

The EPA 600 Methods

Analysis of Organic Compounds in Industrial and Municipal Waste Water Discharges

The 600 series methods are designed for monitoring organic pollutants in industrial and municipal discharges under the Clean Water Act (see 40 CFR 136.1). In addition, the Non-Conventional Pesticides Methods are also included in this section. The 600 series methods may be obtained from ULTRA Scientific in the publication *Methods for the Determination of Organic Compounds in Industrial and Municipal Wastewater Discharges*, (see page 140), and all of the individual 600 series methods are available on our website.

ULTRA Scientific has prepared a series of reference standards for the 600 series methods, as well as the necessary surrogate and internal standards. 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 $\pm 0.5\%$. A certificate showing the actual weight of each analyte is supplied with each standard.



View and download the EPA 600 Methods at www.ultrasci.com

EPA Method	Page	EPA Method	Page
• Method 601	142	• Method 612	155
• Method 602	144	• Method 613	155
• Method 603	145	• Method 614	156
• Method 604	146	• Method 614.1	156
• Method 605	148	• Method 615	156
• Method 606	148	• Method 619	157
• Method 607	149	• Method 622	157
• Method 608	150	• Method 624	158
• Method 608.1	150	• Method 625	160
• Method 608.2	150	• Methods 629 – 644	168
• Method 609	152	• Method 680	293
• Method 610	152		

EPA Method 601

Purgeable Halocarbons

Method 601 is a purge and trap method for determining purgeable halocarbons using an electrolytic conductivity (Hall) detector.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: HCM-601
HC-070

Surrogate Standard: STM-290N

Technical Note

2-Chloroethyl vinyl ether is stable in solution by itself, but breaks down in the presence of other halocarbons. That is why ULTRA packages this analyte as a single component solution. If you prepare a working standard that contains 2-chloroethyl vinyl ether mixed with other halocarbons, be sure to monitor the stability of this analyte.

See also Method 8010B, page 173.

Recommended Method 601 Purgeable Halocarbon Mixture

28 Analytes

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

@ 100 µg/mL in Methanol

HCM-601 4 x 1 mL ***
HCM-601-1 1 x 1 mL ***

Recommended Method 601 2-Chloroethyl Vinyl Ether Standards

2-chloroethyl vinyl ether

@ 100 µg/mL in Methanol

HC-070 4 x 1 mL ***
HC-070-1 1 x 1 mL ***

@ 5000 µg/mL in Methanol

EPA-1016 1 x 1 mL ***

Purgeable Gas Mixture

5 Analytes

bromomethane
chloroethane
chloromethane
dichlorodifluoromethane
vinyl chloride

@ 100 µg/mL in Methanol

HCM-601G 4 x 1 mL ***
HCM-601G-1 1 x 1 mL ***

Recommended Method 601 Surrogate Standard Mixture

3 Analytes

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

@ 2000 µg/mL in Methanol

STM-290N 4 x 1 mL ***
STM-290N-1 1 x 1 mL ***

@ 20,000 µg/mL in Methanol

STM-291 4 x 1 mL ***
STM-291-1 1 x 1 mL ***



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Individual Internal & Surrogate Standards for Method 601

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 2000 µg/mL in Methanol</i>						
bromochloromethane	STS-180	***	STS-180-1	***		
2-bromo-1-chloropropane	STS-190	***	STS-190-1	***		
1,4-dichlorobutane	STS-200	***	STS-200-1	***		

Purgeable Halocarbons & Aromatics Mix

25 Analytes

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

@ 200 µg/mL in Methanol

HCM-621 4 x 1 mL ***
HCM-621-1 1 x 1 mL ***

Purgeable Gas Mixtures

6 Analytes

bromomethane
 chloroethane
 chloromethane
 dichlorodifluoromethane
 trichlorofluoromethane
 vinyl chloride

@ 200 µg/mL in Methanol

DWM-584 4 x 1 mL ***
DWM-584-1 1 x 1 mL ***

@ 2000 µg/mL in Methanol

DWM-544 4 x 1 mL ***
DWM-544-1 1 x 1 mL ***

Volatiles Mix 1 (VOA-1)

11 Analytes

carbon tetrachloride
 chlorobenzene
 1,3-dichlorobenzene
 1,4-dichlorobenzene
 1,2-dichloroethane
 1,1-dichloroethene
trans-1,2-dichloroethene
 1,2-dichloropropane
 ethylbenzene
 tetrachloroethene
 1,1,2-trichloroethane

@ 50 µg/mL in Methanol

EPA-2041N 4 x 1 mL ***
EPA-2041N-1 1 x 1 mL ***

@ 500 µg/mL in Methanol

EPA-2141N 4 x 1 mL ***
EPA-2141N-1 1 x 1 mL ***

Volatiles Mix 2 (VOA-2)

12 Analytes

benzene
 bromodichloromethane
 bromoform
 chloroform
 dibromochloromethane
 1,2-dichlorobenzene
 1,1-dichloroethane
 methylene chloride
 1,1,2,2-tetrachloroethane
 toluene
 1,1,1-trichloroethane
 trichloroethene

@ 50 µg/mL in Methanol

EPA-2042N 4 x 1 mL ***
EPA-2142N-1 1 x 1 mL ***

@ 500 µg/mL in Methanol

EPA-2142N 4 x 1 mL ***
EPA-2142N-1 1 x 1 mL ***

Purgeable Halocarbon Kit

Kit - contains thirty ampules:

1 x 1 mL of each individual component

@ 100 µg/mL in Methanol:

bromodichloromethane
 bromoform
 bromomethane
 carbon tetrachloride
 chlorobenzene
 chloroethane
 2-chloroethylvinyl ether
 chloroform
 chloromethane
 dibromochloromethane
 1,2-dichlorobenzene
 1,3-dichlorobenzene
 1,4-dichlorobenzene
 dichlorodifluoromethane
 1,1-dichloroethane
 1,2-dichloroethane
 1,1-dichloroethene
trans-1,2-dichloroethene
 1,2-dichloropropane
cis-1,3-dichloropropene
trans-1,3-dichloropropene
 methylene chloride
 1,1,2,2-tetrachloroethane
 tetrachloroethene
 1,1,1-trichloroethane
 1,1,2-trichloroethane
 trichloroethene
 trichlorofluoromethane
 vinyl chloride
plus
 Purgeable Halocarbons Mixture
 (HCM-601-1)

HCK-601 Kit ***

Performance Check Mixture

8 Analytes

benzene
 carbon tetrachloride
 1,4-dichlorobenzene
 1,2-dichloroethane
 1,1-dichloroethene
 1,1,1-trichloroethane
 trichloroethene
 vinyl chloride

@ 200 µg/mL in Methanol

EPA-100 4 x 1 mL ***
EPA-100-1 1 x 1 mL ***

EPA Method 602

Purgeable Aromatics

Method 602 is a purge and trap method for determining purgeable aromatics, using a PID.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standard: AMM-602N

Internal &

Surrogate Standard: STS-220N

See also Method 8020A, page 176.

