Additional Standards for International Regulations, and Hazardous Waste

ULTRA Scientific has prepared reference standards for the Canadian MISA program, European methods, and other environmental and hazardous waste programs. Each component in a reference standard is pre-analyzed, with most analytes being >99% pure, and the solvents are of the highest quality available. All solutions are gravimetrically prepared to a precision of ± 0.5%. A certificate showing the actual weight of each analyte is supplied with each standard.

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Standards for the Municipal and Industrial Strategy for Abatement (MISA)

Test Group 16

Halogenated Volatiles Mixture

26 Analytes

bromodichloromethane
bromoform
bromomethane
carbon tetrachloride
1,2-dichloropropane
chlorobenzene
chloroform
chloromethane
dibromochloromethane
1,2-dibromoethane *(EDB)*
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
trans-1,2-dichloroethene
cis-1,3-dichloropropene
trans-1,3-dichloropropene
methylene chloride
1,1,2,2-tetrachloroethane
tetrachloroethene
1,1,2-trichloroethane
trichloroethene
trichlorofluoromethane
vinyl chloride

@ 100 µg/mL in Methanol

MISA-160	**4 x 1 mL**	***
MISA-160-1	**1 x 1 mL**	***

Test Group 17

Non-Halogenated Volatiles Mix

7 Analytes

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

@ 100 µg/mL in Methanol

MISA-170	**4 x 1 mL**	***
MISA-170-1	**1 x 1 mL**	***

Test Group 18

Water Soluble Volatiles Mixture

2 Analytes

acrolein
acrylonitrile

@ 2000 µg/mL in Methanol

AMN-623	**4 x 1 mL**	***
AMN-623-1	**1 x 1 mL**	***

Technical Note: Acrolein Standards

Acrolein is known to undergo polymerization with time. ULTRA prepares standards that contain acrolein every month to ensure the accuracy of each standard's certified values. These standards are assigned expiration dates of three months. ULTRA strongly recommends that these standards be used as soon as possible after receipt.

Test Group 19

Base/Neutrals Extractables Mix #2

16 Analytes

biphenyl
bis(2-chloroethoxy)methane
bis(2-chloroethyl) ether
bis(2-chloro-1-methylethyl) ether
bis(2-ethylhexyl) phthalate
4-bromophenyl phenyl ether
butyl benzyl phthalate
4-chlorophenyl phenyl ether
di-*n*-butyl phthalate
2,4-dinitrotoluene
2,6-dinitrotoluene
di-*n*-octyl phthalate
diphenylamine
diphenyl ether
N-nitrosodiphenylamine
N-nitrosodi-*n*-propylamine

@ 100 µg/mL in Methylene Chloride

MISA-192	**4 x 1 mL**	***
MISA-192-1	**1 x 1 mL**	***

Base/Neutrals Extractables Mix #1

24 Analytes

acenaphthene
acenaphthylene
anthracene
benz[a]anthracene
benzo[b]fluoranthene
benzo[k]fluoranthene
benzo[ghi]perylene
benzo[a]pyrene
camphene
1-chloronaphthalene
2-chloronaphthalene
chrysene
dibenz[a,h]anthracene
fluoranthene
fluorene
indeno[1,2,3-cd]pyrene
indole
1-methylnaphthalene
2-methylnaphthalene
naphthalene
5-nitroacenaphthene
perylene
phenanthrene
pyrene

@ 100 µg/mL in Methylene Chloride

MISA-191	**4 x 1 mL**	***
MISA-191-1	**1 x 1 mL**	***

Test Group 20

Acid Extractables Mixture

20 Analytes

- 4-chloro-3-methylphenol
- 2-chlorophenol
- *o*-cresol
- *m*-cresol
- *p*-cresol
- 2,4-dichlorophenol
- 2,6-dichlorophenol
- 2,4-dimethylphenol
- 4,6-dinitro-2-methylphenol
- 2,4-dinitrophenol
- 4-nitrophenol
- pentachlorophenol
- phenol
- 2,3,4,5-tetrachlorophenol
- 2,3,4,6-tetrachlorophenol
- 2,3,5,6-tetrachlorophenol
- 2,3,4-trichlorophenol
- 2,3,5-trichlorophenol
- 2,4,5-trichlorophenol
- 2,4,6-trichlorophenol

@ 2000 µg/mL in Methylene Chloride

MISA-201	**4 x 1 mL**	***
MISA-201-1	**1 x 1 mL**	***

Test Group 21

Phenoxy Acid Herbicides Mixtures

10 Analytes

2,4-D	100 µg/mL
dalapon	250 µg/mL
2,4-DB	100 µg/mL
dicamba	10 µg/mL
dichlorprop	100 µg/mL
dinoseb	50 µg/mL
MCPA	10,000 µg/mL
MCPP	10,000 µg/mL
silvex *(2,4,5-TP)*	10 µg/mL
2,4,5-T	10 µg/mL

