydrocarbons
Michigan	.Hydrocarbons
Mississippi	.Hydrocarbons
New Jersey	.Hydrocarbons
Northwest (Oregon & Washington)	.Hydrocarbons
Pennsylvania	.Hydrocarbons
Tennessee/Mississippi	.Hydrocarbons
Texas	.Hydrocarbons
Washington	.Hydrocarbons
Wisconsin	.Hydrocarbons

Alaska

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

AK101

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

Retention Time Marker - Alaska (4 components)

<i>n</i> -hexane (C6)	<i>n</i> -pentacosane (C25)
<i>n</i> -decane (C10)	<i>n</i> -hexatriacontane (C36)
1,000 μ g/mL in methylene chloride, 1mL/ampul	
cat. # 31819 (ea.)	

for more info

State of Alaska

Method and regulatory information is available from:

Alaska Department of Environmental Conservation
 410 Willoughby Avenue
 Juneau, AK 99801-1795
 Phone: (907) 465-5203
 Fax: (907) 465-5218

www.dec.state.ak.us/regulations/index.htm

Alaska cont'd

Alaska UST Method AK101AA (14 components)

benzene	toluene
ethylbenzene	1,2,3-trimethylbenzene
1-ethyl-2-methylbenzene	1,2,4-trimethylbenzene
1-ethyl-3-methylbenzene	1,3,5-trimethylbenzene
1-ethyl-4-methylbenzene	<i>m</i> -xylene
isopropylbenzene	<i>o</i> -xylene
<i>n</i> -propylbenzene	<i>p</i> -xylene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30461 (ea.)	

Unleaded Gasoline Composite Standard

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

1-Chloro-4-fluorobenzene Mix

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

4-Bromofluorobenzene Mix

2,000 μ g/mL in P&T methanol, 1mL/ampul	
cat. # 30026 (ea.)	

α,α,α -Trifluorotoluene

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



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Arizona

Extraction Retention Time Standard (4 components)

<i>n</i> -hexane (C6)	<i>n</i> -docosane (C22)
<i>n</i> -decane (C10)	<i>n</i> -dotriacontane (C32)
2,000 μ g/mL each in methylene chloride, 1mL/ampul	

cat. # 31830 (ea.)

DRO/GRO Calibration Standard

10W30 motor oil:diesel fuel #2 (1:1 blend)
25,000 μ g/mL each in methylene chloride, 1mL/ampul

cat. # 31831 (ea.) \$38

DRO/GRO Range Calibration Standard (12 components)

<i>n</i> -decane (C10)	<i>n</i> -docosane (C22)
<i>n</i> -dodecane (C12)	<i>n</i> -tetraacosane (C24)
<i>n</i> -tetradecane (C14)	<i>n</i> -hexacosane (C26)
<i>n</i> -hexadecane (C16)	<i>n</i> -octacosane (C28)
<i>n</i> -octadecane (C18)	<i>n</i> -triacontane (C30)
<i>n</i> -eicosane (C20)	<i>n</i> -dotriacontane (C32)
2,000 μ g/mL each in methylene chloride, 1mL/ampul	

cat. # 31832 (ea.)

GRO P&T Retention Time Standard (2 components)

benzene	naphthalene
1,000 μ g/mL each in P&T methanol, 1mL/ampul	

cat. # 30496 (ea.)

o-Terphenyl

2,000 μ g/mL in acetone, 1mL/ampul
cat. # 31066 (ea.)

10,000 μ g/mL in methylene chloride, 1mL/ampul
--

cat. # 31097 (ea.)

California

PVOC Mix (California) (7 components)

benzene	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
methyl <i>tert</i> -butyl ether (MTBE)	<i>p</i> -xylene
toluene	
1,000 μ g/mL each in P&T methanol, 1mL/ampul	

cat. # 30231 (ea.)

California Oxygenates Mix (5 components)

diisopropyl ether (DIPE)	2,000 μ g/mL
ethyl- <i>tert</i> -butyl ether (ETBE)	2,000
<i>tert</i> -amyl methyl ether (TAME)	2,000
<i>tert</i> -butyl alcohol	10,000
methyl <i>tert</i> -butyl ether (MTBE)	2,000
In P&T methanol, 1mL/ampul	

cat. # 30465 (ea.)

Methanol

10,000 μ g/mL in DI Water, 1mL/ampul
--

cat. # 30467 (ea.)

Ethanol

10,000 μ g/mL in DI Water, 1mL/ampul
--

cat. # 30466 (ea.)

Glycols Standard (2 components)

ethylene glycol	propylene glycol
50,000 μ g/mL each in DI water, 1mL/ampul	

cat. # 30471 (ea.)

Los Angeles County, CA

Well Investigation Program (WIP)*

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

CA WIP VOA Standard (11 components)

benzene	methyl <i>tert</i> -butyl ether (MTBE)
chlorobenzene	toluene
1,2-dichlorobenzene	<i>m</i> -xylene
1,3-dichlorobenzene	<i>o</i> -xylene
1,4-dichlorobenzene	<i>p</i> -xylene
ethylbenzene	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	

cat. # 30236 (ea.)

Connecticut

Connecticut ETPH Calibration Mixture (15 components)

<i>n</i> -nonane (C9)	<i>n</i> -tetracosane (C24)
<i>n</i> -decane (C10)	<i>n</i> -hexacosane (C26)
<i>n</i> -dodecane (C12)	<i>n</i> -octacosane (C28)
<i>n</i> -tetradecane (C14)	<i>n</i> -triacontane (C30)
<i>n</i> -hexadecane (C16)	<i>n</i> -dotriacontane (C32)
<i>n</i> -octadecane (C18)	<i>n</i> -tetratriacontane (C34)
<i>n</i> -eicosane (C20)	<i>n</i> -hexatriacontane (C36)
<i>n</i> -docosane (C22)	
1,000 μ g/mL each in methylene chloride, 1mL/ampul	

cat. # 31614 (ea.)

Florida

Florida TRPH Standard (17 components)

<i>n</i> -octane (C8)	<i>n</i> -hexacosane (C26)
<i>n</i> -decane (C10)	<i>n</i> -octacosane (C28)
<i>n</i> -dodecane (C12)	<i>n</i> -triacontane (C30)
<i>n</i> -tetradecane (C14)	<i>n</i> -dotriacontane (C32)
<i>n</i> -hexadecane (C16)	<i>n</i> -tetratriacontane (C34)
<i>n</i> -octadecane (C18)	<i>n</i> -hexatriacontane (C36)
<i>n</i> -eicosane (C20)	<i>n</i> -octatriacontane (C38)
<i>n</i> -docosane (C22)	<i>n</i> -tetracontane (C40)
<i>n</i> -tetracosane (C24)	
500 μ g/mL each in hexane, 1mL/ampul	

cat. # 31266 (ea.)

2,000 μ g/mL each in carbon disulfide, 1mL/ampul*

cat. # 31878 (ea.)

Florida TRPH Surrogate Mix

<i>n</i> -nonatriacontane (C39)

3,000 μ g/mL in carbon disulfide, 1mL/ampul*
--

cat. # 31456 (ea.)

3,000 μ g/mL in carbon disulfide, 10mL/ampul*

cat. # 31877 (ea.)

*Ground transportation shipments only.

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UST Monitoring

Massachusetts

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

(16 components)

benzene	<i>n</i> -nonane (C9)
<i>n</i> -butylcyclohexane	<i>n</i> -pentane (C5)
<i>n</i> -decane (C10)	toluene
2,5-dibromotoluene (SS)	1,2,4-trimethylbenzene
ethylbenzene	2,2,4-trimethylpentane (isooctane)
2-methylpentane	<i>m</i> -xylene
methyl <i>tert</i> -butyl ether (MTBE)	<i>o</i> -xylene
naphthalene	<i>p</i> -xylene
10,000 μ g/mL in P&T methanol, 1mL/ampul	
cat. # 30604 (ea.)	

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

(16 components)

benzene	<i>n</i> -nonane (C9)
<i>n</i> -butylcyclohexane	<i>n</i> -pentane (C5)
<i>n</i> -decane (C10)	toluene
2,5-dibromotoluene (SS)	1,2,4-trimethylbenzene
ethylbenzene	2,2,4-trimethylpentane (isooctane)
2-methylpentane	<i>m</i> -xylene
methyl <i>tert</i> -butyl ether (MTBE)	<i>o</i> -xylene
naphthalene	<i>p</i> -xylene
50 μ g/mL in P&T methanol, 1mL/ampul	
cat. # 30605 (ea.)	

MA Volatile Petroleum Hydrocarbon (VPH) Standard

(13 components)

<i>n</i> -pentane (C5)	1,000 μ g/mL	naphthalene	1,000
<i>n</i> -nonane (C9)	1,000	toluene	1,500
benzene	500	1,2,4-trimethylbenzene	1,000
ethylbenzene	500	<i>m</i> -xylene	1,000
isooctane	1,500	<i>o</i> -xylene	1,000
2-methylpentane	1,500	<i>p</i> -xylene	1,000
methyl <i>tert</i> -butyl ether (MTBE)	1,500		

In P&T methanol, 1mL/ampul

cat. # 30434 (ea.)

MA VPH Standard with Surrogate (14 components)

<i>n</i> -pentane (C5)	1,000 μ g/mL	methyl <i>tert</i> -butyl ether (MTBE)	1,500
<i>n</i> -nonane (C9)	1,000	naphthalene	1,000
benzene	500	toluene	1,500
2,5-dibromotoluene (SS)	1,000	1,2,4-trimethylbenzene	1,000
ethylbenzene	500	<i>m</i> -xylene	1,000
isooctane	1,500	<i>o</i> -xylene	1,000
2-methylpentane	1,500	<i>p</i> -xylene	1,000

In P&T methanol, 1mL/ampul

cat. # 30452 (ea.)

MA VPH Matrix Spike Mix with Surrogate (14 components)

<i>n</i> -pentane (C5)		methyl <i>tert</i> -butyl ether (MTBE)	
<i>n</i> -nonane (C9)		naphthalene	
benzene		toluene	
2,5-dibromotoluene (SS)		1,2,4-trimethylbenzene	
ethylbenzene		<i>m</i> -xylene	
isooctane		<i>o</i> -xylene	
2-methylpentane		<i>p</i> -xylene	

2,500 μ g/mL each in P&T methanol, 1mL/ampul

cat. # 30454 (ea.)

MA VPH Surrogate Standard

2,5-dibromotoluene

1,000 μ g/mL in P&T methanol, 1mL/ampul
cat. # 30435 (ea.)10,000 μ g/mL in P&T methanol, 1mL/ampul
cat. # 30453 (ea.)**Now with Naphthalene!****Massachusetts APH Mix (26 components)**

benzene	<i>p</i> -isopropyltoluene
1,3-butadiene	methyl <i>tert</i> -butyl ether
butylcyclohexane	1-methyl-3-ethylbenzene
cyclohexane	naphthalene
<i>n</i> -decane	<i>n</i> -nonane
2,3-dimethylheptane	<i>n</i> -octane
2,3-dimethylpentane	toluene
<i>n</i> -dodecane	1,2,3-trimethylbenzene
ethylbenzene	1,3,5-trimethylbenzene
<i>n</i> -heptane	<i>n</i> -undecane
<i>n</i> -hexane	<i>o</i> -xylene
isopentane	<i>m/p</i> -xylene (combined)
isopropylbenzene	

Cylinder Construction: aluminum**Cylinder Fitting:** CGA-180 outlet

1ppm in nitrogen, 104 liters @ 1,800psi

cat. # 34540 (ea.)

140-450ppb in nitrogen, 90 liters @ 1,500psig (Pi-marked Cylinder)

cat. # 34540-PI (ea.)

Requires a high-purity VOC single-stage regulator. See page 433.

No data pack available.

Quantity discounts not available.

MA EPH Aromatic Hydrocarbon Standard (17 components)

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

1,000 μ g/mL each in methylene chloride, 1mL/ampul

cat. # 31458 (ea.)

MA EPH Aliphatic Hydrocarbon Standard (14 components)

<i>n</i> -nonane (C9)	<i>n</i> -eicosane (C20)
<i>n</i> -decane (C10)	<i>n</i> -docosane (C22)
<i>n</i> -dodecane (C12)	<i>n</i> -tetracosane (C24)
<i>n</i> -tetradecane (C14)	<i>n</i> -hexacosane (C26)
<i>n</i> -hexadecane (C16)	<i>n</i> -octacosane (C28)
<i>n</i> -octadecane (C18)	<i>n</i> -triacontane (C30)
<i>n</i> -nonadecane (C19)	<i>n</i> -hexatriacontane (C36)

1,000 μ g/mL each in hexane, 1mL/ampul

cat. # 31459 (ea.)

MA EPH Matrix Spike Mix (10 components)

<i>n</i> -nonane (C9)	acenaphthene
<i>n</i> -tetradecane (C14)	anthracene
<i>n</i> -nonadecane (C19)	chrysene
<i>n</i> -eicosane (C20)	naphthalene
<i>n</i> -octacosane (C28)	pyrene

250 μ g/mL each in acetone, 1mL/ampul

cat. # 31460 (ea.)

Massachusetts cont'd

MA EPH Internal Standard

5- α -androstane
2,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31065 (ea.)

MA EPH Surrogate Spike Mix (2 components)

1-chlorooctadecane o-terphenyl
4,000 μ g/mL each in acetone, 1mL/ampul
cat. # 31479 (ea.)

1-Chlorooctadecane Mix

1-chlorooctadecane
10,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31098 (ea.)

Naphthalene-d8

2,000 μ g/mL in methylene chloride, 1mL/ampul
cat. # 31043 (ea.)

MA Fractionation Surrogate Spike Mix (2 components)

2-bromonaphthalene 2-fluorobiphenyl
4,000 μ g/mL each in hexane, 1mL/ampul
cat. # 31480 (ea.)

MA Fractionation Check Mix (31 components)

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

Hydrocarbons:
n-nonane (C9)
n-decane (C10)
n-dodecane (C12)
n-tetradecane (C14)
n-hexadecane (C16)
n-octadecane (C18)
n-nonaldecane (C19)
n-eicosane (C20)
n-docosane (C22)
n-pentadecane (C15)
n-hexadecane (C16)
n-heptadecane (C17)
n-octadecane (C18)
n-nonaldecane (C19)
n-eicosane (C20)
n-docosane (C22)
n-tetracosane (C24)
n-hexacosane (C26)
n-octacosane (C28)
n-triacontane (C30)
n-hexatriacontane (C36)

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

Michigan

Michigan GRO Mix (14 components)

benzene	naphthalene
1,2-dibromoethane	toluene
1,2-dichloroethane	1,2,4-trimethylbenzene
ethylbenzene	1,3,5-trimethylbenzene
isopropylbenzene	m-xylene
2-methylnaphthalene	o-xylene
methyl tert-butyl-ether (MTBE)	p-xylene
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
cat. # 30468 (ea.)	

Mississippi

DRO Mix (Tennessee/Mississippi) (16 components)

n-decane (C10)	n-octadecane (C18)
n-undecane (C11)	n-nonadecane (C19)
n-dodecane (C12)	n-eicosane (C20)
n-tridecane (C13)	n-heneicosane (C21)
n-tetradecane (C14)	n-docosane (C22)
n-pentadecane (C15)	n-tricosane (C23)
n-hexadecane (C16)	n-tetracosane (C24)
n-heptadecane (C17)	n-pentacosane (C25)

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

Gasoline Component Standard (10 components)

benzene	500 μ g/mL	1,2,4-trimethylbenzene	1,000
ethylbenzene	500	2,2,4-trimethylpentane	1,500
heptane	500	m-xylene	1,000
2-methylpentane	1,500	o-xylene	1,000
toluene	1,500	p-xylene	1,000
10,000 μ g/mL total in P&T methanol, 1mL/ampul			
cat. # 30486 (ea.)			