Recommended Method 602 Purgeable Aromatics Mixture

7 Analytes

benzene
chlorobenzene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
ethylbenzene
toluene

@ 100 µg/mL in Methanol

AMM-602N	4 x 1 mL	***
AMM-602N-1	1 x 1 mL	***

Recommended Internal and Surrogate Standard

α,α,α -trifluorotoluene

@ 200 µg/mL in Methanol

STS-221	4 x 1 mL	***
STS-221-1	1 x 1 mL	***

@ 2000 µg/mL in Methanol

STS-220N	4 x 1 mL	***
STS-220N-1	1 x 1 mL	***

Purgeable Aromatics Mixtures

11 Analytes

benzene
chlorobenzene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
ethylbenzene
methyl tert-butyl ether
toluene
o-xylene
m-xylene
p-xylene

@ 200 µg/mL in Methanol

AMM-622	4 x 1 mL	***
AMM-622-1	1 x 1 mL	***

@ 2000 µg/mL in Methanol

SCA-100	4 x 1 mL	***
SCA-100-1	1 x 1 mL	***

Purgeable Aromatics Kit

Kit - contains eight ampules:

1 x 1 mL of each individual component

@ 100 µg/mL in Methanol:

benzene
chlorobenzene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
ethylbenzene
toluene
plus

Purgeable Aromatics Mixture

(AMM-602N-1)

AMK-602	Kit	***
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EPA Method 603

Acrolein and Acrylonitrile

Method 603 is a purge and trap method for determining acrolein and acrylonitrile, using a flame ionization detector.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standard: AMN-603

See also Method 8030A, page 179.

*** Made fresh every month ***

Recommended Method 603 Acrolein-Acrylonitrile Mixtures

2 Analytes (see tech note below)

acrolein
acrylonitrile

@ 100 µg/mL in Methanol

AMN-603	4 x 1 mL	***
AMN-603-1	1 x 1 mL	***

@ 2000 µg/mL in Methanol

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

Acrolein-Acrylonitrile Mixtures in Water

2 Analytes (see tech note below)

acrolein
acrylonitrile

@ 1000 µg/mL in Water

AMN-613	4 x 1 mL	***
AMN-613-1	1 x 1 mL	***

@ 10,000 µg/mL in Water

AMN-803	4 x 1 mL	***
AMN-803-1	1 x 1 mL	***

Technical Note: Acrolein Standards

Acrolein is known to undergo polymerization with time. ULTRA prepares the standards which 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.

Ordering Is Easy

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02852



EPA Method 604

Phenols

Method 604 is used to determine phenols. Samples are extracted, then concentrated in a Kuderna-Danish apparatus. Quantitation is by GC/FID, or the extract is derivatized and determined on GC/ECD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: US-107N
EPA-2008N

Internal &
Surrogate Standards: IST-251
IST-261
IST-271

Technical Note

Phenols are subject to absorption on the active sites of GC columns. The more acidic phenols, such as 2,4-dinitrophenol, will chromatograph poorly leading to poor quantitation.

See also Method 8041A, page 180.

Recommended Method 604 Phenols Mixtures

11 Analytes

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

@ 2000 µg/mL in Methylene Chloride

US-107N-4	4 x 1 mL	***
US-107N	1 x 1 mL	***

@ 100 µg/mL in Methanol

EPA-2008N	4 x 1 mL	***
EPA-2008N-1	1 x 1 mL	***

Phenols Mixtures

11 Analytes

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

@ 20 µg/mL in Methanol

PHM-604	4 x 1 mL	***
PHM-604-1	1 x 1 mL	***

@ 500 µg/mL in Methanol

PHM-624	4 x 1 mL	***
PHM-624-1	1 x 1 mL	***

Acids Surrogate Standard Mixture

3 Analytes

2-fluorophenol
phenol-d₅
2,4,6-tribromophenol

@ 2000 µg/mL in Methanol

ISM-290N	4 x 1 mL	***
ISM-290N-1	1 x 1 mL	***



Phenols Mixture

11 Analytes

4-chloro-3-methylphenol	2500 µg/mL
2-chlorophenol	500 µg/mL
2,4-dichlorophenol	500 µg/mL
2,4-dimethylphenol	500 µg/mL
2,4-dinitrophenol	1500 µg/mL
4,6-dinitro-2-methylphenol	2500 µg/mL
2-nitrophenol	500 µg/mL
4-nitrophenol	2500 µg/mL
pentachlorophenol	2500 µg/mL
phenol	600 µg/mL
2,4,6-trichlorophenol	500 µg/mL

in Methanol

XY-0126	4 x 1 mL	***
XY-0126-1	1 x 1 mL	***

Phenols Kit

Kit - contains twelve ampules:

1 x 1 mL of each individual component
@ 100 µg/mL in Methanol:

4-chloro-3-methylphenol
2-chlorophenol
2,4-dichlorophenol
2,4-dimethylphenol
2,4-dinitrophenol (1000 µg/mL)
4,6-dinitro-2-methylphenol (1000 µg/mL)
2-nitrophenol
4-nitrophenol
pentachlorophenol (1000 µg/mL)
phenol
2,4,6-trichlorophenol
plus
Phenols Mixture (EPA-2008N-1)

PHK-604A **Kit** *******

Recommended Internal & Surrogate Standards for Method 604

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules
<i>All @ 2000 µg/mL in Methanol</i>					
2-fluorophenol	IST-251	***	IST-251-1	***	
pentafluorophenol	IST-261	***	IST-261-1	***	
phenol-d₅	IST-271	***	IST-271-1	***	
2,4,6-tribromophenol	ATS-181	***	ATS-181-1	***	



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EPA Method 605

Benzidines

Method 605 is an HPLC method for benzidines, using an electrochemical detector.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Method 605 Benzidines Mixture

2 Analytes

benzidine
3,3'-dichlorobenzidine

@ 2000 µg/mL in Methanol

US-105N-4	4 x 1 mL	***
US-105N	1 x 1 mL	***

EPA Method 606

Phthalates

Method 606 is used to measure phthalates. Samples are extracted, concentrated in a Kuderna-Danish apparatus, and then quantitated with GC/ECD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standard: PSM-606

Technical Note

Phthalate esters are contaminants in many products found in the laboratory, particularly plastics. Great care must be exercised to prevent contamination. Glassware must be scrupulously cleaned to eliminate backgrounds phthalates not derived from the sample.

See also Method 8061A, page 182.