Herbicide Acids Mixture

in Methanol

HBM-8150A	**4 x 1 mL**	***
HBM-8150A-1	**1 x 1 mL**	***

Methylated Herbicide Mixture

in Methanol

HBM-8150M	**4 x 1 mL**	***
HBM-8150M-1	**1 x 1 mL**	***

Test Group 22

Organochlorine Pesticides Mixture

18 Analytes

aldrin	endosulfan I
α-BHC	endosulfan II
β-BHC	endosulfan sulfate
γ-BHC	endrin
δ-BHC	endrin aldehyde
4,4′-DDD	endrin ketone
4,4′-DDE	heptachlor
4,4′-DDT	heptachlor epoxide
dieldrin	methoxychlor

@ 2000 µg/mL in Acetone

MISA-220	**4 x 1 mL**	***
MISA-220-1	**1 x 1 mL**	***

Test Group 27

Polychlorinated Biphenyls Standards

All @ 100 µg/mL in Hexane

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More
Aroclor 1016	PP-281	***	PP-281-1	***	
Aroclor 1221	PP-291	***	PP-291-1	***	
Aroclor 1232	PP-301	***	PP-301-1	***	
Aroclor 1242	PP-311	***	PP-311-1	***	
Aroclor 1248	PP-341	***	PP-341-1	***	
Aroclor 1254	PP-351	***	PP-351-1	***	
Aroclor 1260	PP-361	***	PP-361-1	***	

See pages 296-297 for additional Aroclor solutions

Test Group 23

Chlorinated Extractables Mixture

12 Analytes

- hexachlorobenzene
- hexachlorobutadiene
- hexachlorocyclopentadiene
- hexachloroethane
- octachlorostyrene
- pentachlorobenzene
- 1,2,3,4-tetrachlorobenzene
- 1,2,3,5-tetrachlorobenzene
- 1,2,4,5-tetrachlorobenzene
- 1,2,3-trichlorobenzene
- 1,2,4-trichlorobenzene
- 2,4,5-trichlorotoluene

@ 2000 µg/mL in Methylene Chloride

MISA-231	**4 x 1 mL**	***
MISA-231-1	**1 x 1 mL**	***

Standards for European Environmental Methods – PAHs and Pesticides

PAH Mixture

22 Analytes

- naphthalene
- acenaphthylene
- acenaphthene
- fluorene
- phenanthrene
- anthracene
- fluoranthene
- pyrene
- benz[a]anthracene
- chrysene
- benzo[b]fluoranthene
- benzo[k]fluoranthene
- benzo[e]pyrene
- benzo[a]pyrene
- perylene
- indeno[1,2,3-cd]pyrene
- benzo[ghi]perylene
- dibenz[a,h]anthracene
- dibenzo[a,l]pyrene
- dibenzo[a,e]pyrene
- dibenzo[a,i]pyrene
- dibenzo[a,h]pyrene

@ 200 µg/mL in Methylene Chloride

PM-022	**4 x 1 mL**	***
PM-022-1	**1 x 1 mL**	***

PAH Mixture

6 Analytes

- benzo[b]fluoranthene
- benzo[k]fluoranthene
- benzo[ghi]perylene
- benzo[a]pyrene
- fluoranthene
- indeno[1,2,3-cd]pyrene

@ 10 µg/mL in Acetonitrile

PM-006	**4 x 1 mL**	***
PM-006-1	**1 x 1 mL**	***

PAH Mixture

7 Analytes

benzo[b]fluoranthene	10 µg/mL
benzo[k]fluoranthene	10 µg/mL
benzo[ghi]perylene	10 µg/mL
benzo[a]pyrene	10 µg/mL
fluoranthene	10 µg/mL
indeno[1,2,3-cd]pyrene	10 µg/mL
perylene	5 µg/mL

in Acetonitrile

PM-007	**4 x 1 mL**	***
PM-007-1	**1 x 1 mL**	***

Deuterated PAH Mixture

3 Analytes

- acenaphthylene-d_8
- chrysene-d_{12}
- indeno[1,2,3-cd]pyrene-d_{12}

@ 200 µg/mL in Toluene

ISM-740A	**4 x 1 mL**	***
ISM-740A-1	**1 x 1 mL**	***

Deuterated PAH Mixture

7 Analytes

- acenaphthene-d_{10}
- benz[a]anthracene-d_{12}
- benzo[a]pyrene-d_{12}
- dibenz[a,h]anthracene-d_{14}
- dibenzo[a,i]pyrene-d_{14}
- fluoranthene-d_{10}
- phenanthrene-d_{10}

@ 200 µg/mL in Methylene Chloride

ISM-750	**4 x 1 mL**	***
ISM-750-1	**1 x 1 mL**	***

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Pesticides Mixture

17 Analytes

- atrazine
- chlortoluron
- cyanazine
- desethylatrazine
- diuron
- hexazinone
- isoproturon
- linuron
- methabenzthiazuron
- metazachlor
- metobromuron
- metolachlor
- metoxuron
- monolinuron
- sebuthylazine
- simazine
- terbuthylazine