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MA EPH Tubes

See page 394.



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New Jersey

NJDEP EPH 10/08 Rev.2 Aliphatics Calibration**Standard** (20 components)

<i>n</i> -nonane (C9)	<i>n</i> -hexacosane (C26)
<i>n</i> -decane (C10)	<i>n</i> -octacosane (C28)
<i>n</i> -dodecane (C12)	<i>n</i> -triacontane (C30)
<i>n</i> -tetradecane (C14)	<i>n</i> -dotriacontane (C32)
<i>n</i> -hexadecane (C16)	<i>n</i> -tetratriacontane (C34)
<i>n</i> -octadecane (C18)	<i>n</i> -hexatriacontane (C36)
<i>n</i> -eicosane (C20)	<i>n</i> -octatriacontane (C38)
<i>n</i> -heneicosane (C21)	<i>n</i> -tetracontane (C40)
<i>n</i> -docosane (C22)	2-methylnaphthalene
<i>n</i> -tetracosane (C24)	naphthalene
2,000 μ g/mL each in hexane:carbon disulfide (80:20), 1mL/ampul	
	cat. # 30540 (ea.)

NEW!**NJDEP EPH 10/08 Rev.2 Aromatics Calibration****Standard** (18 components)

acenaphthene	dibenzo(a,h)anthracene
acenaphthylene	fluoranthene
anthracene	fluorene
benzo(a)anthracene	indeno(1,2,3-cd)pyrene
benzo(a)pyrene	2-methylnaphthalene
benzo(b)fluoranthene	naphthalene
benzo(ghi)perylene	phenanthrene
benzo(k)fluoranthene	pyrene
chrysene	1,2,3-trimethylbenzene
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 30541 (ea.)

NEW!**NJDEP EPH 10/08 Rev.2 Aliphatics Matrix Spike Mix**

(18 components)

<i>n</i> -nonane (C9)	<i>n</i> -tetracosane (C24)
<i>n</i> -decane (C10)	<i>n</i> -hexacosane (C26)
<i>n</i> -dodecane (C12)	<i>n</i> -octacosane (C28)
<i>n</i> -tetradecane (C14)	<i>n</i> -triacontane (C30)
<i>n</i> -hexadecane (C16)	<i>n</i> -dotriacontane (C32)
<i>n</i> -octadecane (C18)	<i>n</i> -tetratriacontane (C34)
<i>n</i> -eicosane (C20)	<i>n</i> -hexatriacontane (C36)
<i>n</i> -heneicosane (C21)	<i>n</i> -octatriacontane (C38)
<i>n</i> -docosane (C22)	<i>n</i> -tetracontane (C40)
200 μ g/mL each in pentane, 5mL/ampul	
	cat. # 30542 (ea.)

NEW!**NJDEP EPH 10/08 Rev.2 Aromatics Matrix Spike Mix**

(18 components)

acenaphthene	dibenzo(a,h)anthracene
acenaphthylene	fluoranthene
anthracene	fluorene
benzo(a)anthracene	indeno(1,2,3-cd)pyrene
benzo(a)pyrene	2-methylnaphthalene
benzo(b)fluoranthene	naphthalene
benzo(ghi)perylene	phenanthrene
benzo(k)fluoranthene	pyrene
chrysene	1,2,3-trimethylbenzene
200 μ g/mL each in acetone:toluene (50:50), 5mL/ampul	
	cat. # 30543 (ea.)

NEW!

New Jersey cont'd

NJDEP EPH 10/08 Rev.2 Aliphatics Fractionation**Check Mix** (18 components)

<i>n</i> -nonane (C9)	<i>n</i> -tetracosane (C24)
<i>n</i> -decane (C10)	<i>n</i> -hexacosane (C26)
<i>n</i> -dodecane (C12)	<i>n</i> -octacosane (C28)
<i>n</i> -tetradecane (C14)	<i>n</i> -triacontane (C30)
<i>n</i> -hexadecane (C16)	<i>n</i> -dotriacontane (C32)
<i>n</i> -octadecane (C18)	<i>n</i> -tetratriacontane (C34)
<i>n</i> -eicosane (C20)	<i>n</i> -hexatriacontane (C36)
<i>n</i> -heneicosane (C21)	<i>n</i> -octatriacontane (C38)
<i>n</i> -docosane (C22)	<i>n</i> -tetracontane (C40)
200 μ g/mL each in hexane:carbon disulfide (80:20), 5mL/ampul	
	cat. # 30544 (ea.)

NEW!**NJDEP EPH 10/08 Rev.2 Aromatics Fractionation****Check 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	phenanthrene
benzo(ghi)perylene	pyrene
benzo(k)fluoranthene	1,2,3-trimethylbenzene
2,000 μ g/mL each in hexane:toluene (50:50), 5mL/ampul	
	cat. # 30545 (ea.)

NEW!

Northwest USA Regional Method

(Oregon & Washington)

also see Washington, page 512

NW TPH-HCID Retention Time Mix (3 components)

<i>n</i> -dodecane (C12)	toluene
<i>n</i> -tetracosane (C24)	
2,500 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31485 (ea.)

NW TPH-HCID Surrogate Mix (2 components)

<i>n</i> -pentacosane (C25)	4-bromofluorobenzene
5,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31486 (ea.)

Glycols Standard (2 components)

ethylene glycol	propylene glycol
50,000 μ g/mL each in DI water, 1mL/ampul	
	cat. # 30471 (ea.)

NW TPH-Dx Surrogate Mix StandardsVolume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
2-fluorobiphenyl	D	10,000	31096	
<i>o</i> -terphenyl	D	10,000	31097	
<i>p</i> -terphenyl	D	10,000	31095	
pentacosane (C25)	D	10,000	31487	

D = methylene choride

Pennsylvania

PA DEP UST Standard (11 components)

benzene	naphthalene
1,2-dibromoethane	
1,2-dichloroethane	<i>m</i> -xylene
ethylbenzene	<i>o</i> -xylene
isopropyl benzene	<i>p</i> -xylene
methyl <i>tert</i> -butyl ether (MTBE)	
2,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30433 (ea.)

Tennessee/Mississippi

DRO Mix (Tennessee/Mississippi) (16 components)

<i>n</i> -decane (C10)	<i>n</i> -octadecane (C18)
<i>n</i> -undecane (C11)	<i>n</i> -nonadecane (C19)
<i>n</i> -dodecane (C12)	<i>n</i> -eicosane (C20)
<i>n</i> -tridecane (C13)	<i>n</i> -heneicosane (C21)
<i>n</i> -tetradecane (C14)	<i>n</i> -docosane (C22)
<i>n</i> -pentadecane (C15)	<i>n</i> -tricosane (C23)
<i>n</i> -hexadecane (C16)	<i>n</i> -tetracosane (C24)
<i>n</i> -heptadecane (C17)	<i>n</i> -pentacosane (C25)
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31214 (ea.)

Gasoline Component Standard (10 components)

benzene	500 μ g/mL	1,2,4-trimethylbenzene	1,000
ethylbenzene	500	2,2,4-trimethylpentane	1,500
heptane	500	<i>m</i> -xylene	1,000
2-methylpentane	1,500	<i>o</i> -xylene	1,000
toluene	1,500	<i>p</i> -xylene	1,000
10,000 μ g/mL total in P&T methanol, 1mL/ampul			
	cat. # 30486 (ea.)		

Texas

Texas TNRCC Method 1006

TNRCC 1006 Retention Time Marker Mix (9 components)

<i>n</i> -hexane (C6)	<i>n</i> -hexadecane (C16)
<i>n</i> -heptane (C7)	<i>n</i> -heneicosane (C21)
<i>n</i> -octane (C8)	<i>n</i> -octacosane (C28)
<i>n</i> -decane (C10)	<i>n</i> -pentatriacontane (C35)
<i>n</i> -dodecane (C12)	
200 μ g/mL in pentane, 1mL/ampul	
	cat. # 31814 (ea.)

Don't see the UST mix you need? We can custom blend a UST mix to meet the requirements of your method. Visit our web site at www.restek.com/solutions

Texas cont'd

Texas TNRCC Method 1005

TNRCC 1005 Retention Time Markers Mix (4 components)

<i>n</i> -hexane (C6)	<i>n</i> -octacosane (C28)
<i>n</i> -dodecane (C12)	<i>n</i> -pentatriacontane (C35)
200 μ g/mL each in pentane, 1mL/ampul	
	cat. # 31698 (ea.)

TX TPH Locator Mix (3 components)

<i>n</i> -hexane (C6)	<i>n</i> -octacosane (C28)
<i>n</i> -decane (C10)	
200 μ g/mL each in pentane, 1mL/ampul	
	cat. # 31482 (ea.)

TX TPH Calibration Mix (2 components)

diesel fuel #2 composite	unleaded gasoline composite
10,000 μ g/mL each in pentane, 1mL/ampul	
	cat. # 31483 (ea.)

TX TPH Matrix Spike Mix (2 components)

diesel fuel #2 composite	unleaded gasoline composite
10,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 31484 (ea.)

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

<i>n</i> -hexane (C6)	<i>n</i> -heneicosane (C21)
<i>n</i> -octane (C8)	<i>n</i> -octacosane (C28)
<i>n</i> -decane (C10)	<i>n</i> -pentatriacontane (C35)
<i>n</i> -dodecane (C12)	
<i>n</i> -hexadecane (C16)	<i>n</i> -hexatriacontane (C36)
200 μ g/mL each in pentane, 1mL/ampul	
	cat. # 31639 (ea.)

α,α,α -Trifluorotoluene

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

1-Chlorooctane

10,000 μ g/mL in P&T methanol, 1mL/ampul	
	cat. # 30084 (ea.) \$26

1-Chlorooctadecane

10,000 μ g/mL in methylene chloride, 1mL/ampul	
	cat. # 31098 (ea.) \$30



UST Monitoring

Washington

also see Northwest USA Regional Method, page 510

WA VPH Marker Standard (9 components)

<i>n</i> -pentane (C5)	1-methylnaphthalene
<i>n</i> -hexane (C6)	naphthalene
<i>n</i> -octane (C8)	toluene
<i>n</i> -decane (C10)	1,2,3-trimethylbenzene
<i>n</i> -dodecane (C12)	
1,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30450 (ea.)

1,000 μ g/mL each in P&T methanol, 1mL/ampul
cat. # 30450 (ea.)

WA VPH Standard (15 components)

<i>n</i> -pentane (C5)	methyl <i>tert</i> -butyl ether (MTBE)
<i>n</i> -hexane (C6)	naphthalene
<i>n</i> -octane (C8)	toluene
<i>n</i> -decane (C10)	1,2,3-trimethylbenzene
<i>n</i> -dodecane (C12)	<i>m</i> -xylene
benzene	<i>o</i> -xylene
ethylbenzene	<i>p</i> -xylene
1-methylnaphthalene	
1,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30451 (ea.)

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

WA EPH Aromatic Hydrocarbon Mix (6 components)

acenaphthene	pyrene
benzo(ghi)perylene	toluene
naphthalene	1,2,3-trimethylbenzene
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31488 (ea.)

WA EPH Aliphatic Hydrocarbon Mix (6 components)

<i>n</i> -octane (C8)	<i>n</i> -hexadecane (C16)
<i>n</i> -decane (C10)	<i>n</i> -heneicosane (C21)
<i>n</i> -dodecane (C12)	<i>n</i> -tetracontane (C34)
1,000 μ g/mL each in hexane, 1mL/ampul	
	cat. # 31489 (ea.)

WA EPH Aromatic Hydrocarbon Standard (18 components)

acenaphthene	dibenzo(a,h)anthracene
acenaphthylene	fluoranthene
anthracene	fluorene
benzo(a)anthracene	indeno(1,2,3-cd)pyrene
benzo(a)pyrene	2-methylnaphthalene
benzo(b)fluoranthene	naphthalene
benzo(k)fluoranthene	phenanthrene
benzo(ghi)perylene	pyrene
chrysene	1,2,3-trimethylbenzene
1,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31469 (ea.)

1,000 μ g/mL each in methylene chloride, 1mL/ampul

cat. # 31469 (ea.)

Washington cont'd

WA EPH Matrix Spike Mix (10 components)

<i>n</i> -decane (C10)	anthracene
<i>n</i> -dodecane (C12)	benzo(a)pyrene
<i>n</i> -hexadecane (C16)	benzo(ghi)perylene
<i>n</i> -heneicosane (C21)	naphthalene
acenaphthene	pyrene
25 μ g/mL each in acetone, 1mL/ampul	
	cat. # 31490 (ea.)

WA EPH Fractionation Check Mix (22 components)

<i>n</i> -octane (C8)	benzo(b)fluoranthene
<i>n</i> -decane (C10)	benzo(k)fluoranthene
<i>n</i> -dodecane (C12)	benzo(ghi)perylene
<i>n</i> -hexadecane (C16)	chrysene
<i>n</i> -heneicosane (C21)	dibenz(a,h)anthracene
<i>n</i> -tetracontane (C34)	fluoranthene
acenaphthene	fluorene
acenaphthylene	indeno(1,2,3-cd)pyrene
anthracene	naphthalene
benzo(a)anthracene	phenanthrene
benzo(a)pyrene	pyrene
25 μ g/mL each in hexane, 1mL/ampul	
	cat. # 31491 (ea.)

Wisconsin

PVOC/GRO Mix (Wisconsin) (10 components)

benzene	1,2,4-trimethylbenzene
ethylbenzene	1,3,5-trimethylbenzene
methyl <i>tert</i> -butyl ether (MTBE)	<i>m</i> -xylene
naphthalene	<i>o</i> -xylene
toluene	<i>p</i> -xylene
1,000 μ g/mL each in P&T methanol, 1mL/ampul	
	cat. # 30095 (ea.)

DRO Mix (EPA/Wisconsin) (10 components)

<i>n</i> -decane (C10)	<i>n</i> -eicosane (C20)
<i>n</i> -dodecane (C12)	<i>n</i> -docosane (C22)
<i>n</i> -tetradecane (C14)	<i>n</i> -tetracosane (C24)
<i>n</i> -hexadecane (C16)	<i>n</i> -hexacosane (C26)
<i>n</i> -octadecane (C18)	<i>n</i> -octacosane (C28)
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
	cat. # 31064 (ea.)

Reference Standards Search

Search by compound name, synonym, or CAS #.

Visit us at www.restek.com/reference

ASTM E1387 and E1618 (Fire Debris Analysis)

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

E1387 Column Resolution Check Mix (13 components)

n-hexane (C6)	n-eicosane (C20)
n-octane (C8)	2-ethyltoluene
n-decane (C10)	3-ethyltoluene
n-dodecane (C12)	toluene
n-tetradecane (C14)	1,2,4-trimethylbenzene
n-hexadecane (C16)	p-xylene
n-octadecane (C18)	
2,000 μ g/mL each in methylene chloride, 1mL/ampul	
cat. # 31224 (ea.)	

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

E1618 Test Mix (13 components)

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

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

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

No data pack available.

ASTM Method 5197 (Formaldehyde and Other Carbonyl Compounds in Air)

CARB 1004 Aldehyde/Ketone-DNPH Calibration Standard

(13 components)	hexaldehyde-2,4-DNPH
acetaldehyde-2,4-DNPH	methacrolein-2,4-DNPH
acetone-2,4-DNPH	methyl ethyl ketone-2,4-DNPH
acrolein-2,4-DNPH	propionaldehyde-2,4-DNPH
benzaldehyde-2,4-DNPH	<i>m</i> -tolualdehyde-2,4-DNPH
<i>n</i> -butyraldehyde-2,4-DNPH	valeraldehyde-2,4-DNPH
crotonaldehyde-2,4-DNPH	
formaldehyde-2,4-DNPH	
3 μ g/mL each in acetonitrile, 1mL/ampul	
	cat. # 33093 (ea.)