Recommended Method 606 Phthalates Mixtures

6 Analytes

bis(2-ethylhexyl) phthalate
butyl benzyl phthalate
di-*n*-butyl phthalate
diethyl phthalate
dimethyl phthalate
di-*n*-octyl phthalate

@ 100 µg/mL in Methanol

PSM-606	4 x 1 mL	***
PSM-606-1	1 x 1 mL	***

@ 1000 µg/mL in Isooctane

PSM-806	4 x 1 mL	***
PSM-806-1	1 x 1 mL	***

Phthalate Esters QC Reference Mix (PHE)

6 Analytes

bis(2-ethylhexyl) phthalate	50 µg/mL
butyl benzyl phthalate	10 µg/mL
dimethyl phthalate	25 µg/mL
di- <i>n</i> -butyl phthalate	25 µg/mL
diethyl phthalate	25 µg/mL
di- <i>n</i> -octyl phthalate	50 µg/mL

in Acetone

EPA-2037N	4 x 1 mL	***
EPA-2037N-1	1 x 1 mL	***

Phthalates Kit

Kit - contains seven ampules:

1 x 1 mL of each individual component

@ 100 µg/mL in Methanol:

bis(2-ethylhexyl) phthalate
butyl benzyl phthalate
di-*n*-butyl phthalate
diethyl phthalate
dimethyl phthalate
di-*n*-octyl phthalate
plus
Phthalates Mixture (PSM-606-1)

PSK-606	Kit	***
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EPA Method 607

Nitrosamines

Method 607 is used to measure nitrosamines. Samples are extracted, concentrated in a Kuderna-Danish apparatus, then quantitated with GC and nitrogen-phosphorus detector.

To read the complete method, log onto our website at www.ultrasci.com.

See also Method 8070A, page 183.

Recommended Method 607 Nitrosamines Mixtures

3 Analytes

N-nitrosodimethylamine
N-nitrosodiphenylamine
N-nitrosodi-*n*-propylamine

@ 2000 µg/mL in Methanol

NSM-807	4 x 1 mL	***
NSM-807-1	1 x 1 mL	***

Technical Note

N-Nitrosodiphenylamine may undergo transnitrosation reactions in the presence of reactive amines during the solution concentration step. N-Nitrosodiphenylamine may also decompose in the gas chromatographic inlet to diphenylamine.



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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 $\pm 0.2\%$ nominal for inorganic analytes and $\pm 0.5\%$ 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.



EPA Method 608, 608.1, 608.2

Organochlorine Pesticides and PCBs

Method 608 is used to measure organochlorine pesticides and PCBs, using extraction followed by GC/ECD. Methods 608.1 and 608.2 include additional analytes.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: PPM-608B
PPM-608F

Surrogate Standards: ISM-320
ISM-301

Technical Note

Chlordane, toxaphene, and the Aroclors are examples of technical mixtures composed of many compounds. Due to variations in the manufacturing process, the exact composition of these mixtures varies from lot to lot.

See also Method 8080A, page 184.

Recommended Method 608 Organochlorine Pesticides Mixture

16 Analytes

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

@ 20 µg/mL in Methanol

PPM-608B 4 x 1 mL ***
PPM-608B-1 1 x 1 mL ***

Recommended Method 608 Pesticide Surrogate Standard Spiking Solutions

2 Analytes

2,4,5,6-tetrachloro-*m*-xylene
decachlorobiphenyl

@ 200 µg/mL in Acetone

ISM-320 4 x 1 mL ***
ISM-320-1 1 x 1 mL ***

2 Analytes

dibutyl chlorendate
2,4,5,6-tetrachloro-*m*-xylene

@ 200 µg/mL in Acetone

ISM-301 4 x 1 mL ***
ISM-301-1 1 x 1 mL ***

Recommended Method 608 Chlordane, Toxaphene, and PCB Standards

	4 x 1 mL ULTRApaks®			1 x 1 mL Ampules		20 or More	
<i>All @ 100 µg/mL in Methanol</i>							
chlordane	PP-150	***		PP-150-1	***		
toxaphene	PP-270	***		PP-270-1	***		
Aroclor 1016	PP-280	***		PP-280-1	***		
Aroclor 1221	PP-290	***		PP-290-1	***		
Aroclor 1232	PP-300	***		PP-300-1	***		
Aroclor 1242	PP-310	***		PP-310-1	***		
Aroclor 1248	PP-340	***		PP-340-1	***		
Aroclor 1254	PP-350	***		PP-350-1	***		
Aroclor 1260	PP-360	***		PP-360-1	***		

See pages 296-297 for additional Aroclor solutions



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Organochlorine Pesticides Mixture*16 Analytes*

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

@ 2000 µg/mL in Hexane/Toluene (1:1)

US-102BN-4	4 x 1 mL	***
US-102BN	1 x 1 mL	***

Chlorinated Hydrocarbon Pesticides Mix 1*6 Analytes*

aldrin	100 µg/mL
4,4'-DDD	500 µg/mL
4,4'-DDE	100 µg/mL
4,4'-DDT	500 µg/mL
dieldrin	100 µg/mL
heptachlor	100 µg/mL

in Acetone

EPA-2101N	4 x 1 mL	***
EPA-2101N-1	1 x 1 mL	***

Waste Water Pesticides Mixture*7 Analytes*

aldrin
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
heptachlor
heptachlor epoxide - isomer B

@ 100 µg/mL in Acetone

PPM-608G	4 x 1 mL	***
PPM-608G-1	1 x 1 mL	***

Organochlorine Pesticides Mixture*17 Analytes*

aldrin	20 µg/mL
α-BHC	20 µg/mL
β-BHC	20 µg/mL
δ-BHC	20 µg/mL
γ-BHC	20 µg/mL
4,4'-DDD	100 µg/mL
4,4'-DDE	20 µg/mL
4,4'-DDT	100 µg/mL
dieldrin	20 µg/mL
endosulfan I	20 µg/mL
endosulfan II	100 µg/mL
endosulfan sulfate	100 µg/mL
endrin	100 µg/mL
endrin aldehyde	20 µg/mL
heptachlor	20 µg/mL
heptachlor epoxide (B)	20 µg/mL
methoxychlor	20 µg/mL

in Methanol

PPM-608C	4 x 1 mL	***
PPM-608C-1	1 x 1 mL	***

Organochlorine Pesticides Kit**Kit - contains twenty-six ampules:**

1 x 1 mL of each individual analyte

@ 100 µg/mL in Methanol:

aldrin
α-BHC
β-BHC
δ-BHC
γ-BHC
chlordane
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
endosulfan I
endosulfan II
endosulfan sulfate
endrin
endrin aldehyde
heptachlor
heptachlor epoxide (B)
toxaphene
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
plus
Pesticides Mixture (PPM-608B-1)

PPK-608B	Kit	***
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Organochlorine Pesticides Mixture for EPA Method 608.2*5 Analytes*

chlorothalonil	1 µg/mL
DCEPA	3 µg/mL
dichloran	2 µg/mL
methoxychlor	40 µg/mL
permethrin (mixed isomers)	400 µg/mL

in Hexane

PPM-608F	4 x 1 mL	***
PPM-608F-1	1 x 1 mL	***

EPA Method 609

Nitroaromatics and Isophorone

Method 609 is used to measure nitroaromatics and isophorone. Samples are extracted, concentrated in a Kuderna-Danish apparatus, then quantitated with GC/FID and GC/ECD.

To read the complete method, log onto our website at www.ultrasci.com.

See also Method 8091, page 189.