@ 50 µg/mL in Acetonitrile

PPM-017	**4 x 1 mL**	***
PPM-017-1	**1 x 1 mL**	***

PAH Mixture

16 Analytes

acenaphthene	20.0 µg/mL	chrysene	3.5 µg/mL
acenaphthylene	15.0 µg/mL	dibenz[a,h]anthracene	3.5 µg/mL
anthracene	0.8 µg/mL	fluoranthene	8.0 µg/mL
benz[a]anthracene	4.0 µg/mL	fluorene	5.0 µg/mL
benzo[b]fluoranthene	4.0 µg/mL	indeno[1,2,3-cd]pyrene	4.5 µg/mL
benzo[k]fluoranthene	4.5 µg/mL	naphthalene	20.0 µg/mL
benzo[ghi]perylene	3.5 µg/mL	phenanthrene	3.5 µg/mL
benzo[a]pyrene	5.0 µg/mL	pyrene	8.5 µg/mL

in Acetonitrile

JTB-0005-4	**4 x 1 mL ULTRApak®**	***
JTB-0005	**1 x 1 mL**	***

Standards for European Environmental Methods – PCBs

NEN 5734/VPR C85-16 PCB Mixture

7 Analytes

2,4,4′-trichlorobiphenyl
2,2′,5,5′-tetrachlorobiphenyl
2,2′,4,5,5′-pentachlorobiphenyl
2,3,4,4′,5-pentachlorobiphenyl
2,2′,3,4,4′,5′-hexachlorobiphenyl
2,2′,4,4′,5,5′-hexachlorobiphenyl
2,2′,3,4,4′,5,5′-heptachlorobiphenyl

@ 10 µg/mL in Isooctane

RPCM-200	**4 x 1 mL**	***
RPCM-200-1	**1 x 1 mL**	***

EN 12766/CEN EN 61619 PCB Calibration Mixture

14 Analytes

2,2′,5-trichlorobiphenyl
2,4,4′-trichlorobiphenyl
2,4′,5-trichlorobiphenyl
2,2′,3,5′-tetrachlorobiphenyl
2,2′,5,5′-tetrachlorobiphenyl
2,2′,4,5,5′-pentachlorobiphenyl
2,3,4,4′,5-pentachlorobiphenyl
2,2′,3,4,4′,5′-hexachlorobiphenyl
2,2′,3,4′,5′,6-hexachlorobiphenyl
2,2′,4,4′,5,5′-hexachlorobiphenyl
2,2′,3,3′,4,4′,5-heptachlorobiphenyl
2,2′,3,4,4′,5,5′-heptachlorobiphenyl
2,2′,3,3′,4,4′,5,5′-octachlorobiphenyl
decachlorobiphenyl

@ 10 µg/mL in Isooctane

RPCM-210	**4 x 1 mL**	***
RPCM-210-1	**1 x 1 mL**	***

WHO PCB Calibration Mixture

12 Analytes

3,3′,4,4′-tetrachlorobiphenyl
3,4,4′,5-tetrachlorobiphenyl
2,3,3′,4,4′-pentachlorobiphenyl
2,3,4,4′,5-pentachlorobiphenyl
2,3′,4,4′,5-pentachlorobiphenyl
2′,3,4,4′,5-pentachlorobiphenyl
3,3′,4,4′,5-pentachlorobiphenyl
2,3,3′,4,4′,5-hexachlorobiphenyl
2,3,3′,4,4′,5′-hexachlorobiphenyl
2,3′,4,4′,5,5′-hexachlorobiphenyl
3,3′,4,4′,5,5′-hexachlorobiphenyl
2,3,3′,4,4′,5,5′-heptachlorobiphenyl

@ 10 µg/mL in Isooctane

RPCM-220	**4 x 1 mL**	***
RPCM-220-1	**1 x 1 mL**	***

continued on next page

ISS PCB Calibration Mixture

18 Analytes

2,4,4′-trichlorobiphenyl
2,2′,5,5′-tetrachlorobiphenyl
2,2′,3,5′,6-pentachlorobiphenyl
2,2′,4,4′,5-pentachlorobiphenyl
2,2′,4,5,5′-pentachlorobiphenyl
2,3,3′,4,4′-pentachlorobiphenyl
2,3,3′,4′,6-pentachlorobiphenyl
2,3′,4,4′,5-pentachlorobiphenyl
2,2′,3,4,4′,5′-hexachlorobiphenyl
2,2′,3,4′,5,5′-hexachlorobiphenyl
2,2′,3,4′,5′,6-hexachlorobiphenyl
2,2′,3,5,5′,6-hexachlorobiphenyl
2,2′,4,4′,5,5′-hexachlorobiphenyl
2,2′,3,3′,4,4′,5-heptachlorobiphenyl
2,2′,3,3′,4′,5,6-heptachlorobiphenyl
2,2′,3,4,4′,5,5′-heptachlorobiphenyl
2,2′,3,4,4′,5′,6-heptachlorobiphenyl
2,2′,3,4′,5,5′,6-heptachlorobiphenyl