*Concentration calculated as the aldehyde/ketone.

DNPH Reference Materials

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
acetaldehyde-2,4-DNPH	ACN	100	33074	
acetone-2,4-DNPH	ACN	100	33075	
benzaldehyde-2,4-DNPH	ACN	100	33077	
<i>n</i> -butyraldehyde-2,4-DNPH	ACN	100	33079	
crotonaldehyde-2,4-DNPH	ACN	100	33080	
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	
methacrolein-2,4-DNPH	ACN	100	33095	
propionaldehyde-2,4-DNPH	ACN	100	33086	
<i>m</i> -tolualdehyde-2,4-DNPH	ACN	100	33088	

ACN = acetonitrile

*Concentration calculated as the aldehyde/ketone.

ASTM Method D5836-03/OSHA 42, OSHA 47, NIOSH 5522 (Analysis of Isocyanates in Indoor Air by HPLC)

ASTM D5836 and OSHA 42 are test methods for determining 2,4-toluene diisocyanate (2,4-TDI) and 2,6-TDI in the workplace atmosphere. OSHA 47 is for 4,4'-methylenediphenyl isocyanate (4,4'-MDI) in indoor air, and NIOSH Method 5522 is an analysis for 2,4-TDI, 2,6-TDI, 4,4'-MDI, and 1,6-hexamethylene diisocyanate (1,6-HDI) in air. Restek offers the 1,-(2-pyridyl)piperazine (1-2pp) derivative.



Isocyanates Singles

Volume is 1mL/ampul. Concentration is μ g/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
2,6-TDIP	DMSO	1,000	33000	
2,4-TDIP	DMSO	1,000	33001	
1,6-HDIP	DMSO	1,000	33002	
4,4'-MDIP	DMSO	1,000	33003	

DMSO = dimethyl sulfoxide

Formaldehyde Oxazolidine

formaldehyde oxazolidine

2,000 μ g/mL in toluene, 1mL/ampul

cat. # 33004 (ea.)

REFERENCE STANDARDS PETROLEUM & PETROCHEMICAL MATERIALS

ASTM Methods

D2887-01 and D3710-95 (Simulated Distillation)515
D3606-07 (Benzene & Toluene in Finished Motor & Aviation Gasoline)515
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ASTM Simulated Distillation Petrochemical Mixtures

American Society for Testing and Materials (ASTM International) Method D2887-01 is used to determine the boiling range distribution of petroleum products and fractions having a final boiling point of 538°C (1,000°F) or lower; a boiling range greater than 55°C (131°F) and a vapor pressure sufficiently low to permit sampling at ambient temperature.

ASTM D2887-01 Calibration Mix (20 components)

n-pentane (C5)	n-hexadecane (C16)
n-hexane (C6)	n-heptadecane (C17)
n-heptane (C7)	n-octadecane (C18)
n-octane (C8)	n-eicosane (C20)
n-nonane (C9)	n-tetracosane (C24)
n-decane (C10)	n-octacosane (C28)
n-undecane (C11)	n-dotriacosane (C32)
n-dodecane (C12)	n-hexatriacontane (C36)
n-tetradecane (C14)	n-tetracontane (C40)
n-pentadecane (C15)	n-tetratetracontane (C44)

1% w/w in carbon disulfide, 1g solution/ampul*
cat. # 31674 (ea.)

5% w/w, Neat, 1g /ampul
cat. # 31675 (ea.)

No data pack available.

*Orders in the US ship FedEx only. Call for options when shipping outside the US.

ASTM Methods D2887 and D3710-95

These calibration mixtures are made with pure, highly characterized neat material, and prepared using NIST-traceable balances and weights. Each ampul is supplied with a data sheet indicating the exact concentration, and a sample chromatogram.

D2887 Calibration Mix (17 components)

Compound	Conc. (% w/w)	Compound	Conc. (% w/w)
n-hexane (C6)	6	n-octadecane (C18)	5
n-heptane (C7)	6	n-eicosane (C20)	2
n-octane (C8)	8	n-tetracosane (C24)	2
n-nonane (C9)	8	n-octacosane (C28)	1
n-decane (C10)	12	n-dotriacosane (C32)	1
n-undecane (C11)	12	n-hexatriacontane (C36)	1
n-dodecane (C12)	12	n-tetracontane (C40)	1
n-tetradecane (C14)	12	n-tetratetracontane (C44)	1
n-hexadecane (C16)	10		
Packaged 1mL/ampul			
		cat. # 31222 (ea.)	

No data pack available.

D3710-95 Calibration Mix (16 components)

Compound	Conc. (% vol/vol)	Compound	Conc. (% vol/vol)
n-pentane (C5)	8	n-pentadecane (C15)	2
n-hexane (C6)	6	2-methylbutane	10
n-heptane (C7)	10	2-methylpentane	6
n-octane (C8)	5	2,4-dimethylpentane	6
n-decane (C10)	4	toluene	12
n-dodecane (C12)	4	p-xylene	14
n-tridecane (C13)	2	n-propylbenzene	5
n-tetradecane (C14)	2	n-butylbenzene	4
Packaged 1mL/ampul			
		cat. # 31223 (ea.)	

No data pack available.

ASTM D3606-07 (Determination of Benzene & Toluene in Finished Motor & Aviation Gasoline by GC)**ASTM D3606 Calibration Kit without Internal Standard**

Contains 25mL each of these mixtures.

- 30647: ASTM D3606 Calibration Standard #1 without Internal Standard
 30648: ASTM D3606 Calibration Standard #2 without Internal Standard
 30649: ASTM D3606 Calibration Standard #3 without Internal Standard
 30650: ASTM D3606 Calibration Standard #4 without Internal Standard
 30651: ASTM D3606 Calibration Standard #5 without Internal Standard
 30652: ASTM D3606 Calibration Standard #6 without Internal Standard
 30653: ASTM D3606 Calibration Standard #7 without Internal Standard
 cat. # 30672 (kit)

Quantity discounts not available.

**ASTM D3606 Calibration Kit with MEK Internal Standard**

Contains 1mL each of these mixtures.

- 30654: ASTM D3606 Calibration Standard #1 with MEK Internal Standard
 30655: ASTM D3606 Calibration Standard #2 with MEK Internal Standard
 30656: ASTM D3606 Calibration Standard #3 with MEK Internal Standard
 30657: ASTM D3606 Calibration Standard #4 with MEK Internal Standard
 30658: ASTM D3606 Calibration Standard #5 with MEK Internal Standard
 30659: ASTM D3606 Calibration Standard #6 with MEK Internal Standard
 30660: ASTM D3606 Calibration Standard #7 with MEK Internal Standard
 cat. # 30673 (kit)

Quantity discounts not available.

**ASTM D3606 Calibration Kit with sec-Butanol Internal Standard**

Contains 1mL each of these mixtures.

- 30661: ASTM D3606 Calibration Standard #1 with sec-Butanol Internal Standard
 30662: ASTM D3606 Calibration Standard #2 with sec-Butanol Internal Standard
 30663: ASTM D3606 Calibration Standard #3 with sec-Butanol Internal Standard
 30664: ASTM D3606 Calibration Standard #4 with sec-Butanol Internal Standard
 30665: ASTM D3606 Calibration Standard #5 with sec-Butanol Internal Standard
 30666: ASTM D3606 Calibration Standard #6 with sec-Butanol Internal Standard
 30667: ASTM D3606 Calibration Standard #7 with sec-Butanol Internal Standard
 cat. # 30674 (kit)

Quantity discounts not available.

**ASTM D3606 Backflush Standard**

2,2,4-trimethylpentane (isooctane)

5% vol/vol in nonane, 1mL/ampul

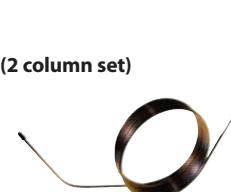
cat. # 30671 (ea.)

**ASTM D3606 Standards**

Visit us at www.restek.com/astm

**also available****D3606 Application Column (2 column set)**

See page 128 for details.



ASTM Methods

ASTM Method D4059-96 (PCB Standards in Oil)

ASTM Method D4059-96 is used for determining PCB concentrations in various types of transformer oil, using GC/ECD detection. The analyst must dilute transformer oil samples in a solvent prior to injection. The oil in the sample has been shown to quench the ECD. Calibration mixtures of PCBs in transformer oil must be prepared and diluted identically to eliminate the detector quenching bias resulting when samples are analyzed.

We prepare these solutions in a mineral oil-based transformer oil (Exxon® Univolt® N-61), which has been tested to ensure it is PCB-free.

PCB-Free Transformer Oil

Neat, 5mL	cat. # 32424 (ea.)
Neat, 50mL	cat. # 32425 (ea.)

No data pack available.

Aroclor Standards

Volume is 1mL/ampul.

Compound	Solvent	Conc.	cat.# (ea.)	price
Aroclor 1016	TO	50mg/kg	32075	
Aroclor 1016	TO	500mg/kg	32076	
Aroclor 1221	TO	50mg/kg	32077	
Aroclor 1221	TO	500mg/kg	32078	
Aroclor 1232	TO	50mg/kg	32079	
Aroclor 1232	TO	500mg/kg	32080	
Aroclor 1242	TO	50mg/kg	32081	
Aroclor 1242	TO	500mg/kg	32082	
Aroclor 1248	TO	50mg/kg	32083	
Aroclor 1248	TO	500mg/kg	32084	
Aroclor 1254	TO	50mg/kg	32085	
Aroclor 1254	TO	500mg/kg	32086	
Aroclor 1260	TO	50mg/kg	32087	
Aroclor 1260	TO	500mg/kg	32088	

TO = transformer oil (PCB-free)

ASTM Method D6352-98 (Polywax® Standards)

These high molecular weight hydrocarbon waxes are useful for simulated distillation and other high-temperature GC work.

Volume is 1mL/ampul.

Compound	qty.	cat.# (ea.)	price
Polywax 500	1g	36224	
Polywax 655	1g	36225	
Polywax 850	1g	36226	
Polywax 1000	1g	36227	

No data pack available.

ASTM Method D6584-00 and EN14105 (Biodiesel)

Determining Free and Total Glycerin in B100 Biodiesel Methyl Esters by GC

In the manufacture of biodiesel fuel, triglycerides are split into their monoalkyl ester components via transesterification. The fatty acid monoalkyl esters can be used as fuel in diesel engines. Amounts of free glycerin and total glycerin indicate the quality of the conversion of the oil or fat to monoalkyl esters. D6584-00 is a test method for quantitative determination of free glycerin, total glycerin, and mono-, di-, and triglycerides in biodiesel fuel methyl esters by GC, after silylation of the sample with N-methyl-N-(trimethylsilyl) trifluoroacetamide (MSTFA).

(S)-(-)-1,2,4-Butanetriol

1,000µg/mL in pyridine, 1mL/ampul	cat. # 33024 (ea.)
1,000µg/mL in pyridine, 5mL/ampul	cat. # 33032 (ea.)

ASTM Method D6584-00 and EN14105

(Biodiesel) cont'd

Diolein (1,3-di[cis-octadecenoyl]glycerol)

5,000µg/mL in pyridine, 1mL/ampul	cat. # 33022 (ea.)
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Glycerin

500µg/mL in pyridine, 1mL/ampul	cat. # 33020 (ea.)
---------------------------------	--------------------

Monolein (1-mono[cis-9-octadecenoyl]-rac-glycerol)

5,000µg/mL in pyridine, 1mL/ampul	cat. # 33021 (ea.)
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Monopalmitin

5,000µg/mL in pyridine, 1mL/ampul	cat. # 33026 (ea.)
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Tricaprin

8,000µg/mL in pyridine, 1mL/ampul	cat. # 33025 (ea.)
8,000µg/mL in pyridine, 5mL/ampul	cat. # 33033 (ea.)

Triolein

5,000µg/mL in pyridine, 1mL/ampul	cat. # 33023 (ea.)
-----------------------------------	--------------------

Diesel/Biodiesel 80:20 Blend Standard

The biodiesel component is methyl soyate.

5,000µg/mL in methylene chloride, 1mL/ampul	cat. # 31880 (ea.)
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ASTM Method D6730-01 (Determination of Individual Components in Spark Ignition Engine Fuels)

ASTM method D6730-01 is specifically designed for the determination of the individual hydrocarbons present in spark ignition fuels, as well as fuel blends containing oxygenates such as methyl *tert*-butyl ether, ethyl *tert*-butyl ether, *tert*-butanol, ethanol, etc.

Oxy Set-Up Blend (30 components)

Gravimetrically prepared and NIST-traceable.

benzene	1.00%	1-methylcyclopentene	0.50%
<i>tert</i> -butanol	0.50%	1-methyl-2-ethylbenzene	0.50%
cyclohexane	28.9%	1-methylnaphthalene	0.25%
<i>n</i> -decane	1.00%	5-methylnonane	0.20%
2,3-dimethylbutane	0.50%	naphthalene	0.50%
<i>trans</i> -1,2-dimethylcyclopentane	0.50%	<i>n</i> -nonane	2.00%
2,3-dimethylheptane	0.20%	<i>n</i> -octane	2.00%
dodecane	0.25%	<i>n</i> -pentane	2.00%
ethanol	8.00%	1,2,3,5-tetramethylbenzene	0.25%
ethylbenzene	25.0%	toluene	7.00%
3-ethylpentane	0.20%	tridecane	0.25%
<i>n</i> -heptane	2.00%	2,2,3-trimethylpentane	0.52%
<i>n</i> -hexane	2.00%	2,3,3-trimethylpentane	0.50%
2-methyl-2-butene	2.50%	undecane	0.50%
methyl <i>tert</i> -butyl ether	10.0%	p-xylene	1.00%

2mL prescored ampul

cat. # 33034 (ea.)

ASTM Method D6730-01 (Determination of Individual Components in Spark Ignition Engine Fuels) cont'd

DHA PONA VI Mix

PONA-VI (PONA 6) is a qualitative mixture of various gasoline and refinery materials prepared to provide nearly every component that may be encountered in feedstock and finished gasolines. Some oxygenates have been added to allow this blend to be used for DHA method setup.

Contact us for component listing.

Neat, 0.1mL in Autosampler Vial

cat. # 30723 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30724 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

PIANO Standards

The PIANO blends are standards used for calibrating complex hydrocarbon analyses and provide the greatest number of gravimetrically determined values for quantitative calibration.

DHA PIANO Blend (136 components)

Contact us for component listing.