Recommended Method 609 Nitroaromatics and Isophorone Mixture

4 Analytes

2,4-dinitrotoluene
2,6-dinitrotoluene
isophorone
nitrobenzene

@ 100 µg/mL in Methanol

NAIM-609	4 x 1 mL	***
NAIM-609-1	1 x 1 mL	***

EPA Method 610

Polynuclear Aromatic Hydrocarbons

Method 610 is used to measure polynuclear aromatic hydrocarbons, using extraction followed by either GC/FID, or HPLC using a UV or a fluorescence detector.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: US-106N
PM-611

See also Method 8100, page 191.

Recommended Method 610 PAH Mixtures

16 Analytes

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

@ 20 µg/mL in Methylene Chloride

PM-610	4 x 1 mL	***
PM-610-1	1 x 1 mL	***

@ 100 µg/mL in Methylene Chloride

PM-611	4 x 1 mL	***
PM-611-1	1 x 1 mL	***

@ 2000 µg/mL in

Methylene Chloride/Benzene (1:1)

US-106N-4	4 x 1 mL	***
US-106N	1 x 1 mL	***

PAH Kit

Kit - contains seventeen ampules:

1 x 1 mL of each individual component
@ 100 µg/mL in Methylene Chloride:

acenaphthene *
acenaphthylene *
anthracene
benz[a]anthracene
benzo[b]fluoranthene
benzo[k]fluoranthene
benzo[ghi]perylene
benzo[a]pyrene
chrysene
dibenz[a,h]anthracene
fluoranthene
fluorene *
indeno[1,2,3-cd]pyrene
naphthalene *
phenanthrene
pyrene
plus
PAH Mixture (PM-610-1)

(* methanol solvent)

PK-610	Kit	***
---------------	------------	------------

PAH Mixture*16 Analytes*

acenaphthene	100 µg/mL
acenaphthylene	100 µg/mL
anthracene	100 µg/mL
benz[a]anthracene	10 µg/mL
benzo[b]fluoranthene	10 µg/mL
benzo[k]fluoranthene	5 µg/mL
benzo[ghi]perylene	10 µg/mL
benzo[a]pyrene	10 µg/mL
chrysene	10 µg/mL
dibenz[a,h]anthracene	10 µg/mL
fluoranthene	10 µg/mL
fluorene	100 µg/mL
indeno[1,2,3-cd]pyrene	10 µg/mL
naphthalene	100 µg/mL
phenanthrene	100 µg/mL
pyrene	10 µg/mL

in Acetonitrile

PM-613A	4 x 1 mL	***
PM-613A-1	1 x 1 mL	***

PAH Mixture*16 Analytes*

acenaphthene	100 µg/mL
acenaphthylene	200 µg/mL
anthracene	100 µg/mL
benz[a]anthracene	100 µg/mL
benzo[b]fluoranthene	200 µg/mL
benzo[k]fluoranthene	100 µg/mL
benzo[ghi]perylene	200 µg/mL
benzo[a]pyrene	100 µg/mL
chrysene	100 µg/mL
dibenz[a,h]anthracene	200 µg/mL
fluoranthene	200 µg/mL
fluorene	200 µg/mL
indeno[1,2,3-cd]pyrene	100 µg/mL
naphthalene	1000 µg/mL
phenanthrene	100 µg/mL
pyrene	100 µg/mL

in Methylene Chloride

PM-612	4 x 1 mL	***
PM-612-1	1 x 1 mL	***

PAH Mixture #1*8 Analytes*

acenaphthene	1000 µg/mL
anthracene	1000 µg/mL
benzo[k]fluoranthene	50 µg/mL
chrysene	100 µg/mL
fluorene	1000 µg/mL
indeno[1,2,3-cd]pyrene	100 µg/mL
naphthalene	1000 µg/mL
pyrene	100 µg/mL

in Acetonitrile

EPA-2138N	4 x 1 mL	***
EPA-2138N-1	1 x 1 mL	***

PAH Mix 1 (PNA-1)*7 Analytes*

acenaphthene	100 µg/mL
anthracene	100 µg/mL
benzo[k]fluoranthene	5 µg/mL
chrysene	10 µg/mL
indeno[1,2,3-cd]pyrene	10 µg/mL
naphthalene	100 µg/mL
pyrene	10 µg/mL

in Acetonitrile

EPA-2038N	4 x 1 mL	***
EPA-2038N-1	1 x 1 mL	***

PAH Mixture #2*8 Analytes*

acenaphthylene	1000 µg/mL
benz[a]anthracene	100 µg/mL
benzo[b]fluoranthene	100 µg/mL
benzo[ghi]perylene	100 µg/mL
benzo[a]pyrene	100 µg/mL
dibenz[a,h]anthracene	100 µg/mL
fluoranthene	100 µg/mL
phenanthrene	1000 µg/mL

in Acetonitrile

EPA-2139N	4 x 1 mL	***
EPA-2139N-1	1 x 1 mL	***

PAH Mix 2 (PNA-2)*8 Analytes*

acenaphthylene	100 µg/mL
benz[a]anthracene	10 µg/mL
benzo[b]fluoranthene	10 µg/mL
benzo[ghi]perylene	10 µg/mL
benzo[a]pyrene	10 µg/mL
dibenz[a,h]anthracene	10 µg/mL
fluoranthene	10 µg/mL
phenanthrene	100 µg/mL

in Acetonitrile

EPA-2039N	4 x 1 mL	***
EPA-2039N-1	1 x 1 mL	***



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EPA Method 612

Chlorinated Hydrocarbons

Method 612 is used to measure chlorinated hydrocarbons, using extraction followed by GC/ECD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standard: CHM-622

See also Method 8121, page 193.

Recommended Method 612 Chlorinated Hydrocarbons Mixture

9 Analytes

2-chloronaphthalene	400 µg/mL
1,2-dichlorobenzene	200 µg/mL
1,3-dichlorobenzene	200 µg/mL
1,4-dichlorobenzene	400 µg/mL
hexachlorobenzene	1 µg/mL
hexachlorobutadiene	1 µg/mL
hexachlorocyclopentadiene	1 µg/mL
hexachloroethane	1 µg/mL
1,2,4-trichlorobenzene	40 µg/mL

in Isooctane

CHM-622	4 x 1 mL	***
CHM-622-1	1 x 1 mL	***

Chlorinated Hydrocarbons Mixture

9 Analytes

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

@ 100 µg/mL in

Methanol / Methylene Chloride (1:1)

CHM-612	4 x 1 mL	***
CHM-612-1	1 x 1 mL	***

Chlorinated Hydrocarbons Kit

Kit - contains ten ampules:

1 x 1 mL of each individual component @ 100 µg/mL in Methanol:

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

plus

Chlorinated Hydrocarbons Mixture (CHM-612-1)

(* methylene chloride solvent)

CHK-612

Kit

EPA Method 613

2,3,7,8-TCDD

Method 613 is used to determine 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, using extraction followed by capillary column GC/MS.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Method 613 TCDD Solution

2,3,7,8-tetrachlorodibenzo-*p*-dioxin

@ 10 µg/mL in Toluene

RPE-029S	1 x 1 mL	***
----------	----------	-----

EPA Methods 614, 614.1

Organophosphorus Pesticides

Methods 614 and 614.1 are used to measure organophosphorus pesticides. Samples are extracted, then quantitated using GC/NPD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: SPM-614
SPM-624

See also Method 8141B, page 194.