@ 10 µg/mL in Isooctane

RPCM-230	**4 x 1 mL**	***
RPCM-230-1	**1 x 1 mL**	***

WHO/ISS PCB Calibration Mixture

32 Analytes

2,2′,5-trichlorobiphenyl
2,4,4′-trichlorobiphenyl
2,4′,5-trichlorobiphenyl
2,2′,3,5′-tetrachlorobiphenyl
2,2′,5,5′-tetrachlorobiphenyl
3,3′,4,4′-tetrachlorobiphenyl
3,4,4′,5-tetrachlorobiphenyl
2,2′,3,5′,6-pentachlorobiphenyl
2,2′,4,4′,5-pentachlorobiphenyl
2,2′,4,5,5′-pentachlorobiphenyl
2,3,3′,4,4′-pentachlorobiphenyl
2,3,3′,4′,6-pentachlorobiphenyl
2,3,4,4′,5-pentachlorobiphenyl
2,3′,4,4′,5-pentachlorobiphenyl
2′,3,4,4′,5-pentachlorobiphenyl
3,3′,4,4′,5-pentachlorobiphenyl
2,2′,3,3′,4,4′-hexachlorobiphenyl
2,2′,3,4,4′,5′-hexachlorobiphenyl
2,2′,3,4′,5,5′-hexachlorobiphenyl
2,2′,3,4′,5′,6-hexachlorobiphenyl
2,2′,3,5,5′,6-hexachlorobiphenyl
2,2′,4,4′,5,5′-hexachlorobiphenyl
2,3,3′,4,4′,5-hexachlorobiphenyl
2,3,3′,4,4′,5′-hexachlorobiphenyl
2,3′,4,4′,5,5′-hexachlorobiphenyl
3,3′,4,4′,5,5′-hexachlorobiphenyl
2,2′,3,3′,4,4′,5-heptachlorobiphenyl
2,2′,3,3′,4′,5,6-heptachlorobiphenyl
2,2′,3,4,4′,5,5′-heptachlorobiphenyl
2,2′,3,4,4′,5′,6-heptachlorobiphenyl
2,2′,3,4′,5,5′,6-heptachlorobiphenyl
2,3,3′,4,4′,5,5′-heptachlorobiphenyl

@ 10 µg/mL in Isooctane

RPCM-240	**4 x 1 mL**	***
RPCM-240-1	**1 x 1 mL**	***

Standards for European Environmental Methods – Italian Regulation DM 471

DM 471 Mixtures

8 Analytes

benzene
ethylbenzene
tert-butylmethyl ether
toluene
o-xylene
m-xylene
p-xylene
styrene

@ 10 µg/mL in Methanol

D471-B	**4 x 1 mL**	***
D471-B-1	**1 x 1 mL**	***

@ 1000 µg/mL in Methanol

D471-A	**4 x 1 mL**	***
D471-A-1	**1 x 1 mL**	***

DM 471 Mixtures

7 Analytes

aniline
diphenylamine
o-toluidine
o-anisidine
m-anisidine
p-anisidine
p-toluidine

@ 10 µg/mL in Methanol

D471-C	**4 x 1 mL**	***
D471-C-1	**1 x 1 mL**	***

@ 100 µg/mL in Methanol

D471-E	**4 x 1 mL**	***
D471-E-1	**1 x 1 mL**	***

DM 471 PAH Standard

13 Analytes

benzo[a]pyrene
benzo[b]fluoranthene
benzo[ghi]perylene
benz[a]anthracene
benzo[k]fluoranthene
chrysene
dibenz[a,h]anthracene
indeno[1,2,3-cd]pyrene
pyrene
dibenzo[a,e]pyrene
dibenzo[a,i]pyrene
dibenzo[a,h]pyrene
dibenzo[a,l]pyrene

@ 10 µg/mL in Acetonitrile

PAH-471	**4 x 1 mL**	***
PAH-471-1	**1 x 1 mL**	***

DM 471 Mixture

7 Analytes

1,1,2-trichloroethane
trichloroethene
1,2,3-trichloropropane
1,1,2,2-tetrachloroethane
tetrachloroethene
hexachlorobutadiene
1,1,1-trichloroethane

@ 100 µg/mL in Methanol

D471-I	**4 x 1 mL**	***
D471-I-1	**1 x 1 mL**	***

DM 471 Mixture

8 Analytes

n-pentane (C_5)
n-hexane (C_6)
n-heptane (C_7)
n-octane (C_8)
n-nonane (C_9)
n-decane (C_{10})
n-undecane (C_{11})
n-dodecane (C_{12})

@ 500 µg/mL in Methanol

D471-D	**4 x 1 mL**	***
D471-D-1	**1 x 1 mL**	***

DM 471 Pesticide Standard

16 Analytes

alachlor
aldrin
atrazine
α-BHC *(α-HCH)*
β-BHC *(β-HCH)*
γ-BHC *(lindane)*
α-chlordane
β-chlordane
2,4'-DDD
4,4'-DDD
2,4'-DDE
4,4'-DDE
2,4'-DDT
4,4'-DDT
dieldrin
endrin

@ 100 µg/mL in Acetone

PPM-471A	**4 x 1 mL**	***
PPM-471A-1	**1 x 1 mL**	***

DM 471 Mixture

6 Analytes

nitrobenzene
1,2-dinitrobenzene
m-dinitrobenzene
1-chloro-2-nitrobenzene
1-chloro-3-nitrobenzene
1-chloro-4-nitrobenzene

@ 100 µg/mL in Methanol

D471-L	**4 x 1 mL**	***
D471-L-1	**1 x 1 mL**	***

DM 471 Mixture

14 Analytes

chloromethane
chloroform
vinyl chloride
1,2-dichloroethane
1,1-dichloroethene
1,1-dichloroethane
trans-1,2-dichloroethene
cis-1,2-dichloroethene
methylene chloride
bromoform
1,2-dibromoethane *(EDB)*
dibromochloromethane
bromodichloromethane
1,2-dichloropropane