Neat, 0.1mL in Autosampler Vial

cat. # 30712 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30709 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

DHA Paraffins Mix (11 components)

decane	9.11%	pentadecane	9.09%
dodecane	9.13%	pentane	9.06%
heptane	9.08%	tetradecane	9.14%
hexane	9.11%	tridecane	9.05%
nonane	9.08%	undecane	9.05%
octane	9.10%		

Neat, 0.1mL in Autosampler Vial

cat. # 30713 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30714 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

DHA Isoparaffins Mix (34 components)

3,3-diethylpentane	1.87%	3-ethylhexane	0.29%
2,3-dimethylbutane	2.27%	3-ethyloctane	1.04%
2,3-dimethylheptane	1.12%	3-ethylpentane	0.85%
2,5-dimethylheptane	3.64%	isopentane	1.53%
3,3-dimethylheptane	1.71%	3-methylcycloheptane	5.73%
3,4-dimethylheptane	0.80%	4-methylcycloheptane	1.41%
3,5-dimethylheptane	2.27%	2-methylheptane	4.54%
2,2-dimethylhexane	0.76%	2-methylhexane	4.54%
2,3-dimethylhexane	3.29%	3-methylhexane	2.28%
2,4-dimethylhexane	1.40%	2-methylnonane	1.53%
2,5-dimethylhexane	5.69%	3-methylnonane	5.10%
2,2-dimylloctane	2.05%	2-methyloctane	1.20%
3,3-dimethyloctane	0.78%	3-methyloctane	6.81%
2,2-dimethylpentane	2.36%	2-methylpentane	6.17%
2,3-dimethylpentane	4.54%	3-methylpentane	10.23%
2,4-dimethylpentane	5.77%	2,2,3-trimethylbutane	0.64%
3,3-dimethylpentane	2.23%	2,2,3-trimethylpentane	3.56%

Neat, 0.1mL in Autosampler Vial

cat. # 30715 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30716 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

DHA Aromatics Mix (38 components)

benzene	8.20%	isopropylbenzene	2.07%
<i>n</i> -butylbenzene	2.06%	2-methylbutylbenzene	0.11%
<i>sec</i> -butylbenzene	3.07%	1-methyl-2-isopropylbenzene	2.76%
<i>tert</i> -butylbenzene	2.04%	1-methyl-3-isopropylbenzene	1.05%
<i>tert</i> -1-butyl-3,5-dimethylbenzene	3.31%	1-methyl-4-isopropylbenzene	4.09%
1- <i>tert</i> -butyl-4-ethylbenzene	2.05%	1-methyl-2- <i>n</i> -propylbenzene	2.13%
1- <i>tert</i> -butyl-2-methylbenzene	2.05%	1-methyl-3- <i>n</i> -propylbenzene	2.06%
1,2-diethylbenzene	0.84%	pentylbenzene	2.05%
1,2-dimethyl-3-ethylbenzene	2.13%	<i>n</i> -propylbenzene	3.07%
1,2-dimethyl-4-ethylbenzene	0.90%	1,2,4,5-tetramethylbenzene	0.85%
1,3-dimethyl-2-ethylbenzene	0.79%	toluene	12.36%
1,3-dimethyl-5-ethylbenzene	0.39%	1,2,4-triethylbenzene	1.02%
1,4-dimethyl-2-ethylbenzene	2.05%	1,3,5-triethylbenzene	2.04%
ethylbenzene	8.18%	1,2,4-trimethylbenzene	2.05%
1-ethyl-2-methylbenzene	1.55%	1,3,5-trimethylbenzene	0.41%
1-ethyl-3-methylbenzene	2.77%	<i>m</i> -xylene	3.08%
1-ethyl-4-methylbenzene	2.05%	<i>p</i> -xylene	1.03%
hexylbenzene	5.11%	<i>o</i> -xylene	3.10%
isobutylbenzene	3.08%		

Neat, 0.1mL in Autosampler Vial

cat. # 30717 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30718 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

DHA Naphthenes Mix (27 components)

ctc-123-TMCYC6	3.40%	methylcyclohexane	3.39%
cyclohexane	4.41%	methylcyclopentane	5.48%
cyclopentane	8.75%	<i>trans</i> -1-methyl-2-(4MP)	
<i>cis</i> -1,2-dimethylcyclohexane	7.74%	cyclopentane	3.31%
<i>trans</i> -1,2-dimethylcyclohexane	3.29%	<i>trans</i> -1-methyl-2-propyl	
<i>trans</i> -1,4-dimethylcyclohexane	4.38%	cyclohexane	4.43%
<i>trans</i> -1,2-dimethylcyclopentane	3.37%	<i>n</i> -propylcyclopentane	4.06%
<i>cis</i> -1,3-dimethylcyclopentane	3.39%	1,1,2-trimethylcyclohexane	1.69%
<i>trans</i> -1,3-dimethylcyclopentane	5.36%	1,1,4-trimethylcyclohexane	5.83%
ethylcyclopentane	7.25%	ctc-1,2,4-trimethylcyclohexane	0.98%
1-ethyl-1-methylcyclopentane	1.35%	ctt-1,2,4-trimethylcyclohexane	1.70%
isobutylcyclohexane	3.28%	ccc-1,3,5-trimethylcyclohexane	2.16%
isobutylcyclopentane	1.23%	ccc-1,2,3-trimethylcyclopentane	0.73%
isopropylcyclohexane	4.37%	ctc-1,2,3-trimethylcyclopentane	3.48%
isopropylcyclopentane	1.20%		

Neat, 0.1mL in Autosampler Vial

cat. # 30719 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30720 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

DHA Olefins Mix (26 components)

1-decene	2.27%	2-methyl-2-pentene	3.43%
1-heptene	6.81%	4-methyl-1-pentene	3.41%
<i>cis</i> -2-heptene	3.42%	1-nonene	6.94%
<i>trans</i> -2-heptene	0.52%	<i>trans</i> -2-nonen	2.29%
<i>cis</i> -3-heptene	3.41%	<i>cis</i> -3-nonen	3.02%
<i>trans</i> -3-heptene	1.37%	<i>trans</i> -3-nonen	2.29%
1-hexene	11.30%	<i>cis</i> -4-nonen	4.38%
<i>cis</i> -2-hexene	2.30%	1-octene	11.37%
<i>trans</i> -2-hexene	2.26%	<i>cis</i> -2-octene	2.32%
2-methyl-1,3-butadiene	3.69%	<i>trans</i> -2-octene	3.42%
2-methyl-1-butene	2.18%	1-pentene	8.76%
3-methyl-1-butene	1.48%	<i>cis</i> -2-pentene	2.01%
2-methyl-1-nonen	3.42%	<i>trans</i> -2-pentene	1.94%

Neat, 0.1mL in Autosampler Vial

cat. # 30721 (ea.)

Neat, 0.1mL in Vial with Mininert Valve

cat. # 30722 (ea.)

NEW!

No data pack available.

Quantity discounts not available.

also **available**

Rtx®-DHA Columns. See page 75.



www.restek.com

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Petroleum Standards

Petroleum Standards

These petroleum standards are gravimetrically prepared, NIST-traceable by weight, and verified by one or more analytical methods.

Sulfur Simulated Distillation Standard

Sulfur Simulated Distillation Standard (SSDS)

30 ppm total sulfur by weight from ethanethiol
 60 ppm total sulfur by weight from 1-propanethiol
 30 ppm total sulfur by weight from 1-butanethiol
 60 ppm total sulfur by weight from 1-pentanethiol
 30 ppm total sulfur by weight from 1-hexanethiol
 60 ppm total sulfur by weight from 1-heptanethiol
 30 ppm total sulfur by weight from 3,5-dimethylbenzenethiol
 60 ppm total sulfur by weight from 1-octanethiol
 30 ppm total sulfur by weight from 1-nonenethiol
 60 ppm total sulfur by weight from 1-decanethiol
 30 ppm total sulfur by weight from 1-pentadecanethiol
 60 ppm total sulfur by weight from 1-hexadecanethiol
 30 ppm total sulfur by weight from 1-octadecanethiol
 Balance: toluene/isooctane 1/15

1mL pre-scored amber ampul.

cat. # 33049 (ea.)

Quantity discounts not available.

Speciated Sulfur System Suitability Checkout Standard

Speciated Sulfur System Suitability Checkout Standard (SSSSCS)

0.50 ppm total sulfur by weight from dimethylsulfide
 35.0 ppm total sulfur by weight from tertiary butyl mercaptan
 50.0 ppm total sulfur by weight from thiopene
 15.0 ppm total sulfur by weight from dimethyl disulfide
 25.0 ppm total sulfur by weight from benzothiopene
 Balance: isooctane

1mL pre-scored amber ampul.

cat. # 33050 (ea.)

Quantity discounts not available.

EPA Ultra Low & Low Sulfur Diesel Standards and Samples in Diesel Fuel to Meet EPA Requirements for Lab Qualification

EPA Ultra Low Sulfur Diesel Precision Sample # 1

EPA Section 80.580-80.585 Title 40, Chapter 1, Part 80

Homogenous commercially available diesel fuel with sulfur content of 5-15 ppm.
 1 x 200mL amber bottle.

cat. # 33051 (ea.)

Quantity discounts not available.

EPA Low Sulfur Diesel Precision Sample # 2

EPA Section 80.580-80.585 Title 40, Chapter 1, Part 80

Homogenous commercially available diesel fuel with sulfur content of 200-500 ppm.
 1 x 200mL amber bottle.

cat. # 33052 (ea.)

Quantity discounts not available.

EPA Ultra Low Sulfur Diesel Accuracy Standard # 1

EPA Section 80.520(a)(1) and 80.510(b)

1-10 ppm total sulfur in a diesel fuel matrix for motor vehicle diesel and diesel additives subject to the 15 ppm sulfur standard.
 1 x 200mL amber bottle.

cat. # 33053 (ea.)

Quantity discounts not available.

EPA Ultra Low Sulfur Diesel Accuracy Standard # 2

EPA Section 80.520(a)(1) and 80.510(b)

10-20 ppm total sulfur in a diesel fuel matrix for motor vehicle diesel and diesel additives subject to the 15 ppm sulfur standard.
 1 x 200mL amber bottle.

cat. # 33054 (ea.)

Quantity discounts not available.

EPA Low Sulfur Diesel Accuracy Standard # 3

EPA Section 80.520(c) and 80.510(c)

100-200 ppm total sulfur in a diesel fuel matrix for motor vehicle diesel and diesel additives subject to the 500 ppm sulfur standard.
 1 x 200mL amber bottle.

cat. # 33055 (ea.)

Quantity discounts not available.

EPA Low Sulfur Diesel Accuracy Standard # 4

EPA Section 80.520(c) and 80.510(c)

400-500 ppm total sulfur in a diesel fuel matrix for motor vehicle diesel and diesel additives subject to the 500 ppm sulfur standard.
 1 x 200mL amber bottle.

cat. # 33056 (ea.)

Quantity discounts not available.

Gas Calibration Standards



Regulators available too!

See pages 433-434

See pages 427-432 or
 visit www.restek.com/air

Ultra Low & Low Sulfur in Diesel Fuel Calibration Kits

EPA Section 80.580-80.585 Title 40, Chapter 1, Part 80

Cal Kit ULSD 1 - 20

Blank

1.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 2.5 ppm total sulfur from di-n-butylsulfide in diesel fuel
 5.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 10.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 15.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 20.0 ppm total sulfur from di-n-butylsulfide in diesel fuel

Set of seven 20mL bottles.

cat. # 33060 (kit)

Quantity discounts not available.

**Cal Kit ULSD 20 - 100**

Blank

20.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 35.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 50.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 75.0 ppm total sulfur from di-n-butylsulfide in diesel fuel
 100 ppm total sulfur from di-n-butylsulfide in diesel fuel

Set of six 20mL bottles.

cat. # 33061 (kit)

Quantity discounts not available.

**Cal Kit LSD 100 - 500**

Blank

100 ppm total sulfur from di-n-butylsulfide in diesel fuel
 200 ppm total sulfur from di-n-butylsulfide in diesel fuel
 300 ppm total sulfur from di-n-butylsulfide in diesel fuel
 400 ppm total sulfur from di-n-butylsulfide in diesel fuel
 500 ppm total sulfur from di-n-butylsulfide in diesel fuel

Set of six 20mL bottles.

cat. # 33062 (kit)

Quantity discounts not available.

**Low Sulfur in Gasoline Calibration Standards**

EPA Section 80.190-80.415 Title 40, Chapter 1, Part 80

Cal Kit SG 10 - 50

Blank

10 ppm sulfur from di-n-butylsulfide in gasoline by weight
 20 ppm sulfur from di-n-butylsulfide in gasoline by weight
 30 ppm sulfur from di-n-butylsulfide in gasoline by weight
 40 ppm sulfur from di-n-butylsulfide in gasoline by weight
 50 ppm sulfur from di-n-butylsulfide in gasoline by weight

Set of six 5mL amber bottles.

cat. # 33043 (kit)

Quantity discounts not available.

**Check Standard SG 25**

25 ppm sulfur from di-n-butylsulfide in gasoline by weight.

Set of five 5mL amber bottles.

cat. # 33044 (ea.)

Quantity discounts not available.

Reference Standards Search

Search by compound name, synonym, or CAS #.

Visit us at www.restek.com/reference**Low Sulfur in Gasoline Calibration Standards cont'd****Cal Kit SG 50 - 125**

Blank

50 ppm sulfur from di-n-butylsulfide in gasoline by weight
 65 ppm sulfur from di-n-butylsulfide in gasoline by weight
 80 ppm sulfur from di-n-butylsulfide in gasoline by weight
 95 ppm sulfur from di-n-butylsulfide in gasoline by weight
 110 ppm sulfur from di-n-butylsulfide in gasoline by weight
 125 ppm sulfur from di-n-butylsulfide in gasoline by weight

Set of seven 5mL amber bottles.

cat. # 33045 (kit)

Quantity discounts not available.

**Check Standard SG 75**

75 ppm sulfur from di-n-butylsulfide in gasoline by weight.

Set of five 5mL amber bottles.

cat. # 33046 (ea.)

Quantity discounts not available.

Cal Kit SG 110 - 500

Blank

110 ppm sulfur from di-n-butylsulfide
 200 ppm sulfur from di-n-butylsulfide
 300 ppm sulfur from di-n-butylsulfide
 400 ppm sulfur from di-n-butylsulfide
 500 ppm sulfur from di-n-butylsulfide

Set of six 5mL amber bottles.

cat. # 33047 (kit)

Quantity discounts not available.

**Check Standard SG 175**

175 ppm sulfur from di-n-butylsulfide in gasoline by weight.

Set of five 5mL amber bottles.

cat. # 33048 (ea.)

Quantity discounts not available.

Sulfur in Isooctane Calibration Kits and Check Standards

ASTM Methods D3120, D4045, D5453, D6920

Cal Kit SISO 0.125 - 2.5ppm

Blank

0.125 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 0.25 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 0.50 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 1.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 2.50 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 Calibration kit for total sulfur by weight from di-n-butylsulfide in isooctane
 0.125–2.5ppm range. Set of six 1mL pre-scored ampuls.

cat. # 33035 (kit)

Quantity discounts not available.

**Check Standard SISO 0.75**

0.75ppm total sulfur by weight from di-n-butylsulfide in isooctane.

Set of five 1mL pre-scored ampuls.

cat. # 33036 (ea.)

Quantity discounts not available.

**please note**

These petroleum standards are gravimetrically prepared, NIST-traceable by weight, and verified by one or more analytical methods.

Petroleum Standards

Sulfur in Isooctane Calibration Kits and Check Standards cont'd

Cal Kit SISO 2.5 - 50 ppm

Blank

2.50 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 5.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 10.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 15.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 20.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 25.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 50.00 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 Calibration kit for total sulfur by weight from di-n-butylsulfide in isooctane
 2.5–50 ppm range. Set of eight 1mL pre-scored ampuls.

cat. # 33037 (kit)

Quantity discounts not available.



Check Standard SISO 30

30 ppm total sulfur by weight from di-n-butylsulfide in isooctane.
 Set of five 1mL pre-scored ampuls.

cat. # 33038 (ea.)

Quantity discounts not available.

Cal Kit SISO 50 - 1000 ppm

Blank

50 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 75 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 100 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 250 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 500 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 1000 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 Calibration kit for total sulfur by weight from di-n-butylsulfide in isooctane
 50–100 ppm range. Set of seven 1mL pre-scored ampuls.

cat. # 33039 (kit)

Quantity discounts not available.



Check Standard SISO 300

300 ppm total sulfur by weight from di-n-butylsulfide in isooctane.
 Set of five 1mL pre-scored ampuls.

cat. # 33040 (ea.)

Quantity discounts not available.

Cal Kit SISO 1000 - 6000

Blank

1000 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 1500 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 2000 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 4000 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 6000 w/w ppm total sulfur from di-n-butylsulfide in isooctane
 Calibration kit for total sulfur by weight from di-n-butylsulfide in isooctane
 1000–6000 ppm range. Set of six 1mL pre-scored ampuls.

cat. # 33041 (kit)

Quantity discounts not available.