Recommended Method 614 Organophosphorus Pesticides Mixture

8 Analytes

azinphos methyl
demeton
diazinon
disulfoton
ethion
malathion
parathion ethyl
parathion methyl

@ 200 µg/mL in Acetone

SPM-614 4 x 1 mL ***
SPM-614-1 1 x 1 mL ***

Recommended Method 614.1 Organophosphorus Pesticides Mixture

4 Analytes

dioxathion 10 µg/mL
EPN 200 µg/mL
ethion 100 µg/mL
terbufos 4 µg/mL

in Hexane

SPM-624 4 x 1 mL ***
SPM-624-1 1 x 1 mL ***

EPA Method 615

Chlorinated Herbicides

Method 615 is used to measure chlorinated herbicides. Samples are extracted, derivatized, and quantitated on GC/ECD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standard: HBM-8150A

See also Method 8150B, page 196.

Recommended Method 615 Chlorinated 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 ***

Internal and Surrogate Standard Solutions for Method 615

4,4'-dibromooctafluorobiphenyl

@ 250 µg/mL in Acetone

PPS-171 4 x 1 mL ***
PPS-171-1 1 x 1 mL ***

2,4-dichlorophenylacetic acid (DCAA)

@ 100 µg/mL in Acetone

PPS-165 4 x 1 mL ***
PPS-165-1 1 x 1 mL ***

DCAA methyl ester

@ 100 µg/mL in Acetone

PPS-166 4 x 1 mL ***
PPS-166-1 1 x 1 mL ***

EPA Method 619

Triazine Pesticides

Method 619 is used to measure triazine pesticides. Samples are extracted, then quantitated using GC/NPD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Method 619 Triazine Pesticides Mixture

11 Analytes

ametryn	secbumeton
atraton	simetryn
atrazine	simazine
prometon	terbuthylazine
prometryn	terbutryn
propazine	

@ 100 µg/mL in Acetone

NPM-619	4 x 1 mL	***
NPM-619-1	1 x 1 mL	***

EPA Method 622

Organophosphorus Pesticides

Method 622 is used to measure organophosphorus pesticides. Samples are extracted, then quantitated using GC/NPD or GC/FPD.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: SPM-622A
SPM-622C
SPM-622D

See also Method 8141B, page 194.

Recommended Method 622 Organophosphorus Pesticides Mixture

10 Analytes

demeton	25 µg/mL
phorate	15 µg/mL
disulfoton	20 µg/mL
trichloronate	15 µg/mL
fenthion	10 µg/mL
tokuthion	50 µg/mL
bolstar	15 µg/mL
fensulfothion	150 µg/mL
azinphos methyl	150 µg/mL
coumaphos	150 µg/mL

in Hexane

SPM-622A	4 x 1 mL	***
SPM-622A-1	1 x 1 mL	***

Recommended Method 622 Naled Solution

naled

@ 10 µg/mL in Hexane

SPM-622D	4 x 1 mL	***
SPM-622D-1	1 x 1 mL	***

Recommended Method 622 Organophosphorus Pesticides Mixture

7 Analytes

ethoprop	25 µg/mL
parathion methyl	30 µg/mL
ronnel	30 µg/mL
chlorpyrifos methyl	30 µg/mL
chlorpyrifos	30 µg/mL
merphos	25 µg/mL
diazinon	60 µg/mL

in Hexane

SPM-622C	4 x 1 mL	***
SPM-622C-1	1 x 1 mL	***

EPA Method 624

Purgeables

Method 624 is a GC/MS method for purgeables.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: PMX-110
HC-070

Surrogate Standard: STM-290N

Technical Note

2-Chloroethyl vinyl ether is stable in solution by itself, but breaks down in the presence of other halocarbons. That is why ULTRA packages this analyte as a single component solution. If you prepare a working standard that contains 2-chloroethyl vinyl ether mixed with other halocarbons, be sure to monitor the stability of this analyte.

EPA Method 624 Kit

Kit - contains four ampules:

1 x 1 mL of each of the following standards

Purgeable Mixture	(PMX-110-1)
Chloroethyl Vinyl Ether Soln.	(HC-070-1)
Surrogate Std Mixture	(STM-290N-1)
BFB Solution	(STS-110N-1)

PMK-624 **Kit** *******

2-Chloroethyl Vinyl Ether Standards

2-chloroethyl vinyl ether

@ 100 µg/mL in Methanol

HC-070	4 x 1 mL	***
HC-070-1	1 x 1 mL	***

@ 5000 µg/mL in Methanol

EPA-1016	1 x 1 mL	***
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Recommended Method 624 Purgeable Mixtures

30 Analytes

benzene
bromodichloromethane
bromoform
bromomethane
carbon tetrachloride
chlorobenzene
chloroethane
chloroform
chloromethane
dibromochloromethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,1-dichloroethane
1,2-dichloroethane
1,1-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
cis-1,3-dichloropropene
trans-1,3-dichloropropene
ethylbenzene
methylene chloride
1,1,2,2-tetrachloroethane
tetrachloroethene
toluene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene
trichlorofluoromethane
vinyl chloride

@ 20 µg/mL in Methanol

PMX-100	4 x 1 mL	***
PMX-100-1	1 x 1 mL	***

@ 100 µg/mL in Methanol

PMX-110	4 x 1 mL	***
PMX-110-1	1 x 1 mL	***

Surrogate Standard Mixture

3 Analytes

4-bromofluorobenzene
fluorobenzene
pentafluorobenzene

@ 20,000 µg/mL in Methanol

STM-390	4 x 1 mL	***
STM-390-1	1 x 1 mL	***

Purgeable Mixture

25 Analytes

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

@ 2000 µg/mL in Methanol

PMX-160	4 x 1 mL	***
PMX-160-1	1 x 1 mL	***

Recommended Method 624 Surrogate Standard Mixture

3 Analytes

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

@ 2000 µg/mL in Methanol

STM-290N	4 x 1 mL	***
STM-290N-1	1 x 1 mL	***

@ 20,000 µg/mL in Methanol

STM-291	4 x 1 mL	***
STM-291-1	1 x 1 mL	***

Purgeable A Mixture

11 Analytes

carbon tetrachloride
chlorobenzene
chloroform
dibromochloromethane
1,1-dichloroethane
1,1-dichloroethene
1,2-dichloropropane
methylene chloride
tetrachloroethene
1,1,2-trichloroethane
trichloroethene

@ 200 µg/mL in Methanol

XY-0115 4 x 1 mL ***
XY-0115-1 1 x 1 mL ***

Purgeable B Mixture

12 Analytes

benzene
bromodichloromethane
bromoform
1,2-dichloroethane
trans-1,2-dichloroethene
cis-1,3-dichloropropene
trans-1,3-dichloropropene
ethylbenzene
1,1,2,2-tetrachloroethane
toluene
1,1,1-trichloroethane
trichlorofluoromethane