@ 100 µg/mL in Methanol

D471-HA	**4 x 1 mL**	***
D471-HA-1	**1 x 1 mL**	***

DM 471 Mixture

9 Analytes

2-chlorophenol
4-chlorophenol
2,4-dichlorophenol
2,4,6-trichlorophenol
pentachlorophenol
phenol
o-cresol *(2-methylphenol)*
m-cresol *(3-methylphenol)*
p-cresol *(4-methylphenol)*

@ 100 µg/mL in Methanol

D471-G	**4 x 1 mL**	***
D471-G-1	**1 x 1 mL**	***

DM 471 Mixture

8 Analytes

chlorobenzene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,2,4-trichlorobenzene
1,2,4,5-tetrachlorobenzene
pentachlorobenzene
hexachlorobenzene

@ 100 µg/mL in Methanol

D471-F	**4 x 1 mL**	***
D471-F-1	**1 x 1 mL**	***

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Custom Standards

Do you require a standard not cataloged by ULTRA? We catalog over 5500 different standards, but if you can't find the specific standard you need, we will be happy to prepare it for you on a custom basis. Our custom organic and inorganic standards are a fast, economical way to address your unique applications. Simply fax us a copy of the form found on page 399, or log on to www.ultrasci.com and use our convenient quotation request web page. You will receive a quote within 24 hours.

Validation choices available:

Gravimetric Validation: All standards are manufactured under ULTRA's ISO 9001 registered quality system. Each analyte is guaranteed to be within the tolerance limits of ±0.2% nominal for inorganic analytes and ±0.5% nominal for organic analytes. A Certificate of Analysis accompanies each custom standard.

Quantitative Validation: The method employed is identical to that used for all ULTRA cataloged standards and involves extensive instrumental analysis. All quantitative customs are provided with a DATApak® and Certificate of Analysis.

F-List – Hazardous Waste from Non-Specific Sources

The "F-List" identifies wastes from common manufacturing and industrial processes, such as solvents that have been used in cleaning or degreasing operations. Because the processes producing these wastes can occur in different sectors of industry, the F-Listed wastes are known as wastes from non-specific sources. Wastes included on the F-List can be found in the regulations at 40 CFR §261.31

Combined F-List Mixture

32 Analytes

- acetone
- benzene
- *n*-butanol
- 2-butanone *(MEK)*
- carbon disulfide
- carbon tetrachloride
- chlorobenzene
- *o*-cresol *(2-methylphenol)*
- *m*-cresol *(3-methylphenol)*
- *p*-cresol *(4-methylphenol)*
- cyclohexanone
- 1,2-dichlorobenzene
- 2-ethoxyethanol
- ethyl acetate
- ethylbenzene
- ethyl ether
- isobutanol
- methylene chloride
- 4-methyl-2-pentanone *(MIBK)*
- nitrobenzene
- 2-nitropropane
- pyridine
- tetrachloroethene
- toluene
- 1,1,1-trichloroethane
- 1,1,2-trichloroethane
- trichloroethene
- 1,1,2-trichlorotrifluoroethane
- trichlorofluoromethane
- *o*-xylene
- *m*-xylene
- *p*-xylene

@ 2000 µg/mL in Methanol

FLM-010	**4 x 1 mL**	***
FLM-010-1	**1 x 1 mL**	***

F001 & F002 Solvent List Mixture

10 Analytes

- carbon tetrachloride
- chlorobenzene
- 1,2-dichlorobenzene
- methylene chloride
- tetrachloroethene
- 1,1,1-trichloroethane
- 1,1,2-trichloroethane
- trichloroethene
- 1,1,2-trichlorotrifluoroethane
- trichlorofluoromethane

@ 2000 µg/mL in Methanol

FLM-001	**4 x 1 mL**	***
FLM-001-1	**1 x 1 mL**	***

F003 List Mixture

10 Analytes

- acetone
- *n*-butanol
- cyclohexanone
- ethyl acetate
- ethylbenzene
- ethyl ether
- 4-methyl-2-pentanone *(MIBK)*
- *o*-xylene
- *m*-xylene
- *p*-xylene

@ 2000 µg/mL in Methanol

FLM-003	**4 x 1 mL**	***
FLM-003-1	**1 x 1 mL**	***

F004 List Mixture

3 Analytes

- *o*-cresol *(2-methylphenol)*
- *m*-cresol *(3-methylphenol)*
- *p*-cresol *(4-methylphenol)*

@ 2000 µg/mL in Methanol

FLM-004	**4 x 1 mL**	***
FLM-004-1	**1 x 1 mL**	***

F005 List Mixture

9 Analytes

- benzene
- 2-butanone *(MEK)*
- carbon disulfide
- 2-ethoxyethanol
- isobutanol
- nitrobenzene
- 2-nitropropane
- pyridine
- toluene

@ 2000 µg/mL in Methanol

FLM-005	**4 x 1 mL**	***
FLM-005-1	**1 x 1 mL**	***

Alcohols

3 Analytes

- ethanol
- isopropanol
- methanol

@ 2000 µg/mL in Water

FLM-002	**4 x 1 mL**	***
FLM-002-1	**1 x 1 mL**	***

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Skinner List – Refinery Wastes

The "Skinner List" refers to a subset of 40 CFR 261 Appendix VIII constituents (89 compounds) that, when developed, was considered a conservative list of hazardous constituents that were reasonably likely to be in petroleum refinery wastes.