Check Standard SISO 3000

3000 ppm total sulfur by weight from di-n-butylsulfide in isooctane.
 Set of five 1mL pre-scored ampuls.

cat. # 33042 (ea.)

Quantity discounts not available.

also available

Custom total sulfur & total nitrogen in isooctane check standards also available.

Call our Analytical Reference Department at 800-356-1688 or 814-353-1300, or your Restek representative for details.

Total Sulfur & Total Nitrogen in Isooctane Calibration Kits

ASTM Methods D3120, D4045, D4629, D5453, D5762, D6069, D6920



Cal Kit SNISO 0.125 - 5.0

Blank

0.125 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 0.25 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 0.50 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 1.00 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 2.50 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 5.00 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane

Set of seven 1mL pre-scored amber ampuls.

Quantity discounts not available.

Cal Kit SNISO 5.0 - 50.0

Blank

5.00 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 10.0 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 25.0 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 50.0 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane

Set of five 1mL pre-scored amber ampuls.

cat. # 33058 (kit)

Quantity discounts not available.



Cal Kit SNISO 50.0 - 1000

Blank

50.0 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 75.0 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 100 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 250 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 500 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane
 1000 w/w ppm total sulfur from thiophene & total nitrogen from pyridine in isooctane

Set of seven 1mL pre-scored amber ampuls.

cat. # 33059 (kit)

Quantity discounts not available.



Documentation Search

Find what you need fast at
www.restek.com/documents

- Material safety data sheets
- Certificates of analysis
- Datapacks (by catalog number and/or lot number)



Sulfur in Mineral Oil Calibration Kits and Check Standards

ASTM Methods D2622, D3120, D4045, D4294, D5453, D6212, D6313, D6428, D6445, D7039

Cal Kit SMO 2 - 20

Blank

2.00 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 5.00 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 7.00 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 10.00 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 15.00 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 20.00 w/w ppm total sulfur from di-n-butylsulfide in mineral oil

Set of seven 100mL bottles.

cat. # 33063 (kit)

Quantity discounts not available.

**Check Standard SMO 11**

11.0 w/w ppm total sulfur from di-n-butylsulfide in mineral oil.
 1 liter bottle.

cat. # 33064 (ea.)

Quantity discounts not available.

Cal Kit SMO 10 - 100

Blank

10.0 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 25.0 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 50.0 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 100 w/w ppm total sulfur from di-n-butylsulfide in mineral oil

Set of five 100mL bottles.

cat. # 33065 (kit)

Quantity discounts not available.

**Check Standard SMO 30**

30.0 w/w ppm total sulfur from di-n-butylsulfide in mineral oil.
 1 liter bottle.

cat. # 33066 (ea.)

Quantity discounts not available.

Cal Kit SMO 100 - 1000

Blank

100 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 200 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 300 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 400 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 500 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 600 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 750 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 1000 w/w ppm total sulfur from di-n-butylsulfide in mineral oil

Set of nine 100mL bottles.

cat. # 33067 (kit)

Quantity discounts not available.

**Check Standard SMO 350**

350 w/w ppm total sulfur from di-n-butylsulfide in mineral oil.
 1 liter bottle.

cat. # 33068 (ea.)

Quantity discounts not available.

Cal Kit SMO 1000 - 25000

Blank

1000 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 2500 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 5000 w/w ppm total sulfur from di-n-butylsulfide in mineral oil
 1.00% total sulfur by weight from di-n-butylsulfide in mineral oil
 1.50% total sulfur by weight from di-n-butylsulfide in mineral oil
 2.00% total sulfur by weight from di-n-butylsulfide in mineral oil
 2.50% total sulfur by weight from di-n-butylsulfide in mineral oil

Set of eight 100mL bottles.

cat. # 33069 (kit)

Quantity discounts not available.

**Check Standard SMO 3000**

3000 w/w ppm total sulfur from di-n-butylsulfide.
 1 liter bottle.

cat. # 33070 (ea.)

Quantity discounts not available.

Cal Kit SMO 25000 - 50000

Blank

2.50% total sulfur by weight from di-n-butylsulfide in mineral oil
 3.00% total sulfur by weight from di-n-butylsulfide in mineral oil
 3.50% total sulfur by weight from di-n-butylsulfide in mineral oil
 4.00% total sulfur by weight from di-n-butylsulfide in mineral oil
 4.50% total sulfur by weight from di-n-butylsulfide in mineral oil
 5.00% total sulfur by weight from di-n-butylsulfide in mineral oil

Set of seven 100mL bottles.

cat. # 33071 (kit)

Quantity discounts not available.

**Check Standard SMO 37000**

3.70% total sulfur by weight from di-n-butylsulfide in mineral oil.
 1 liter bottle.

cat. # 33072 (ea.)

Quantity discounts not available.

please note

These petroleum standards are gravimetrically prepared, NIST-traceable by weight, and verified by one or more analytical methods.

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REFERENCE STANDARDS CLINICAL, FORENSIC & TOXICOLOGY MATERIALS

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Weathered Petrochemical Standards

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

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

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

Stoddard Solvent Standard

10,000 μ g/mL in P&T methanol, 1mL/ampul

cat. # 30487 (ea.)

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

Concentration is μ g/mL. Volume is 1mL/ampul unless otherwise noted.

Compound	Solvent	Conc.	cat.# (ea.)	price
unleaded gasoline: unweathered	PTM	5,000	30096	
unleaded gasoline: 25% weathered	PTM	5,000	30097	
unleaded gasoline: 50% weathered	PTM	5,000	30098	
unleaded gasoline: 75% weathered	PTM	5,000	30099	
unleaded gasoline: 99% weathered	PTM	5,000	30436	
Compound	Solvent	Conc.	cat.# (ea.)	price
kerosene: unweathered	D	5,000	31229	
kerosene: 25% weathered	D	5,000	31230	
kerosene: 50% weathered	D	5,000	31231	
kerosene: 75% weathered	D	5,000	31232	
Compound	Solvent	Conc.	cat.# (ea.)	price
diesel fuel #2: unweathered	D	5,000	31233	
diesel fuel #2: 25% weathered	D	5,000	31234	
diesel fuel #2: 50% weathered	D	5,000	31235	
diesel fuel #2: 75% weathered	D	5,000	31236	
Compound	Solvent	Conc.	cat.# (ea.)	price
mineral spirits: unweathered	D	5,000	31225	
mineral spirits: unweathered	D	50,000	31260	
mineral spirits: unweathered (5mL)	D	50,000	31261	
mineral spirits: 25% weathered	D	5,000	31226	
mineral spirits: 50% weathered	D	5,000	31227	
mineral spirits: 75% weathered	D	5,000	31228	

D = methylene chloride

PTM = P&T methanol

Weathered Gasoline Kit

Contains 1mL each of these mixtures.

- 30096: Unleaded Gasoline Standard
- 30097: Unleaded Gas Standard: 25% Weathered
- 30098: Unleaded Gas Standard: 50% Weathered
- 30099: Unleaded Gas Standard: 75% Weathered

cat. # 30100 (kit)

Quantity discounts not available.

**Weathered Gasoline Kit #2**

Contains 1mL each of these mixtures.

- 30096: Unleaded Gasoline Standard
- 30097: Unleaded Gas Standard: 25% Weathered
- 30098: Unleaded Gas Standard: 50% Weathered
- 30099: Unleaded Gas Standard: 75% Weathered

cat. # 30437 (kit)

Quantity discounts not available.

**Weathered Petrochemical Standards cont'd****Weathered Kerosene Kit**

Contains 1mL each of these mixtures.

- 31229: Kerosene Standard
- 31230: Kerosene Standard: 25% Weathered
- 31231: Kerosene Standard: 50% Weathered
- 31232: Kerosene Standard: 75% Weathered

cat. # 31238 (kit)

Quantity discounts not available.

**Weathered Diesel Fuel #2 Kit**

Contains 1mL each of these mixtures.

- 31233: Diesel Fuel #2 Standard
- 31234: Diesel Fuel #2 Standard: 25% Weathered
- 31235: Diesel Fuel #2 Standard: 50% Weathered
- 31236: Diesel Fuel #2 Standard: 75% Weathered

cat. # 31239 (kit)

Quantity discounts not available.

**Weathered Mineral Spirits Kit**

Contains 1mL each of these mixtures.

- 31225: Mineral Spirits Standard
- 31226: Mineral Spirits Standard: 25% Weathered
- 31227: Mineral Spirits Standard: 50% Weathered
- 31228: Mineral Spirits Standard: 75% Weathered

cat. # 31237 (kit)

Quantity discounts not available.

ASTM E1387 and E1618 (Fire Debris Analysis)

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

E1387 Column Resolution Check Mix (13 components)

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

2,000 μ g/mL each in methylene chloride, 1mL/ampul

cat. # 31224 (ea.)

**E1618 Test Mix (13 components)**

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

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

0.05% volume/volume each in methylene chloride, 1mL/ampul

cat. # 31613 (ea.)

No data pack available.

please note

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Blood Alcohols, Bank Dye, Explosives

Blood Alcohol Standards

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

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

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

Blood Alcohol Standards cont'd

Blood Alcohol Mix Resolution Control Standard (8 components)

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

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

Bank Dye Standard (MAAQ)

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

1-N-(methylamino)anthraquinone (MAAQ)

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

No data pack available.

Explosives Solutions

Single-Component Explosives Solutions

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

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

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

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

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

References (Not available from Restek.)

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

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

Exempted Drug of Abuse Reference Materials

Concentration is $\mu\text{g/mL}$. Volume is 1mL/ampul.

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

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

Quantity discounts not available.

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

Forensic Drug Screen Test Mixture (8 components)

amiodarone	10 $\mu\text{g}/\text{mL}$	diazepam	10
amphetamine	10	doxepine	10
caffeine	10	haloperidol	1
codeine	10	morphine	10

In P&T methanol, 1mL/ampul
cat. # 36340 (ea.)

Forensic Drug Screen Internal Standard (2 components)

D5-diazepam	D5-doxepine
10 $\mu\text{g}/\text{mL}$ each in P&T methanol, 10mL/ampul	

cat. # 36341 (ea.)

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See page 537.

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USP <467>

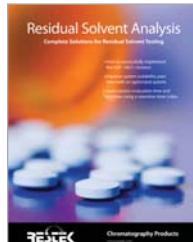
The United States Pharmacopeia (USP) general chapter <467> Residual Solvents is a widely used compendial method intended for identifying and quantifying residual solvents in drug substances, drug products, and excipients. In an attempt to better mirror the International Conference on Harmonization (ICH) guidelines, the USP has adopted a more comprehensive methodology in residual solvent testing—the current USP30/NF25. The ICH publishes a guideline (Q3C) listing the acceptable amounts of solvent residues that can be present. In the ICH guideline, residual solvents are summarized by class, according to their toxicity. Class 1 compounds are carcinogenic compounds that pose a risk to both the consumer and the environment. The use of these solvents is to be avoided, but if they are used, they must be tightly controlled. Class 2 compounds are nongenotoxic animal carcinogens, and concentrations of these compounds should be limited. Chromatographic analysis is needed for both the Class 1 and Class 2 residual solvents.

USP <467> Singles

Volume is 1mL/ampul.

Compound	Solvent	Conc.	cat.# (ea.)	price
acetonitrile	DMSO	2.05mg/mL	36281	
benzene	DMSO	10mg/mL	36282	
carbon tetrachloride	DMSO	20mg/mL	36283	
chlorobenzene	DMSO	1.8mg/mL	36284	
chloroform	DMSO	0.3mg/mL	36285	
cyclohexane	DMSO	19.4mg/mL	36286	
1,1-dichloroethene	DMSO	40mg/mL	36287	
1,2-dichloroethane	DMSO	25mg/mL	36288	
cis-1,2-dichloroethylene	DMSO	4.67mg/mL	36289	
trans-1,2-dichloroethylene	DMSO	4.67mg/mL	36290	
1,2-dimethoxyethane	DMSO	0.5mg/mL	36291	
N,N-dimethylacetamide	DMSO	5.45mg/mL	36292	
N,N-dimethylformamide	DMSO	4.4mg/mL	36293	
1,4-dioxane	DMSO	1.9mg/mL	36294	
2-ethoxyethanol	DMSO	0.8mg/mL	36295	
ethylbenzene	DMSO	1.84mg/mL	36296	
ethylene glycol	DMSO	3.1mg/mL	36297	
formamide	DMSO	1.1mg/mL	36298	
hexane	DMSO	1.45mg/mL	36299	
methanol	DMSO	15mg/mL	36401	
2-methoxyethanol	DMSO	0.25mg/mL	36402	
methylbutylketone	DMSO	0.25mg/mL	36400	
methylcyclohexane	DMSO	5.9mg/mL	36403	
methylene chloride (dichloromethane)	DMSO	3mg/mL	36404	
N-methylpyrrolidone	DMSO	2.65mg/mL	36405	
nitromethane	DMSO	0.25mg/mL	36406	
pyridine	DMSO	1mg/mL	36407	
sulfolane	DMSO	0.8mg/mL	36413	
tetrahydrofuran (THF)	DMSO	3.6mg/mL	36408	
tertalin	DMSO	0.5mg/mL	36409	
toluene	DMSO	4.45mg/mL	36410	
1,1,1-trichloroethane	DMSO	50mg/mL	36411	
trichloroethene	DMSO	0.4mg/mL	36412	
m-xylene	DMSO	6.51mg/mL	36414	
o-xylene	DMSO	0.97mg/mL	36415	
p-xylene	DMSO	1.52mg/mL	36416	

DMSO = dimethyl sulfoxide

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OVI retention index

For a list of OVI retention times, see **pages 693 and 696**.

These mixtures reflect the changes made in USP30/NF25 effective July 1, 2008.

Residual Solvents - Class 1 (5 components)

benzene	10mg/mL	1,1-dichloroethene	40
carbon tetrachloride	20	1,1,1-trichloroethane	50
1,2-dichloroethane	25		

In dimethyl sulfoxide, 1mL/ampul
cat. # 36279 (ea.)

Residual Solvents Class 2 - Mix A (15 components)

acetonitrile	2.05mg/mL	methylcyclohexane	5.90
chlorobenzene	1.80	methylene chloride	3.00
cyclohexane	19.40	tetrahydrofuran	3.45
cis-1,2-dichloroethene	4.70	toluene	4.45
trans-1,2-dichloroethene	4.70	m-xylene	6.51
1,4-dioxane	1.90	o-xylene	0.98
ethylbenzene	1.84	p-xylene	1.52
methanol	15.00		

In dimethyl sulfoxide, 1mL/ampul
cat. # 36271 (ea.)

Residual Solvents Class 2 - Mix B (8 components)

chloroform	60µg/mL	nitromethane	50
1,2-dimethoxyethane	100	pyridine	200
n-hexane (C6)	290	tertalin	100
2-hexanone	50	trichloroethene	80

In dimethyl sulfoxide, 1mL/ampul
cat. # 36280 (ea.)

Residual Solvents Class 2 - Mix C (8 components)

2-ethoxyethanol	800µg/mL	2-methoxyethanol	
ethylene glycol	3,100	(methyl Cellosolve)	
formamide	1,100	N-methylpyrrolidone	2,650
N,N-dimethylacetamide	5,450	sulfolane	800
N,N-dimethylformamide	4,400		

In dimethyl sulfoxide, 1mL/ampul
cat. # 36273 (ea.)

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USP <467> cont'd

These Class 1 mixtures reflect the changes made in USP24/NF19 effective January 1, 2000, and USP23/NF18 effective January 1, 1995 to December 31, 1999. While these mixtures do not meet the current USP guidelines, many labs still use these mixtures to obtain a detectable benzene peak for the direct injection methods, Method I and Method V.