@ 200 µg/mL in Methanol

XY-0116 4 x 1 mL ***
XY-0116-1 1 x 1 mL ***

Volatiles Mix 1 (VOA-1)

11 Analytes

carbon tetrachloride
chlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
1,2-dichloroethane
1,1-dichloroethene
trans-1,2-dichloroethene
1,2-dichloropropane
ethylbenzene
tetrachloroethene
1,1,2-trichloroethane

@ 50 µg/mL in Methanol

EPA-2041N 4 x 1 mL ***
EPA-2041N-1 1 x 1 mL ***

@ 500 µg/mL in Methanol

EPA-2141N 4 x 1 mL ***
EPA-2141N-1 1 x 1 mL ***

Purgeable Gas Mixtures

6 Analytes

bromomethane
chloroethane
chloromethane
dichlorodifluoromethane
trichlorofluoromethane
vinyl chloride

@ 200 µg/mL in Methanol

DWM-584 4 x 1 mL ***
DWM-584-1 1 x 1 mL ***

@ 2000 µg/mL in Methanol

DWM-544 4 x 1 mL ***
DWM-544-1 1 x 1 mL ***

Purgeable Gas Mixture

5 Analytes

bromomethane
chloroethane
chloromethane
dichlorodifluoromethane
vinyl chloride

@ 100 µg/mL in Methanol

HCM-601G 4 x 1 mL ***
HCM-601G-1 1 x 1 mL ***

Volatiles Mix 2 (VOA-2)

12 Analytes

benzene
bromodichloromethane
bromoform
chloroform
dibromochloromethane
1,2-dichlorobenzene
1,1-dichloroethane
methylene chloride
1,1,2,2-tetrachloroethane
toluene
1,1,1-trichloroethane
trichloroethene

@ 50 µg/mL in Methanol

EPA-2042N 4 x 1 mL ***
EPA-2142N-1 1 x 1 mL ***

@ 500 µg/mL in Methanol

EPA-2142N 4 x 1 mL ***
EPA-2142N-1 1 x 1 mL ***

Internal, Surrogate, and GC/MS Calibration Standards for Method 624

4 x 1 mL ULTRApak® 1 x 1 mL Ampoules 20 or More

All @ 2000 µg/mL in Methanol

bromochloromethane	STS-180	***	STS-180-1	***
2-bromo-1-chloropropane	STS-190	***	STS-190-1	***
4-bromofluorobenzene	STS-110N	***	STS-110N-1	***
1,4-dichlorobutane	STS-200	***	STS-200-1	***
1,2-dichloroethane-d₄	STS-120	***	STS-120-1	***
1,4-difluorobenzene	STS-130	***	STS-130-1	***
ethylbenzene-d₁₀	STS-150	***	STS-150-1	***
fluorobenzene	STS-160	***	STS-160-1	***
pentafluorobenzene	STS-170	***	STS-170-1	***

EPA Method 625

Base/Neutrals and Acids

Method 625 is a GC/MS method for extractables.

To read the complete method, log onto our website at www.ultrasci.com.

Recommended Standards

Calibration Standards: 625-MA
PHM-604
PPM-625B

Technical Notes

The base/neutral extraction in this method significantly reduces the recovery of phenol, 2-methylphenol and 2,4-dimethylphenol, therefore results obtained with this method are minimum concentrations.

The packed columns recommended for the basic fraction of this method may not be adequate to resolve certain isomeric pairs. These pairs include: anthracene and phenanthrene; chrysene and benz[a]anthracene; benzo[b]fluoranthene and benzo[k]fluoranthene. Alternative methods, such as method 610, should be employed.

See also Method 8270D, page 204.

EPA Method 625 Kit

Kit - contains five ampules:

1 x 1 mL of each of the following standards

B/N Extractables Mixture (625-MA-1)
Acid Extractables Mixture (PHM-604-1)
B/N Surrogate Std Mixture (ISM-280N-1)
Acid Surrogate Std Mixture (ISM-290N-1)
Internal Std Mixture (US-108N)

SVK-625A Kit ***

Recommended Method 625 Base/Neutrals Extractables Mixture

41 Analytes

acenaphthene	2-chloronaphthalene	fluoranthene
acenaphthylene	4-chlorophenyl phenyl ether	fluorene
anthracene	chrysene	hexachlorobenzene
benz[a]anthracene	dibenz[a,h]anthracene	hexachlorobutadiene
benzo[b]fluoranthene	di- <i>n</i> -butyl phthalate	hexachloroethane
benzo[k]fluoranthene	1,2-dichlorobenzene	indeno[1,2,3-cd]pyrene
benzo[ghi]perylene	1,3-dichlorobenzene	isophorone
benzo[a]pyrene	1,4-dichlorobenzene	naphthalene
bis(2-chloroethyl) ether	3,3'-dichlorobenzidine	nitrobenzene
bis(2-chloroethoxy)methane	diethyl phthalate	N-nitrosodi- <i>n</i> -propylamine
bis(2-ethylhexyl) phthalate	dimethyl phthalate	phenanthrene
bis(2-chloroisopropyl) ether	2,4-dinitrotoluene	pyrene
4-bromophenyl phenyl ether	2,6-dinitrotoluene	1,2,4-trichlorobenzene
butyl benzyl phthalate	di- <i>n</i> -octyl phthalate	

@ 20 µg/mL in Methanol/Methylene Chloride

625-MA	4 x 1 mL ULTRApak®	***
625-MA-1	1 x 1 mL	***

Recommended Method 625 Acid Extractables Mixture

11 Analytes

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

@ 20 µg/mL in Methanol

PHM-604	4 x 1 mL	***
PHM-604-1	1 x 1 mL	***

Base/Neutrals Surrogate Mixture

3 Analytes

nitrobenzene-d₅
2-fluorobiphenyl
p-terphenyl-d₁₄

@ 1000 µg/mL in Methylene Chloride

ISM-280N	4 x 1 mL	***
ISM-280N-1	1 x 1 mL	***

Internal Standard Mixtures

6 Analytes

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

@ 2000 µg/mL in Methylene Chloride

ISM-560	4 x 1 mL	***
ISM-560-1	1 x 1 mL	***

@ 4000 µg/mL in Methylene Chloride

US-108N-4	4 x 1 mL	***
US-108N	1 x 1 mL	***

Acids Surrogate Standard Mixture

3 Analytes

2-fluorophenol
phenol-d₅
2,4,6-tribromophenol

@ 2000 µg/mL in Methanol

ISM-290N	4 x 1 mL	***
ISM-290N-1	1 x 1 mL	***

Base/Neutrals Extractables Mixtures*44 Analytes*

acenaphthene	2-chloronaphthalene	hexachlorobenzene
acenaphthylene	4-chlorophenyl phenyl ether	hexachlorobutadiene
anthracene	chrysene	hexachlorocyclopentadiene
azobenzene	dibenz[a,h]anthracene	hexachloroethane
benz[a]anthracene	di- <i>n</i> -butyl phthalate	indeno[1,2,3-cd]pyrene
benzo[b]fluoranthene	1,2-dichlorobenzene	isophorone
benzo[k]fluoranthene	1,3-dichlorobenzene	naphthalene
benzo[ghi]perylene	1,4-dichlorobenzene	nitrobenzene
benzo[a]pyrene	diethyl phthalate	N-nitrosodimethylamine
bis(2-chloroethyl) ether	dimethyl phthalate	N-nitrosodi- <i>n</i> -propylamine
bis(2-chloroethoxy)methane	2,4-dinitrotoluene	N-nitrosodiphenylamine
bis(2-ethylhexyl) phthalate	2,6-dinitrotoluene	phenanthrene
bis(2-chloroisopropyl) ether	di- <i>n</i> -octyl phthalate	pyrene
4-bromophenyl phenyl ether	fluoranthene	1,2,4-trichlorobenzene
butyl benzyl phthalate	fluorene	