Skinner List Acids Mixture

8 Analytes

o-cresol *(2-methylphenol)*
m-cresol *(3-methylphenol)*
p-cresol *(4-methylphenol)*
4-nitrophenol
2,4-dimethylphenol
2,4-dinitrophenol
phenol
thiophenol *(benzenethiol)*

@ 2000 µg/mL in Methylene Chloride

SLM-400	**4 x 1 mL**	***
SLM-400-1	**1 x 1 mL**	***

Skinner List Volatiles Mixture

14 Analytes

benzene
2-butanone
carbon disulfide
chlorobenzene
chloroform
1,4-dioxane
ethylbenzene
1,2-dibromoethane
1,2-dichloroethane
styrene
toluene
o-xylene
m-xylene
p-xylene

@ 2000 µg/mL in Methanol

SLM-100	**4 x 1 mL**	***
SLM-100-1	**1 x 1 mL**	***

Skinner List Semi-Volatiles Mixture

27 Analytes

anthracene
benz[a]anthracene
benzo[b]fluoranthene
benzo[k]fluoranthene
benzo[a]pyrene
bis(2-ethylhexyl) phthalate
butyl benzyl phthalate
chrysene
dibenz[a,h]acridine
dibenz[a,h]anthracene
di-*n*-butyl phthalate
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
diethyl phthalate
7,12-dimethylbenz[a]anthracene
dimethyl phthalate
di-*n*-octyl phthalate
fluoranthene
indene
6-methylchrysene
1-methylnaphthalene
naphthalene
phenanthrene
pyrene
pyridine
quinoline

@ 2000 µg/mL in Methylene Chloride

SLM-300	**4 x 1 mL**	***
SLM-300-1	**1 x 1 mL**	***

EPA Cluster Rule Standards

The combined air and water "cluster rule" for the pulp and paper industry sets baseline limits for standards to reduce discharges of pollutants to the air and water.

See also page 63 for blind QC check samples for the cluster rule.

Methanol Standard

methanol

@ 10,000 µg/mL in Water

HAP-100	**4 x 1 mL**	***
HAP-100-1	**1 x 1 mL**	***

HAP Standard

4 Analytes

methanol
acetaldehyde
propionaldehyde *(propanal)*
2-butanone *(MEK)*

@ 10,000 µg/mL in Water

HAP-110	**4 x 1 mL**	***
HAP-110-1	**1 x 1 mL**	***

USP 467 Test Mixtures for GC Analysis of Residual Solvents

These mixtures are used in US Pharmacopeia Method 467 to determine residual organic solvents in pharmaceutical preparations. The latest revision (July 2008) uses a risk-based system to classify solvents. Class 1 solvents are known or strongly suspected carcinogens that pose a risk to both the consumer and the environment, and are to be avoided. Class 2 solvents are nongenotoxic animal carcinogens or compounds suspected of other significant but reversible toxicities.

USP 467 Class 1 Residual Solvents Mixture - July 2008 Revision

5 Analytes

benzene	10 mg/mL
carbon tetrachloride	20 mg/mL
1,2-dichloroethane	25 mg/mL
1,1-dichloroethene	40 mg/mL
1,1,1-trichloroethane	50 mg/mL

in Dimethyl Sulfoxide

USPM-467J	**4 x 1 mL**	***
USPM-467J-1	**1 x 1 mL**	***

USP 467 Class 2 Residual Solvents Mixture A - July 2008 Revision

15 Analytes

acetonitrile	2.05 mg/mL
chlorobenzene	1.80 mg/mL
cyclohexane	19.40 mg/mL
cis-1,2-dichloroethene	4.70 mg/mL
trans-1,2-dichloroethene	4.70 mg/mL
1,4-dioxane	1.90 mg/mL
ethylbenzene	1.84 mg/mL
methanol	15.00 mg/mL
methylcyclohexane	5.90 mg/mL
methylene chloride	3.00 mg/mL
tetrahydrofuran	3.60 mg/mL
toluene	4.45 mg/mL
o-xylene	0.98 mg/mL
m-xylene	6.51 mg/mL
p-xylene	1.52 mg/mL

in Dimethyl Sulfoxide

USPM-467K	**4 x 1 mL**	***
USPM-467K-1	**1 x 1 mL**	***

USP 467 Class 2 Residual Solvents Mixture B - July 2008 Revision

8 Analytes

chloroform	300 µg/mL
1,2-dimethoxyethane	500 µg/mL
n-hexane	1450 µg/mL
2-hexanone	250 µg/mL
nitromethane	250 µg/mL
pyridine	1000 µg/mL
tetralin	500 µg/mL
trichloroethene	400 µg/mL

in Dimethyl Sulfoxide

USPM-467L	**4 x 1 mL**	***
USPM-467L-1	**1 x 1 mL**	***

USP 467 Class 2 Residual Solvents Mixture B - July 2008 Revision

8 Analytes

chloroform	60 µg/mL
1,2-dimethoxyethane	100 µg/mL
n-hexane	290 µg/mL
2-hexanone	50 µg/mL
nitromethane	50 µg/mL
pyridine	200 µg/mL
tetralin	100 µg/mL
trichloroethene	80 µg/mL