USP <467> Calibration Mix #7 (4 components)

chloroform	60 μ g/mL	methylene chloride	600
1,4-dioxane	380	trichloroethene	80
In dimethyl sulfoxide, 1mL/ampul			
	cat. # 36009 (ea.)		

USP <467> Calibration Mix #6 (4 components)

chloroform	60 μ g/mL	methylene chloride	600
1,4-dioxane	380	trichloroethene	80
In methanol, 1mL/ampul			
	cat. # 36008 (ea.)		

USP <467> Calibration Mixture #5 (5 components)

benzene	2 μ g/mL	methylene chloride	600
chloroform	60	trichloroethene	80
1,4-dioxane	380		
In dimethyl sulfoxide, 1mL/ampul			
	cat. # 36007 (ea.)		

USP <467> Calibration Mixture #4 (5 components)

benzene	2 μ g/mL	methylene chloride	600
chloroform	60	trichloroethene	80
1,4-dioxane	380		
In methanol, 1mL/ampul			
	cat. # 36006 (ea.)		

USP <467> Calibration Mixture #2 (5 components)

benzene	100 μ g/mL	methylene chloride	500
chloroform	50	trichloroethene	100
1,4-dioxane	100		
In methanol, 1mL/ampul			
	cat. # 36002 (ea.)		

USP <467> Calibration Mixture #3 (5 components)

benzene	100 μ g/mL	methylene chloride	500
chloroform	50	trichloroethene	100
1,4-dioxane	100		
In dimethyl sulfoxide, 1mL/ampul			
	cat. # 36004 (ea.)		

Ethylene Oxide

500 μ g/mL in dimethyl sulfoxide, 1mL/ampul
cat. # 36005 (ea.)

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**Limit of Diethylene & Ethylene Glycol Standards**

Meet new FDA *Guidance for Industry: Testing of Glycerin for Diethylene Glycol* with our new diethylene glycol (DEG) and ethylene glycol limit standards. This Guidance emphasizes the importance of screening raw material for the presence of diethylene glycol. Under cGMPs, drug manufacturers—not just glycerin manufacturers—must now test glycerin prior to use to prevent DEG-contamination in finished products. FDA has worked extensively with USP to modify the glycerin monograph and these standards support the revised USP method.

Glycerin Standard Mix (3 components)

diethylene glycol	0.5mg/mL	glycerin
ethylene glycol	0.5	
In P&T methanol, 1mL/ampul		
	cat. # 31891 (ea.)	

NEW!**Propylene Glycol Standard Mix (3 components)**

diethylene glycol	0.5mg/mL	propylene glycol
ethylene glycol	0.5	
In P&T methanol, 1mL/ampul		
	cat. # 31892 (ea.)	

NEW!**Sorbitol Standard Mix (2 components)**

diethylene glycol	ethylene glycol
0.8mg/mL each in acetone:water (90:10), 1mL/ampul	
cat. # 31893 (ea.)	

NEW!**Limit of Diethylene & Ethylene Glycol Internal Standard Mix**

2,2,2-trichloroethanol	
10mg/mL in P&T methanol, 1mL/ampul	
cat. # 31894 (ea.)	

European Pharmacopoeia Method

The analysis of residual solvents in pharmaceutical products has changed, particularly for products being sold into Europe. The International Conference on Harmonization (ICH) *Guidelines for Residual Solvents* is becoming the international standard and is being adopted by more pharmacopoeias, including the United States Pharmacopeia, every year. The ICH method and compound list is more extensive than any method previously used and poses new challenges. Compounds in Class 1 are solvents considered to be of highest risk and to be avoided in pharmaceutical manufacturing. Use of Class 2 compounds is to be limited, as they pose a lower, but present, threat to health. Compounds in Class 3 pose the lowest toxic potential and may be used routinely in manufacturing.

European Pharmacopoeia/ICH Class 1 Mix (5 components)

benzene	2 μ g/mL	1,1-dichloroethene	8
carbon tetrachloride	4	1,1,1-trichloroethane	
1,2-dichloroethane	5		1500

Prepared in water:dimethyl sulfoxide (90:10), 1mL/ampul
cat. # 36228 (ea.)

European Pharmacopoeia/ICH Class 1 Mix (revised)

(5 components)			
benzene	2 μ g/mL	1,1-dichloroethene	8
carbon tetrachloride	4	1,1,1-trichloroethane	
1,2-dichloroethane	5		10

In water:dimethyl sulfoxide (90:10), 1mL/ampul
cat. # 36261 (ea.)

European Pharmacopoeia, Fatty Acids, ASTM Methods

European Pharmacopoeia Method cont'd

European Pharmacopoeia/ICH Q3C(M) Class 2 Mix C, Revised

(6 components)

2-ethoxyethanol	160 μ g/mL	N-methylpyrrolidone	530
ethylene glycol	620	sulfolane	160
formamide	220		
2-methoxyethanol (methyl Cellosolve)	50		
In dimethyl sulfoxide, 1mL/ampul			
cat. # 36275 (ea.)			

NEW!

European Pharmacopoeia/ICH Class 2 Mix B, Revised

(10 components)

acetonitrile	410 μ g/mL	2-hexanone	50
chloroform	60	methanol	3,000
1,2-dimethoxyethane	100	nitromethane	50
N,N-dimethylacetamide	1,090	pyridine	200
1,4-dioxane	380	tetralin	100
Prepared in water:dimethyl sulfoxide (80:20), 1mL/ampul			
cat. # 36270 (ea.)			

NEW!

European Pharmacopoeia/ICH Q3C(M) Class 2 Mix A, Revised

(14 components)

chlorobenzene	360 μ g/mL	methylene chloride	600
cyclohexane	3,880	tetrahydrofuran	720
cis-1,2-dichloroethene	1,870	toluene	890
N,N-dimethylformamide	880	trichloroethene	80
ethylbenzene	369	m-xylene	1,302
n-hexane (C6)	290	o-xylene	195
methylcyclohexane	1,180	p-xylene	304
In dimethyl sulfoxide, 1mL/ampul			
cat. # 36274 (ea.)			

NEW!

Composition of Fatty Acids by GC

EP 2.4.22 Composition of Fatty Acids by GC Mix 1

(6 components)

Description	% by Weight	Description	% by Weight
methyl arachidate (C20:0)	40	methyl oleate (C18:1[cis9])	20
methyl dodecanoate (C12:0)	5	methyl palmitate (C16:0)	10
methyl myristate (C14:0)	5	methyl stearate (C18:0)	20
100mg total			
cat. # 35100 (ea.)			

NEW!

No data pack available.

Quantity discounts not available.

EP 2.4.22 Composition of Fatty Acids by GC Mix 2

(5 components)

Description	% by Weight	Description	% by Weight
methyl caproate (C6:0)	10	methyl dodecanoate (C12:0)	20
methyl caprylate (C8:0)	10	methyl myristate (C14:0)	40
methyl decanoate (C10:0)	20		
100mg total			
cat. # 35101 (ea.)			

NEW!

No data pack available.

Quantity discounts not available.

ASTM Method D6042-96 (Plastic Container Testing)

American Society for Testing and Materials (ASTM International) Method D6042-96—*Test Method for Determination of Phenolic Antioxidants and Erucamide Slip Additives in Polypropylene Homopolymer Formulations Using Liquid Chromatography*—is a “consensus” or “referee” method used among plastic manufacturers and the pharmaceutical companies that purchase plastic containers. Plastic container manufacturers use this test to ensure the quality of their product to their pharmaceutical customers. Pharmaceutical companies also specify this test and provide their own lists of target compounds and concentration limits in purchase agreements.

This test calls for isopropanol extraction, HPLC separation, and UV detection. Restek offers a variety of reversed phase HPLC columns suitable for these separations. Restek also designed an analytical reference material to validate this method. This mixture contains the common antioxidants and slips listed in ASTM D6042-96, along with BHT.

ASTM D6042-96 Calibration Mix (7 components)

BHT	Irganox 3114
erucamide slip	Irganox 1010
vitamin E	Irganox 1076
Irgafos 168	
50 μ g/mL each in isopropanol, 1mL/ampul	
cat. # 31628 (ea.)	

No data pack available.

ASTM D6042-96 Internal Standard Mix

Tinuvin P

51.8 μ g/mL in isopropanol, 1mL/ampul	cat. # 31629 (ea.)
---	--------------------

No data pack available.

Other Additives—Available from Restek as Custom Formulations

Similar methods for extractables in plastic pharmaceutical containers are cited in the United States Pharmacopeia (USP), British Pharmacopoeia (BP), European Pharmacopoeia (EP), and Japanese Pharmacopoeia (JP). Customers may also have formulation-specific or product-specific test mixtures. Please contact us for a custom mixture. Our current inventory of raw materials includes these popular antioxidants. We have many more not listed and can obtain most compounds you may need.

- Ethanol 323
- Ethanol 330
- Ethanol 702
- Ethanol 703
- Irganox L06
- Irganox L57
- Irganox L64
- Irganox L109
- Irganox L134
- Irganox L135
- Irganox 1035
- Santanox R
- Ultranox 626
- Vanlube 81
- Vanlube 848
- Vanlube 7723
- Vanlube AZ
- Vanlube NA
- Venlube PCX
- Venlube SL
- Venlube SS

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Melamine Analysis Kit.....cat. # 33254

(see page 535)

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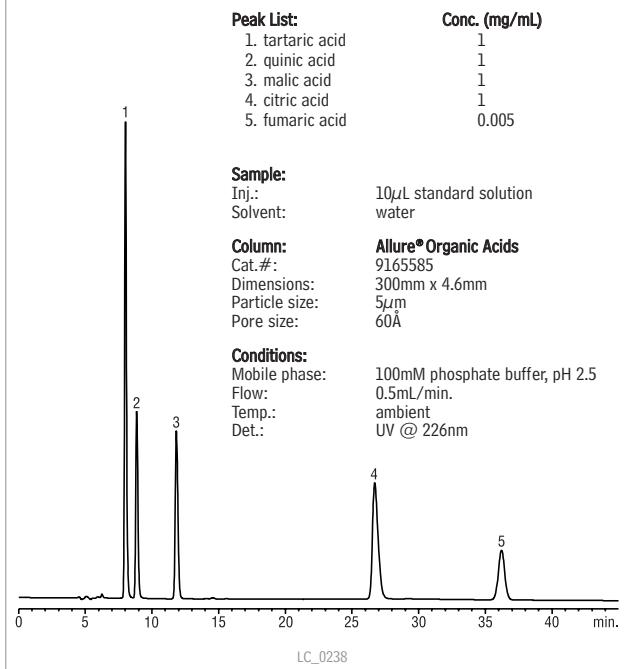
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Flavors**Fruit Juice Organic Acid Standard** (5 components)

citric acid	2,000 μ g/ml	quinic acid	2,000
fumaric acid	10*	tartaric acid	2,000
malic acid	2,000		
In water, 1mL/ampul			cat. # 35080 (ea.)
In water, 5mL/ampul			cat. # 35081 (ea.)

*Fumaric acid is a trace impurity in malic acid, as well as an added component of the mix. The amount of fumaric acid in malic acid will not affect the stated concentration of malic acid, but can represent a significant and variable deviation from the low concentration of fumaric acid stated to be in the mix. All other components of the mix are at the specified concentration.

Quantity discounts not available.

Organic acids on an Allure® Organic Acids HPLC column.**Standard Methods for the Examination of Water and Wastewater Method 5560: Organic and Volatile Acids**

The measurement of organic acids, either by adsorption and elution from a chromatographic column or by distillation, can be used as a control test for anaerobic digestion. The chromatographic separation method is presented for organic acids (5560B), while a method using distillation (5560C) is presented for volatile acids. A new method using gas chromatography is included for the determination of acetic, propionic, butyric, isobutyric, valeric, and isovaleric acids (5560D).

Free Fatty Acids Test Standard (6 components)

acetic acid	isovaleric acid
butyric acid (C4:0)	propionic acid
isobutyric acid	valeric acid
1,000 μ g/mL each in water, 1mL/ampul	cat. # 35272 (ea.)

Fragrances**Fragrance Materials Test Mix** (12 components)

The Fragrance Materials Association (FMA) has proposed a method for analyzing essential oils on polar and nonpolar capillary GC columns. A performance evaluation mixture should be used to aid in detecting inlet problems, stationary phase degradation, loss of resolution, changes in sensitivity, and the presence of reactive sites in the sample pathway. Our test mix is consistent with the mixture proposed by the FMA. The required 5% test solution is made by diluting the 0.5mL of neat mixture to 10mL with acetone. The working solution will be stable for up to one week if transferred to a dark container and stored refrigerated.

benzoic acid	1.0%	geraniol	0.6%
benzyl salicylate	36.2%	hydroxycitronellal (3,7-dimethyl-7-hydroxyoctanal)	5.0%
1,8-cineole (eucalyptol)	0.5%	d-limonene	20.0%
trans cinnamaldehyde	0.5%	thymol	0.3%
cinnamyl acetate	0.3%	cinnamyl alcohol	0.1%
cinnamyl alcohol	0.3%	vanillin	
ethyl butyrate	36.2%		

Neat, 0.5mL in an amber ampul

cat. # 31807 (ea.)

No data pack available.

Quantity discounts not available.

Fatty Acid Methyl Esters (FAMEs)**Marine Oil FAME Mix** (20 components)

Chain	Description	% by Weight
C14:0	methyl myristate	6.0
C14:1	methyl myristoleate	1.0
C16:0	methyl palmitate	16.0
C16:1	methyl palmitoleate	5.0
C18:0	methyl stearate	8.0
C18:1	methyl oleate	13.0
C18:1	methyl vaccenate	4.0
C18:2	methyl linoleate	2.0
C18:3	methyl linolenate	2.0
C20:0	methyl arachidate	1.0
C20:1	methyl 11-eicosenoate	9.0
C20:2	methyl 11-14-eicosadienoate	1.0
C20:4	methyl arachidonate	3.0
C20:3	methyl 11-14-17-eicosatrienoate	1.0
C20:5	methyl eicosapentaenoate	10.0
C22:0	methyl behenate	1.0
C22:1	methyl erucate	3.0
C22:6	methyl docosahexaenoate	12.0
C24:0	methyl linoocerate	1.0
C24:1	methyl nervonate	1.0

cat. # 35066 (100mg)

No data pack available.

Quantity discounts not available.

cis/trans FAME Mix (8 components)

Description	% by Weight
methyl elaidate (C18:1 trans-9)	10.0
methyl linoleate (C18:2 cis-9,12)	20.0
methyl oleate (C18:1 cis-9)	10.0
methyl petroselinate (C18:1cis-6)	8.0
methyl petroselaidate (C18:1trans-6)	8.0
methyl stearate (C18:0)	20.0
methyl transvaccenate (C18:1 trans-11)	12.0
methyl vaccenate (C18:1 cis-11)	12.0

10mg/mL total in methylene chloride, 1mL/ampul

cat. # 35079 (ea.)

No data pack available.

Quantity discounts not available.

Nutritional Analysis

Fatty Acid Methyl Esters (FAMEs) cont'd

NLEA FAME Mix (28 components)

Chain	% by Weight	Chain	% by Weight
C4:0	1.5	C18:1(<i>trans</i> -9)	2.5
C6:0	1.5	C18:1(<i>cis</i> -9)	15.0
C8:0	2.0	C18:2(all- <i>trans</i> -9,12)	2.5
C10:0	2.5	C18:2(all- <i>cis</i> -9,12)	10.0
C11:0	2.5	C18:3(all- <i>cis</i> -9,12,15)	5.0
C12:0	5.0	C20:0	2.5
C13:	2.5	C20:1(<i>cis</i> -11)	1.5
C14:0	2.5	C20:5(all- <i>cis</i> -5,8,11,14,17)	2.5
C14:1(<i>cis</i> -9)	1.5	C22:0	2.5
C15:0	1.5	C22:1(<i>cis</i> -13)	1.5
C16:0	10.0	C22:6(all- <i>cis</i> -4,7,10,13,16,19)	2.5
C16:1(<i>cis</i> -9)	5.0	C23:0	1.5
C17:0	2.5	C24:0	2.5
C18:0	5.0	C24:1(<i>cis</i> -15)	2.5

30mg/mL total in methylene chloride, 1mL/ampul
cat. # 35078 (ea.)