@ 2000 µg/mL in Methylene Chloride/Benzene/Acetonitrile (2:2:1)

SVM-102	4 x 1 mL ULTRApak®	***
SVM-102-1	1 x 1 mL	***

**Recommended Method 625
Pesticide Extractables Mixture***11 Analytes*

aldrin
β-BHC
δ-BHC
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
endosulfan sulfate
endrin aldehyde
heptachlor
heptachlor epoxide (B)

@ 20 µg/mL in Methanol

PPM-625B	4 x 1 mL	***
PPM-625B-1	1 x 1 mL	***

GC/MS Base/Neutrals Mix 1 (GBN-1)*19 Analytes*

benz[a]anthracene
benzo[k]fluoranthene
bis(2-chloroethoxy)methane
bis(2-chloroethyl) ether
2-chloronaphthalene
di- <i>n</i> -butyl phthalate
1,2-dichlorobenzene
1,3-dichlorobenzene
diethyl phthalate
2,4-dinitrotoluene
2,6-dinitrotoluene
di- <i>n</i> -octyl phthalate
hexachlorobenzene
hexachlorobutadiene
isophorone
N-nitrosodi- <i>n</i> -propylamine
phenanthrene
pyrene
1,2,4-trichlorobenzene

@ 100 µg/mL in Methanol

EPA-2010N	4 x 1 mL	***
EPA-2010N-1	1 x 1 mL	***

GC/MS Base/Neutrals Mix2 (GBN-2)*18 Analytes*

acenaphthene
anthracene
benzo[b]fluoranthene
benzo[ghi]perylene
benzo[a]pyrene
bis(2-ethylhexyl) phthalate
4-bromophenyl phenyl ether
butyl benzyl phthalate
4-chlorophenyl phenyl ether
chrysene
dibenz[a,h]anthracene
1,4-dichlorobenzene
dimethyl phthalate
fluoranthene
fluorene
hexachloroethane
naphthalene
nitrobenzene

@ 100 µg/mL in Acetone

EPA-2011N	4 x 1 mL	***
EPA-2011N-1	1 x 1 mL	***

Acid Extractables Mixture (GAC)*11 Analytes*

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

@ 100 µg/mL in Methanol

EPA-2008N	4 x 1 mL	***
EPA-2008N-1	1 x 1 mL	***

High Concentration Calibration Standards for EPA Method 625

GC/MS High Concentration Kit

Kit - contains nine ampoules:

1 x 1 mL of each of the following solutions

Base/Neutral Mixture #1	(US-100N)
Base/Neutral Mixture #2	(US-101N)
Pesticides Mixture	(US-102BN)
Toxic Substances Mix #1	(US-103N)
Toxic Substances Mix #2	(US-104N)
Benzidines Mixture	(US-105N)
PAH Mixture	(US-106N)
Phenols Mixture	(US-107N)
Internal Standards Mixture	(US-108N)

US-109K **Kit** *******

Base/Neutrals Mix #1

14 Analytes

bis(2-chloroethoxy)methane
 bis(2-chloroethyl) ether
 bis(2-ethylhexyl) phthalate
 bis(2-chloroisopropyl) ether
 4-bromophenyl phenyl ether
 butylbenzyl phthalate
 4-chlorophenyl phenyl ether
 diethyl phthalate
 dimethyl phthalate
 di-*n*-butyl phthalate
 di-*n*-octyl phthalate
 N-nitrosodimethylamine
 N-nitrosodi-*n*-propylamine
 N-nitrosodiphenylamine

@ 2000 µg/mL in Methylene Chloride

US-100N-4 **4 x 1 mL** *******
US-100N **1 x 1 mL** *******

Base/Neutrals Mix #2

14 Analytes

azobenzene
 2-chloronaphthalene
 1,2-dichlorobenzene
 1,3-dichlorobenzene
 1,4-dichlorobenzene
 2,4-dinitrotoluene
 2,6-dinitrotoluene
 hexachlorobenzene
 hexachlorobutadiene
 hexachlorocyclopentadiene
 hexachloroethane
 isophorone
 nitrobenzene
 1,2,4-trichlorobenzene

@ 2000 µg/mL in Methylene Chloride

US-101N-4 **4 x 1 mL** *******
US-101N **1 x 1 mL** *******

Benzidines Mixture

2 Analytes

benzidine
 3,3'-dichlorobenzidine

@ 2000 µg/mL in Methanol

US-105N-4 **4 x 1 mL** *******
US-105N **1 x 1 mL** *******

Toxic Substances Mix #1

4 Analytes

benzoic acid
 2-methylphenol
 4-methylphenol
 2,4,5-trichlorophenol

@ 2000 µg/mL in Methylene Chloride

US-103N-4 **4 x 1 mL** *******
US-103N **1 x 1 mL** *******

Toxic Substances Mix #2

8 Analytes

aniline
 benzyl alcohol
 4-chloroaniline
 dibenzofuran
 2-methylnaphthalene
 2-nitroaniline
 3-nitroaniline
 4-nitroaniline

@ 2000 µg/mL in Methylene Chloride

US-104N-4 **4 x 1 mL** *******
US-104N **1 x 1 mL** *******



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PAH Mixture*16 Analytes*

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

*@ 2000 µg/mL in**Methylene Chloride/Benzene (1:1)*

US-106N-4	4 x 1 mL	***
US-106N	1 x 1 mL	***

Phenols Mixture*11 Analytes*

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

@ 2000 µg/mL in Methylene Chloride

US-107N-4	4 x 1 mL	***
US-107N	1 x 1 mL	***

Organochlorine Pesticides Mixture*16 Analytes*

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

@ 2000 µg/mL in Hexane/Toluene (1:1)

US-102BN-4	4 x 1 mL	***
US-102BN	1 x 1 mL	***

Method 625 Additions Mixture*7 Analytes*

acetophenone
 carbazole
n-decane
 2,3-dichloroaniline
n-octadecane
 pyridine
 α -terpineol