in Dimethyl Sulfoxide

USPM-467N	**4 x 1 mL**	***
USPM-467N-1	**1 x 1 mL**	***

USP 467 Class 2 Residual Solvents Mixture C - July 2008 Revision

8 Analytes

N,N-dimethylacetamide	5450 µg/mL
N,N-dimethylformamide	4400 µg/mL
2-ethoxyethanol	800 µg/mL
ethylene glycol	3100 µg/mL
formamide	1100 µg/mL
2-methoxyethanol	250 µg/mL
N-methylpyrrolidone	2650 µg/mL
sulfolane	800 µg/mL

in Dimethyl Sulfoxide

USPM-467M	**4 x 1 mL**	***
USPM-467M-1	**1 x 1 mL**	***

USP 467 Calibration Mixes - January 2005 Revision

4 Analytes

chloroform	60 µg/mL
1,4-dioxane	380 µg/mL
methylene chloride	600 µg/mL
trichloroethene	80 µg/mL

in Dimethyl Sulfoxide

USPM-467G	**4 x 1 mL**	***
USPM-467G-1	**1 x 1 mL**	***

in Methanol

USPM-467H	**4 x 1 mL**	***
USPM-467H-1	**1 x 1 mL**	***

USP 467 Calibration Mixes - January 2000 Revision

5 Analytes

benzene	2 µg/mL
chloroform	60 µg/mL
1,4-dioxane	380 µg/mL
methylene chloride	600 µg/mL
trichloroethene	80 µg/mL

in Dimethyl Sulfoxide

USPM-467E	**4 x 1 mL**	***
USPM-467E-1	**1 x 1 mL**	***

in Methanol

USPM-467F	**4 x 1 mL**	***
USPM-467F-1	**1 x 1 mL**	***

Revised USP 467 Calibration Mixes

5 Analytes

benzene	1000 µg/mL
chloroform	500 µg/mL
1,4-dioxane	1000 µg/mL
methylene chloride	5000 µg/mL
trichloroethene	1000 µg/mL

in Dimethyl Sulfoxide

USPM-467C	**4 x 1 mL**	***
USPM-467C-1	**1 x 1 mL**	***

in Methanol

USPM-467D	**4 x 1 mL**	***
USPM-467D-1	**1 x 1 mL**	***

USP 467 Calibration Mixtures

5 Analytes

benzene	1000 µg/mL
chloroform	500 µg/mL
1,4-dioxane	1000 µg/mL
methylene chloride	1000 µg/mL
trichloroethene	1000 µg/mL

in Dimethyl Sulfoxide

USPM-467A	**4 x 1 mL**	***
USPM-467A-1	**1 x 1 mL**	***

in Methanol

USPM-467B	**4 x 1 mL**	***
USPM-467B-1	**1 x 1 mL**	***

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Fluorocarbon Refrigerants – Freons

Fluorocarbon Refrigerants

All @ 100 µg/mL in Methanol	Freon #	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules
1-chloro-1,1-difluoroethane	142b	CFC-210	***	CFC-210-1	***	
chlorodifluoromethane	22	CFC-110	***	CFC-110-1	***	
chloroethane	160	HC-060	***	HC-060-1	***	
chloromethane	40	HC-090	***	HC-090-1	***	
chlorotrifluoromethane	13	CFC-120	***	CFC-120-1	***	
dichlorodifluoromethane	12	HC-140	***	HC-140-1	***	
1,1-dichloro-1-fluoroethane	141b	CFC-250	***	CFC-250-1	***	
dichlorofluoromethane	21	CFC-130	***	CFC-130-1	***	
1,2-dichloro-1,1,2,2-tetrafluoroethane	114	CFC-260	***	CFC-260-1	***	
1,1,1,2-tetrafluoroethane	134a	CFC-300	***	CFC-300-1	***	
1,1,2,2-tetrafluoroethane	134	CFC-310	***	CFC-310-1	***	
trichlorofluoromethane	11	HC-280	***	HC-280-1	***	
1,1,2-trichloro-1,2,2-trifluoroethane	113	HC-480	***	HC-480-1	***	
trifluoromethane	23	CFC-140	***	CFC-140-1	***	

Ozone Depleting Substances

Effective January 1, 1996, the manufacture of Class I Ozone Depleting Substances (ODSs) is prohibited in accordance with Title VI of the Clean Air Act. Among these substances are many that appear in the EPA and state analytical methods, or are required to be analyzed for under federal or state rules. There has been concern that, because of the ban, these compounds would no longer be available for the analysis of environmental contaminants. This issue was addressed in a subsequent rule published in the Federal Register (May 10, 1995, Vol. 60, No. 90, Pg. 24970). The EPA, in Appendix G to Subpart A of 40 CFR Part 82, specifically exempts laboratory and analytical uses of these compounds from the ban. Laboratory purposes are identified to include equipment calibration; use as extraction solvents, diluents, or carriers for chemical analysis; biochemical research; inert solvents for chemical reactions, as a carrier or laboratory chemical; and other critical analytical and laboratory purposes. Production for laboratory and analytical purposes is authorized provided that these laboratory and analytical chemicals shall contain only controlled substances manufactured to specific minimum purities. These pure, controlled substances can be subsequently mixed with other chemicals as is customary for laboratory and analytical uses.