No data pack available.

Quantity discounts not available.

Food Industry FAME Mix (37 components)

Chain	% by Weight	Chain	% by Weight
C4:0	4.0	C18:2(all- <i>cis</i> -9,12)	2.0
C6:0	4.0	C18:3(all- <i>cis</i> -6,9,12)	2.0
C8:0	4.0	C18:3(all- <i>cis</i> -9,12,15)	2.0
C10:0	4.0	C20:0	4.0
C11:0	2.0	C20:1(<i>cis</i> -11)	2.0
C12:0	4.0	C20:2(all- <i>cis</i> -11,14,)	2.0
C13:	2.0	C20:3(all- <i>cis</i> -8,11,14)	2.0
C14:0	4.0	C20:3(all- <i>cis</i> -11,14,17)	2.0
C14:1(<i>cis</i> -9)	2.0	C20:4(all- <i>cis</i> -5,8,11,14)	2.0
C15:0	2.0	C20:5(all- <i>cis</i> -5,8,11,14,17)	2.0
C16:0	2.0	C21:0	2.0
C16:1(<i>cis</i> -9)	6.0	C22:0	4.0
C17:0	2.0	C22:1(<i>cis</i> -13)	2.0
C18:0	2.0	C22:2(all- <i>cis</i> -13,16)	2.0
C18:1(<i>cis</i> -10)	2.0	C22:6 (all- <i>cis</i> -4,7,10,13,16,19)	2.0
C18:1(<i>cis</i> -9)	2.0	C23:0	2.0
C18:2(all- <i>trans</i> -9,12)	4.0	C24:0	4.0
	2.0	C24:1(<i>cis</i> -15)	2.0

30mg/mL total in methylene chloride, 1mL/ampul
cat. # 35077 (ea.)

No data pack available.

Quantity discounts not available.

Neat Fatty Acid Methyl Esters

Chain	Description	CAS #	qty.	cat.#	price
C6:0	methyl caproate	106-70-7	100mg	35037	\$37
C7:0	methyl heptanoate	106-73-0	100mg	35038	\$42
C8:0	methyl caprylate	111-11-5	100mg	35039	\$37
C9:0	methyl nonanoate	1731-84-6	100mg	35040	\$42
C10:0	methyl caprate	110-42-9	100mg	35041	\$37
C11:0	methyl undecanoate	1731-86-8	100mg	35042	\$42
C12:0	methyl laurate	111-82-0	100mg	35043	\$37
C13:0	methyl tridecanoate	1731-88-0	100mg	35044	\$47
C14:0	methyl myristate	124-10-7	100mg	35045	\$37
C14:1 Δ 9 cis	methyl myristoleate	56219-06-8	100mg	35046	\$120
C15:0	methyl pentadecanoate	7132-64-1	100mg	35047	\$47
C16:0	methyl palmitate	112-39-0	100mg	35048	\$37
C16:1 Δ 9 cis	methyl palmitoleate	1120-25-8	100mg	35049	\$66
C17:0	methyl heptadecanoate	1731-92-6	100mg	35050	\$47
C18:0	methyl stearate	112-61-8	100mg	35051	\$37
C18:1 Δ 9 cis	methyl oleate	112-62-9	100mg	35052	\$37
C18:2 Δ 9,12 cis	methyl linoleate	112-63-0	100mg	35053	\$37
C18:3 Δ 9,12,15 cis	methyl linolenate	301-00-8	100mg	35054	\$48
C19:0	methyl nonadecanoate	1731-94-8	100mg	35055	\$48
C20:0	methyl arachidate	1120-28-1	100mg	35056	\$42
C20:1 Δ 11 cis	methyl eicosenoate	2390-09-2	100mg	35057	\$53
C20:2 Δ 11,14 cis	methyl eicosadienoate	2463-02-7	100mg	35058	\$74
C20:3 Δ 11,14,17 cis	methyl eicosatrienoate	55682-88-7	100mg	35059	\$80
C20:4 Δ 5,8,11,14 cis	methyl arachidonate	2566-89-4	100mg	35060	\$84
C21:0	methyl heneicosanoate	6064-90-0	100mg	35061	\$78
C22:0	methyl behenate	929-77-1	100mg	35062	\$37
C22:1 Δ 13 cis	methyl erucate	1120-34-9	100mg	35063	\$66
C24:0	methyl lignocerate	2442-49-1	100mg	35064	\$78
C24:1 Δ 15 cis	methyl nervonate	2733-88-2	100mg	35065	\$73

No data pack available.

Quantity discounts not available.

ordering note

Custom fatty acid methyl ester mixtures also are available. Call **800-356-1688** or **814-353-1300**, or contact your Restek representative for details.

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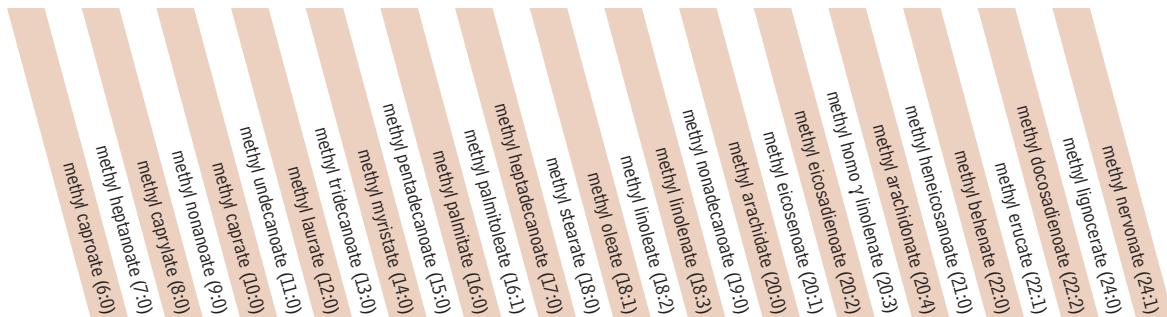
Nutritional Analysis, Composition of Fatty Acids by GC

Quantitative Fatty Acid Methyl Ester (FAME) Mixtures

These mixtures can be used for quantification (AOCS Method CE 1-62) and approximate the compositions of the following types of oils:

- AOCS #1: corn, poppy seed, cotton seed, soybean, walnut, safflower, sunflower, rice, bran, and sesame oil
- AOCS #2: linseed, perilla, hempseed, and rubberseed oil
- AOCS #3: peanut, rapeseed, and mustard seed oil
- AOCS #4: olive, teaseed, and neatsfoot oil
- AOCS #5: coconut, palm kernel, babassu, and ouri-curi oil
- AOCS #6: lard, beef or mutton tallow, and palm oil
- FAME #1: oils of mid-range chain lengths (C16 - C18)
- FAME #2: oils of short to mid-range chain lengths (C6 - C14)
- FAME #3: oils of short to mid-range chain lengths (C8 - C16)

- FAME #4: oils of mid-range to long chain lengths (C16 - C24)
- FAME #5: oils of mid-range to long chain lengths (C16 - C24)
- FAME #6: oils of long chain lengths (C20 - C21)
- FAME #7: oils of short chain lengths (C6 - C10)
- FAME #8: oils of short to mid-range chain lengths (C11 - C15)
- FAME #9: oils of mid-range to long chain lengths (C16 - C20)
- FAME #12: oils of mid-range to long chain lengths (C13 - C21)
- FAME #13: mustard seed oil
- FAME #14: cocoa butter
- FAME #15: peanut oil



Mix	cat. #	price	Composition of each mixture listed as a weight/weight % basis (minimum 50mg/ampul)														
AOCS #1	35022						6.0		3.0	35.0	50.0	3.0					
AOCS #2	35023						7.0		5.0	18.0	36.0	34.0					
AOCS #3	35024						1.0	4.0	3.0	45.0	15.0	3.0	3.0		3.0		
AOCS #4	35025							11.0	3.0	80.0	6.0						
AOCS #5	35026		7.0	5.0	48.0	15.0		7.0		3.0	12.0	3.0					
AOCS #6	35027						2.0	30.0	3.0	14.0	41.0	7.0	3.0				
FAME #1	35010							20.0		20.0	20.0	20.0					
FAME #2	35011	20.0	20.0	20.0	20.0	20.0											
FAME #3	35012		20.0	20.0	20.0	20.0	20.0										
FAME #4	35013						20.0	20.0			20.0			20.0	20.0		
FAME #5	35014							20.0	20.0			20.0		20.0	20.0		
FAME #6	35015									20.0	20.0	20.0	20.0	20.0			
FAME #7	35016	20.0	20.0	20.0	20.0	20.0											
FAME #8	35017						20.0	20.0	20.0	20.0	20.0	20.0					
FAME #9	35018							20.0	20.0	20.0	20.0	20.0					
FAME #12	35021						20.0	20.0	20.0	20.0	20.0	20.0		20.0			
FAME #13	35034							3.0	1.0	2.0	20.0	15.0	10.0	1.0	10.0	2.0	
FAME #14	35035						0.1	26.3	0.4	0.3	33.7	34.3	3.1	0.2	1.3	0.1	
FAME #15	35036	\$46							10.0	3.0	50.0	30.0		1.5	1.5	3.0	1.0

Quantity discounts not available.

Composition of Fatty Acids by GC

EP 2.4.22 Composition of Fatty Acids by GC Mix 1

(6 components)

Description	% by Weight	Description	% by Weight
methyl arachidate (C20:0)	40	methyl oleate (C18:1 [cis9])	20
methyl dodecanoate (C12:0)	5	methyl palmitate (C16:0)	10
methyl myristate (C14:0)	5	methyl stearate (C18:0)	20
100mg total			
cat. # 35100 (ea.)			

No data pack available.

Quantity discounts not available.

NEW!

EP 2.4.22 Composition of Fatty Acids by GC Mix 2

(5 components)

Description	% by Weight	Description	% by Weight
methyl caproate (C6:0)	10	methyl dodecanoate (C12:0)	20
methyl caprylate (C8:0)	10	methyl myristate (C14:0)	40
methyl decanoate (C10:0)	20		
100mg total			
cat. # 35101 (ea.)			

NEW!

No data pack available.

Quantity discounts not available.



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Food Safety

QuEChERS Standards

- Ready to use for QuEChERS extractions—no dilutions necessary.
- Support for GC and HPLC with MS, MS/MS, and selective detectors.

NEW!

Pesticide analysis is fast and simple using QuEChERS methods. Use these cost-effective QuEChERS standards for even greater lab efficiency. Standards are compatible with all major methods, including mini-multiresidue, AOAC, and European procedures. Save time with convenient mixes or make your own blend using our full line of single component solutions.

QuEChERS Internal Standard Mix for GC/ECD Analysis

(4 components)

PCB 18	PCB 52
PCB 28	tris-(1,3-dichloroisopropyl)phosphate
50µg/mL each in acetonitrile, 5mL/ampul	
cat. # 33265 (ea.)	

QuEChERS Quality Control Standards for GC/MS Analysis

Cat.# 33268:

PCB 138

PCB 153

50µg/mL each in acetonitrile, 5mL/ampul

Cat.# 33264:

anthracene

cat. # 33268 (ea.)

100µg/mL in acetonitrile, 5mL/ampul	cat. # 33264 (ea.)
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QuEChERS Internal Standard Mix for GC/NPD and LC/MS/MS Analysis

(2 components)

triphenyl phosphate	20µg/mL
tris-(1,3-dichloroisopropyl)phosphate	50µg/mL
In acetonitrile, 5mL/ampul	
cat. # 33266 (ea.)	\$30

QuEChERS Internal Standard Mix for GC/MS Analysis

(6 components)

PCB 18	50µg/mL	tris-(1,3-dichloroisopropyl)	50
PCB 28	50	phosphate	
PCB 52	50	triphenylmethane	
triphenyl phosphate	20		10
In acetonitrile, 5mL/ampul			
cat. # 33267 (ea.)			

QuEChERS Single-Component Reference Standards

Concentration is µg/mL.

Compound	Solvent	Conc.	cat.# (ea.)	price
PCB 18 (5mL)	ACN	50	33255	
PCB 28 (5mL)	ACN	50	33256	
PCB 52 (5mL)	ACN	50	33257	
PCB 138 (5mL)	ACN	50	33262	
PCB 153 (5mL)	ACN	50	33263	
triphenylmethane (5mL)	ACN	10	33260	
triphenylphosphate (5mL)	ACN	20	33258	
tris-(1,3-dichloroisopropyl)phosphate (5mL)	ACN	50	33259	

ACN = acetonitrile

QuEChERS Internal Standard Mix for LC/MS/MS Analysis

nicarbazin

10µg/mL in acetonitrile, 5mL/ampul

cat. # 33261 (ea.)



Complete Product Offering

to support AOAC (2007.01)
& European (EN 15662)
QuEChERS Methods

- Comprehensive portfolio of QuEChERS tubes.
- Method-specific internal and QC standards.
- Rxi®-5Sil MS capillary column
- Ultra Aqueous C18 LC column
- Q-sep™ 3000 Centrifuge

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Easily detect 1 µg/g melamine with our complete kit for GC/MS



Keep up with advances in melamine analysis at
www.restek.com/melamine



Melamine Analysis Kit

Kit includes:

Column:

Rxi-5Sil MS w/5 meter Integra-Guard

Standards:

33247: 1mL Melamine Stock Standard	(1,000µg/mL)
33248: 1mL Cyanuric Acid Stock Standard	(1,000µg/mL)
33249: 1mL Ammelide Stock Standard	(1,000µg/mL)
33250: 1mL Ammeline Stock Standard	(1,000µg/mL)
33251: 1mL Benzoguanamine Internal Standard	(1,000µg/mL)
33253: 1mL Melamine Mix Standard	(1,000µg/mL)

Derivatization Reagent:

35607: BSTFA w/1% TMCS, 25g vial

Accessories:

50mL centrifuge tubes, 5-pk.

13mm, 0.45µm nylon syringe filters, 5-pk.

Easy-to-follow instructions with procedural check lists to assist with laboratory documentation.

cat. # 33254 (kit)

Quantity discounts not available.



Melamine Stock Standard

melamine

1,000µg/mL in diethylamine:water (20:80), 1mL/ampul
 cat. # 33247 (ea.)

Cyanuric Acid Stock Standard

cyanuric acid

1,000µg/mL in diethylamine:water (20:80), 1mL/ampul
 cat. # 33248 (ea.)

Ammelide Stock Standard

ammelide

1,000µg/mL in diethylamine:water (20:80), 1mL/ampul
 cat. # 33249 (ea.)

Ammeline Stock Standard

ammeline

1,000µg/mL in diethylamine:water (20:80), 1mL/ampul
 cat. # 33250 (ea.)

Melamine and Related Analogs Stock Standard (4 components)

ammelide	cyanuric acid
ammeline	melamine
1,000µg/mL each in diethylamine:water (20:80), 1mL/ampul	

cat. # 33253 (ea.)



Benzoguanamine Internal Standard

benzoguanamine

1,000µg/mL in pyridine, 1mL/ampul
 cat. # 33251 (ea.)

1,000µg/mL in pyridine, 5mL/ampul
 cat. # 33252 (ea.)