ULTRA Scientific is pleased to continue to provide these compounds for use as analytical standards.

Standards for Minnesota Department of Health List – Method 465 D

VOC Mixtures (No Gases)

54 Analytes

benzene	1,3-dichlorobenzene	naphthalene
bromobenzene	1,4-dichlorobenzene	*n*-propylbenzene
bromochloromethane	1,1-dichloroethane	styrene
bromodichloromethane	1,2-dichloroethane	1,1,1,2-tetrachloroethane
bromoform	1,1-dichloroethene	1,1,2,2-tetrachloroethane
n-butylbenzene	*cis*-1,2-dichloroethene	tetrachloroethene
sec-butylbenzene	*trans*-1,2-dichloroethene	toluene
tert-butylbenzene	1,2-dichloropropane	1,2,3-trichlorobenzene
carbon tetrachloride	1,3-dichloropropane	1,2,4-trichlorobenzene
chlorobenzene	2,2-dichloropropane	1,1,1-trichloroethane
chloroform	1,1-dichloropropene	1,1,2-trichloroethane
2-chlorotoluene	*cis*-1,3-dichloropropene	trichloroethene
4-chlorotoluene	*trans*-1,3-dichloropropene	1,2,3-trichloropropane
dibromochloromethane	ethylbenzene	1,2,4-trimethylbenzene
1,2-dibromo-3-chloropropane	hexachlorobutadiene	1,3,5-trimethylbenzene
1,2-dibromoethane	isopropylbenzene	*o*-xylene
dibromomethane	4-isopropyltoluene	*m*-xylene
1,2-dichlorobenzene	methylene chloride	*p*-xylene

@ 200 µg/mL in Methanol

DWM-583	**4 x 1 mL ULTRApak®**	***
DWM-583-1	**1 x 1 mL**	***

@ 2000 µg/mL in Methanol

DWM-589N	**4 x 1 mL ULTRApak®**	***
DWM-589N-1	**1 x 1 mL**	***

VOC Additions Mixture (MN)

8 Analytes

- acetone
- allyl chloride
- 2-butanone *(MEK)*
- *tert*-butyl methyl ether *(MTBE)*
- ethyl ether
- 4-methyl-2-pentanone *(MIBK)*
- tetrahydrofuran *(THF)*
- 1,1,2-trichlorotrifluoroethane

@ 200 µg/mL in Methanol

SMN-102	**4 x 1 mL**	***
SMN-102-1	**1 x 1 mL**	***

Gas Mixture (MN)

7 Analytes

- bromomethane
- chloroethane
- chloromethane
- dichlorodifluoromethane
- dichlorofluoromethane
- trichlorofluoromethane
- vinyl chloride

@ 200 µg/mL in Methanol

SMN-101	**4 x 1 mL**	***
SMN-101-1	**1 x 1 mL**	***

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GC Column Test Mixture

Capillary Column Test Mixture

12 Analytes

methyl decanoate	0.423 µg/µL
methyl undecanoate	0.419 µg/µL
methyl dodecanoate	0.413 µg/µL
nonanal	0.400 µg/µL
2,3-butanediol	0.530 µg/µL
2,6-dimethylaniline	0.320 µg/µL
2,6-dimethylphenol	0.320 µg/µL
dicyclohexylamine	0.313 µg/µL
2-ethylhexanoic acid	0.380 µg/µL
1-octanol	0.355 µg/µL
n-undecane	0.287 µg/µL
n-decane	0.283 µg/µL

in Methylene Chloride

KGCC-101 **1 x 2 mL** ***

GC Detector Test Mixtures

Flame Ionization Detector Test Mixture

3 Analytes

n-tetradecane (C_{14})	0.033 %
n-pentadecane (C_{15})	0.033 %
n-hexadecane (C_{16})	0.033 %

in Hexane

FIDM **3 x 1 mL** ***

Electron Capture Detector Test Mixture

2 Analytes

aldrin	33 pg/µL
lindane	33 pg/µL

in Isooctane

ECDM **3 x 1 mL** ***

GC/MS Calibration

GC/MS Calibration Standard

Neat Material

perfluorotributylamine *(FC-43)*

GCS-200 **1 x 2 mL** ***

LC Test Standards

LC Caffeine Standards Kit

Kit - contains five vials

1 x 5 mL of each individual standard in Water

caffeine	5 µg/mL
caffeine	25 µg/mL
caffeine	125 µg/mL
caffeine	250 µg/mL
caffeine	500 µg/mL

LCS-6762 **Kit** ***

LC/MS Caffeine Standards Kit

Kit - contains five vials

1 x 5 mL of each individual standard in Water

caffeine	0.5 µg/mL
caffeine	1 µg/mL
caffeine	5 µg/mL
caffeine	25 µg/mL
caffeine	50 µg/mL

LCS-6917 **Kit** ***

LC Caffeine Standards Kit

Kit - contains six vials

1 x 10 mL of each individual standard in Water

caffeine	15 µg/mL
caffeine	40 µg/mL
caffeine	60 µg/mL
caffeine	80 µg/mL
caffeine	100 µg/mL
caffeine	1000 µg/mL

LCS-4045 **Kit** ***