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Food Testing

FAPAS® Food Testing Program*

Laboratories testing food quality and safety are encouraged to routinely perform proficiency tests. Proficiency testing is an external check of quality. It provides an independent and unbiased assessment of the performance of all aspects of the laboratory, both human and hardware. Each participating laboratory is encouraged to use its normal analytical method, thereby simulating the testing of a routine laboratory sample as closely as possible. While the outcome of the analysis may depend on the choice of method, it also could be affected by the performance of the laboratory equipment or the competence of the analyst. Using proficiency testing, those laboratories performing well can ensure high standards are maintained and those performing unsatisfactorily can implement corrective action rapidly. In an environment in which analytical laboratories compete intensively for work, proficiency testing provides the means by which external customers can compare competence in carrying out specific tests. Together with laboratory accreditation and the use of validated methods, proficiency tests are an important requirement of the EU Additional Measures Directive 93/99/EEC applying to laboratories entrusted with the official control of food.

FAPAS® Series 5 OC Pesticide Mix 1 (19 components)

Equal concentration of all compounds. Suitable for GC/MS analysis.

aldrin	diehrin
α-BHC	α-endosulfan (I)
β-BHC	β-endosulfan (II)
γ-BHC (lindane)	endosulfan sulfate
α-chlordane (<i>cis</i>)	endrin
γ-chlordane (<i>trans</i>)	heptachlor
4,4'-DDD	heptachlor epoxide (isomer B)
4,4'-DDE	hexachlorobenzene
2,4'-DDT	oxychlordane
4,4'-DDT	

100µg/mL each in acetone, 1mL/ampul
cat. # 32412 (ea.)

FAPAS® Series 5 OC Pesticide Mix 2 (19 components)

Varied concentrations. Suitable for GC/ECD analysis.

aldrin	10µg/mL	diehrin	20
α-BHC	10	α-endosulfan (I)	10
β-BHC	10	β-endosulfan (II)	20
γ-BHC (lindane)	10	endosulfan sulfate	20
α-chlordane (<i>cis</i>)	10	endrin	20
γ-chlordane (<i>trans</i>)	10	heptachlor	10
4,4'-DDD	20	heptachlor epoxide (isomer B)	10
4,4'-DDE	20	hexachlorobenzene	10
2,4'-DDT	20	oxychlordane	10
4,4'-DDT	20		

In acetone, 1mL/ampul
cat. # 32414 (ea.)

FAPAS® Series 9 OP Pesticide Mix 1 (10 components)

Equal concentration of all compounds. Suitable for GC/FPD, GC/NPD, & GC/MS analysis.

chlorpyriphos	fenitrothion
chlorpyriphos-methyl	malathion
diazinon	methacryphon
dichlorvos	phosphamidon
etrimphos	pirimiphos-methyl

100µg/mL each in acetone, 1mL/ampul
cat. # 32413 (ea.)

FAPAS-registered trademark of Central Science Laboratory, Sand Hutton, York, YO41, UK.

ASTM Method D6042-96 (Plastic Container Testing)

American Society for Testing and Materials (ASTM International) Method D6042-96—*Test Method for Determination of Phenolic Antioxidants and Erucamide Slip Additives in Polypropylene Homopolymer Formulations Using Liquid Chromatography*—is a “consensus” or “referee” method used among plastic manufacturers and the pharmaceutical companies that purchase plastic containers. Plastic container manufacturers use this test to ensure the quality of their product to their pharmaceutical customers. Pharmaceutical companies also specify this test and provide their own lists of target compounds and concentration limits in purchase agreements.

This test calls for isopropanol extraction, HPLC separation, and UV detection. Restek offers a variety of reversed phase HPLC columns suitable for these separations. Restek also designed an analytical reference material to validate this method. This mixture contains the common antioxidants and slips listed in ASTM D6042-96, along with BHT.

ASTM D6042-96 Calibration Mix (7 components)

BHT	Irganox 3114
erucamide slip	Irganox 1010
vitamin E	Irganox 1076
Irgafos 168	
50µg/mL each in isopropanol, 1mL/ampul	
	cat. # 31628 (ea.)

No data pack available.

ASTM D6042-96 Internal Standard Mix

Tinuvin P	51.8µg/mL in isopropanol, 1mL/ampul
	cat. # 31629 (ea.)

No data pack available.

Other Additives Available From Restek on a Custom Basis

Similar methods for extractables in plastic pharmaceutical containers are cited in the United States Pharmacopeia (USP), British Pharmacopoeia (BP), European Pharmacopoeia (EP), and Japanese Pharmacopoeia (JP). Customers may also have formulation-specific or product-specific test mixtures. Please contact us for a custom mixture. Our current inventory of raw materials includes these popular antioxidants. We have many more not listed and can obtain most compounds you may need.

- Ethanol 323
- Ethanol 330
- Ethanol 702
- Ethanol 703
- Irganox L06
- Irganox L57
- Irganox L64
- Irganox L109
- Irganox L134
- Irganox L135
- Irganox 1035
- Santanox R
- Ultranox 626
- Vanlube 81
- Vanlube 848
- Vanlube 7723
- Vanlube AZ
- Vanlube NA
- Vanlube PCX
- Vanlube SL
- Vanlube SS

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*Use of Restek calibration mixtures by laboratories participating in the FAPAS program is voluntary and no endorsement of any Restek product has been made by the Central Science Laboratory. To obtain further information regarding the FAPAS program, or to participate, contact fapas@csl.gov.uk.



Derivatization Reagents

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

Silylation Derivatization Reagents

- Replaces active hydrogen, reducing polarity and making the compounds more volatile.
- Increases stability of derivatives.

Silylation is the most widely used derivatization procedure for sample analysis by GC. In silylation, an active hydrogen is replaced by an alkylsilyl group such as trimethylsilyl (TMS) or *tert*-butyldimethylsilyl (*tert*-BDMS). Silyl derivatives are more volatile, less polar, and more thermally stable. As a result, GC separation is improved and detection is enhanced.

Both TMS and *tert*-BDMS reagents are suitable for a wide variety of compounds and can be used for many GC applications. Note that silylation reagents are generally moisture sensitive and must be sealed to prevent deactivation.

Compound	CAS#	cat.#	price
MSTFA (N-methyl-N-trimethylsilyltrifluoroacetamide)			
10-pk. (10x1g)	24589-78-4	35600	
25g vial	24589-78-4	35601	
MSTFA w/1% TMCS (N-methyl-N-trimethylsilyltrifluoroacetamide w/1% trimethylchlorosilane)			
10-pk. (10x1g)	24589-78-4	35602	
25g vial	24589-78-4	35603	
BSTFA (N,O-bis[trimethylsilyl]trifluoroacetamide)			
10-pk. (10x1g)	25561-30-2	35604	
25g vial	25561-30-2	35605	
BSTFA w/1% TMCS (N,O-bis[trimethylsilyl]trifluoroacetamide] w/1% trimethylchlorosilane)			
10-pk. (10x1g)	25561-30-2	35606	
25g vial	25561-30-2	35607	
MTBSTFA w/1% TBDMCS (N-methyl-N[<i>tert</i> -butyldimethylsilyl]trifluoroacetamide) w/1% <i>tert</i> -butyldimethylchlorosilane)			
10-pk. (10x1g)	77377-52-7	35608	
25g vial	77377-52-7	35610	
TMCS (trimethylchlorosilane)			
10-pk. (10x1g)	75-77-4	35611	
25g vial	75-77-4	35612	

Acylation Derivatization Reagents

- Most commonly used for electron capture detection.
- React with alcohols, amines and phenols.
- Frequently used for drugs of abuse confirmation.

Acylation reagents offer the same types of advantages available from silylation reagents: creating less polar, more volatile derivatives. In comparison to silylating reagents, the acylating reagents can more readily target highly polar multi-functional compounds, such as carbohydrates and amino acids. In addition, acylating reagents offer the distinct advantage of introducing electron-capturing groups, thus enhancing detectability during analysis.

Compound	CAS#	cat.#	price
MBTFA (N-methyl-bis-trifluoroacetamide)			
10-pk. (10x1g)	685-27-8	35616	
25g vial	685-27-8	35617	
TFAA (trifluoroacetic acid anhydride)			
10-pk. (10x1g)	407-25-0	35618	
25g vial	407-25-0	35619	
PFAA (pentafluoropropionic acid anhydride)			
10-pk. (10x1g)	356-42-3	35620	
25g vial	356-42-3	35621	
HFAA (heptafluorobutyric acid anhydride)			
10-pk. (10x1g)	336-59-4	35622	
25g vial	336-59-4	35623	
PFPOH (pentafluoropropanol)			
10-pk. (10x1g)	422-05-9	35624	
25g vial	422-05-9	35625	

Alkylation Derivatization Reagents

- Adds alkyl groups to functional hydrogens (H).
- Decreases polarity on compounds containing acidic hydrogens, i.e., phenols, carboxylic acids.
- Forms an ester.

Alkylation reagents reduce molecular polarity by replacing active hydrogens, such as carboxylic acids and phenols. Alkylation reagents can be used alone to form esters and amides or they can be used in conjunction with acylation or silylation reagents. A two-step approach is commonly used in the derivatization of amino acids, where multiple functional groups of these compounds may necessitate protection during derivatization.

Esterification is the reaction of an acid with an alcohol in the presence of a catalyst. It is the most popular method of alkylation due to the availability of reagents and ease of use. Alkyl esters are stable, and can be formed quickly and quantitatively. Retention of the derivative can be varied by altering the length of the substituted alkyl group. In addition to the formation of simple esters, alkylation reagents can be used in extraction procedures where biological matrices are present.

Compound	CAS#	cat.#	price
TMPAH			
10-pk. (10x1g)	1899-02-1	35614	
25g vial	1899-02-1	35615	



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REFERENCE STANDARDS COLUMN TEST MIXES

GC538-539
HPLC539
Deactivating Agent539

GC

Rxi®-5Sil MS/XLB Column Test Mix (8 components)
 4-chlorophenol 1-methylnaphthalene
 dicyclohexylamine *n*-tetradecane (C14)
 2-ethylhexanoic acid *n*-tridecane (C13)
 1,6-hexanediol 1-undecanol
 350 μ g/mL each in methylene chloride, 1mL/ampul
 cat. # 35226 (ea.)

Q-BOND and U-BOND Column Test Mix (7 components)
 acetone *n*-hexane (C6)
 diethyl ether (ethyl ether) methanol
 ethanol *n*-pentane (C5)
 ethyl acetate
 0.1% vol/vol each in heptane, 1mL/ampul
 cat. # 35202 (ea.)

Grob Test Mix

(12 components)
 For use with temperature programmed conditions.

<i>n</i> C10-FAME	0.42mg/mL	2,6-dimethylphenol	0.32
<i>n</i> C11-FAME	0.42	2-ethylhexanoic acid	0.38
<i>n</i> C12-FAME	0.41	nonanal	0.40
2,3-butanediol	0.53	1-octanol	0.36
dicyclohexylamine	0.31	undecane (C11)	0.29
2,6-dimethylaniline	0.32	decane (C10)	0.28

In methylene chloride, 1mL/ampul
 cat. # 35000 (ea.)

No data pack available.

Amine Column Test Mix

(8 components)
 For Stabilwax®-DB, Rtx®-5Amine, and Rtx®-35Amine columns.

1,2-butanediol	0.60mg/mL	diethanolamine	1.20
pyridine	0.60	2-nonanol	0.60
decane (C10)	0.60	2,6-dimethylaniline	0.60
diethylenetriamine	1.20	dodecane (C12)	0.60

In methylene chloride:methanol (1:1), 1mL/ampul
 cat. # 35002 (ea.)

No data pack available.

Isothermal Column Test Mix

(10 components)
 1,2-hexanediol 0.46mg/mL 1-octanol 0.36
 decane (C10) 0.29 nonanol 0.40
 undecane (C11) 0.29 2,6-dimethylaniline 0.32
 dodecane (C12) 0.29 2,6-dichlorophenol 0.57
 tridecane 0.29 naphthalene 0.32

In methylene chloride, 1mL/ampul
 cat. # 35003 (ea.)

No data pack available.

For Restek's complete line of column test mixes, visit our website at:

www.restek.com/testmixes



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GC cont'd

OQ Response Linearity Test Standard (6 components)				
<i>n</i> -heptadecane (C17)	1.5 μ g/mL	<i>n</i> -docosane (C22)		1,000
<i>n</i> -octadecane (C18)	10	<i>n</i> -tetracosane (C24)		10,000
<i>n</i> -nonadecane (C19)	2			
<i>n</i> -eicosane (C20)	100			
In isoctane, 1mL/ampul				
cat. # 33906 (ea.)				

FID Performance Evaluation Standard (3 components)				
<i>n</i> -tetradecane (C14)		<i>n</i> -hexadecane (C16)		
<i>n</i> -pentadecane (C15)				
0.03 w/w% each in hexane, 1mL/ampul				
cat. # 33908 (ea.)				

OQ/PV Headspace Standard (3 components)				
1,2-dichlorobenzene		<i>tert</i> -butyl disulfide		
nitrobenzene				
2,000 μ g/mL each in ethanol, 1mL/ampul				
cat. # 33909 (ea.)				

HPLC

HPLC Normal Phase Test Mix #1 (4 components)				
benzene	1.00mg/mL	benzyl alcohol		3.00
benzaldehyde	0.04	4-methoxybenzyl alcohol		
In hexane, 1mL/ampul				
cat. # 35004 (ea.)				

No data pack available.

HPLC Reversed Phase Test Mix #1 (4 components)				
benzene	3.00mg/mL	naphthalene		0.50
uracil	0.02	biphenyl		0.06
In methanol:water (75:25), 1mL/ampul				
cat. # 35005 (ea.)				

No data pack available.

HPLC Performance Test Mix (5 components)

The National Institute of Standards and Technology (NIST) has formulated a mixture that is highly effective for characterizing HPLC columns for efficiency, void volume, methylene selectivity, retentiveness, and activity toward chelators and organic bases. Results can be used for column classification, for column selection, for monitoring column performance over time, or for quality control. We test our material against the NIST 870 standard.				
amitriptyline		quinizarin		94
hydrochloride	2,800 μ g/mL	toluene		
ethylbenzene	1,700	uracil		1,400
In methanol, 1mL/ampul				28
cat. # 31699 (ea.)				

HPLC cont'd

Carbohydrate HPLC Performance Check Mix (5 components)

Performance qualification (PQ) determines the precision of the HPLC system. Our performance check mix for HPLC/RI consists of five simple sugars in varied concentrations. We prepare the reference material in water, lyophilize it, and pack it dry for enhanced stability.

glucose	2.0mg	maltose	4.5
fructose	2.1	sucrose	4.0
lactose	4.4		

Dry components in 4mL screw-cap vial. Reconstitute in 1mL acetonitrile:water (75:25) to 2.0, 2.1, 4.4, 4.5, 4.0mg/mL, respectively.

cat. # 31809 (ea.)

No data pack available.

HPLC OQ Linearity Test Mix Kit

Linear detector responses to concentration variations are an important part of operation qualification (OQ) for HPLC instruments. Our kit of five aqueous solutions of caffeine can be used to generate simple plots of UV response versus concentration. Certificate of Analysis includes caffeine concentration, calculated variance in preparing each mixture, a linearity plot, and coefficient of determination (r^2) for the linear plot.

Caffeine at 5, 25, 125, 250, 500 μ g/mL in water in a five ampul kit.

1mL each of these mixtures.

cat. # 31805 (kit)



No data pack available.

Quantity discounts not available.

also available

Individual ampuls of caffeine are available on page 444.

Deactivating Agent

Dimethyldichlorosilane (DMDCS) Deactivating Agent

Restek offers dimethyldichlorosilane (DMDCS), for deactivating liners and other glassware. Simply dilute the neat material to a 5% solution in toluene, soak the glass item(s) in the solution for 15 minutes, and rinse with toluene and methanol. DMDCS reacts with active hydroxyl groups on the glass surface to produce a deactivated surface. A detailed procedure is included with the product.

dimethyldichlorosilane (DMDCS)

Neat, 20mL/ampul

cat. # 31840 (ea.)



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