@ 2000 µg/mL in Methylene Chloride

US-136-4	4 x 1 mL	***
US-136	1 x 1 mL	***

Internal Standard Mixtures*6 Analytes*

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

@ 2000 µg/mL in Methylene Chloride

ISM-560	4 x 1 mL	***
ISM-560-1	1 x 1 mL	***

@ 4000 µg/mL in Methylene Chloride

US-108N-4	4 x 1 mL	***
US-108N	1 x 1 mL	***

Additional Calibration Standards for EPA Method 625

Base/Neutrals Extractables Mixture

12 Analytes

acenaphthylene
benzo[b]fluoranthene
bis(2-chloroethyl) ether
bis(2-ethylhexyl) phthalate
bis(2-chloroisopropyl) ether
4-bromophenyl phenyl ether
di-*n*-butyl phthalate
1,4-dichlorobenzene
3,3'-dichlorobenzidine
dimethyl phthalate
2,6-dinitrotoluene
nitrobenzene

@ 500 µg/mL in Methylene Chloride

SVM-110 4 x 1 mL ***
SVM-110-1 1 x 1 mL ***

Base/Neutrals Extractables Mixture

15 Analytes

acenaphthene
anthracene
benz[a]anthracene
bis(2-chloroethoxy)methane
chrysene
dibenz[a,h]anthracene
1,2-dichlorobenzene
1,3-dichlorobenzene
diethyl phthalate
2,4-dinitrotoluene
fluorene
hexachlorobenzene
hexachlorobutadiene
naphthalene
pyrene

@ 500 µg/mL in Methylene Chloride

SVM-111 4 x 1 mL ***
SVM-111-1 1 x 1 mL ***

Acid Extractables Mixture

11 Analytes

4-chloro-3-methylphenol 2500 µg/mL
2-chlorophenol 500 µg/mL
2,4-dichlorophenol 500 µg/mL
2,4-dimethylphenol 500 µg/mL
2,4-dinitrophenol 1500 µg/mL
4,6-dinitro-2-methylphenol 2500 µg/mL
2-nitrophenol 500 µg/mL
4-nitrophenol 2500 µg/mL
pentachlorophenol 2500 µg/mL
phenol 600 µg/mL
2,4,6-trichlorophenol 500 µg/mL

in Methanol

XY-0126 4 x 1 mL ***
XY-0126-1 1 x 1 mL ***

Base/Neutrals Extractables Mixture

11 Analytes

azobenzene
butyl benzyl phthalate
2-chloronaphthalene
fluoranthene
hexachlorocyclopentadiene
hexachloroethane
isophorone
N-nitrosodi-*n*-propylamine
N-nitrosodiphenylamine
phenanthrene
1,2,4-trichlorobenzene

@ 500 µg/mL in Methylene Chloride

SVM-112 4 x 1 mL ***
SVM-112-1 1 x 1 mL ***

Base/Neutrals Extractables Mixture

8 Analytes

benzidine
benzo[k]fluoranthene
benzo[ghi]perylene
benzo[a]pyrene
4-chlorophenyl phenyl ether
di-*n*-octyl phthalate
indeno[1,2,3-cd]pyrene
N-nitrosodimethylamine

@ 500 µg/mL in Methylene Chloride

SVM-113 4 x 1 mL ***
SVM-113-1 1 x 1 mL ***

Waste Water Pesticides Mixture

7 Analytes

aldrin
4,4'-DDD
4,4'-DDE
4,4'-DDT
dieldrin
heptachlor
heptachlor epoxide - isomer B

@ 100 µg/mL in Acetone

PPM-608G 4 x 1 mL ***
PPM-608G-1 1 x 1 mL ***



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Base/Neutral C Mixture*11 Analytes*

azobenzene
 butyl benzyl phthalate
 2-chloronaphthalene
 fluoranthene (100 µg/mL)
 hexachlorocyclopentadiene
 hexachloroethane
 isophorone
 N-nitrosodiphenylamine
 N-nitrosodi-*n*-propylamine
 phenanthrene
 1,2,4-trichlorobenzene

*@ 200 µg/mL in**Methanol/Methylene Chloride*

XY-0122	4 x 1 mL	***
XY-0122-1	1 x 1 mL	***

Organochlorine Pesticides Mixture*16 Analytes*

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

@ 20 µg/mL in Methanol

PPM-608B	4 x 1 mL	***
PPM-608B-1	1 x 1 mL	***

Chlordane and Toxaphene Mixture*2 Analytes*

chlordane	2000 µg/mL
toxaphene	4000 µg/mL

in Methanol

TCLP-533	4 x 1 mL	***
TCLP-533-1	1 x 1 mL	***

Aroclors Mixture*4 Analytes*

Aroclor 1016
 Aroclor 1232
 Aroclor 1248
 Aroclor 1260

@ 20 µg/mL in Methanol

XY-0127	4 x 1 mL	***
XY-0127-1	1 x 1 mL	***

Aroclors Mixture*3 Analytes*

Aroclor 1221
 Aroclor 1242
 Aroclor 1254

@ 20 µg/mL in Methanol

XY-0128	4 x 1 mL	***
XY-0128-1	1 x 1 mL	***

Surrogate and Internal Standards for EPA Method 625

Base/Neutrals Surrogate Mixture

3 Analytes

nitrobenzene-d₅
2-fluorobiphenyl
p-terphenyl-d₁₄

@ 1000 µg/mL in Methylene Chloride

ISM-280N	4 x 1 mL	***
ISM-280N-1	1 x 1 mL	***

Acids Surrogate Standard Mixture

3 Analytes

2-fluorophenol
phenol-d₅
2,4,6-tribromophenol

@ 2000 µg/mL in Methanol

ISM-290N	4 x 1 mL	***
ISM-290N-1	1 x 1 mL	***

Internal Standard Mixtures

6 Analytes

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

@ 2000 µg/mL in Methylene Chloride

ISM-560	4 x 1 mL	***
ISM-560-1	1 x 1 mL	***

@ 4000 µg/mL in Methylene Chloride

US-108N-4	4 x 1 mL	***
US-108N	1 x 1 mL	***



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Internal and Surrogate Standards for Method 625

	4 x 1 mL ULTRApaks®		1 x 1 mL Ampules		20 or More Ampules	
<i>All @ 1000 µg/mL in Methylene Chloride</i>						
For the Base/Neutral Fraction:						
aniline-d₅	IST-100	***	IST-100-1	***		
anthracene-d₁₀	IST-110	***	IST-110-1	***		
benz[a]anthracene-d₁₂	IST-120	***	IST-120-1	***		
4,4'-dibromobiphenyl	IST-130	***	IST-130-1	***		
4,4'-dibromooctafluorobiphenyl	IST-140	***	IST-140-1	***		
decafluorobiphenyl	IST-150	***	IST-150-1	***		
2,2'-difluorobiphenyl	IST-160	***	IST-160-1	***		
4-fluoroaniline	IST-170	***	IST-170-1	***		
1-fluoronaphthalene	IST-180	***	IST-180-1	***		
2-fluoronaphthalene	IST-190	***	IST-190-1	***		
naphthalene-d₈	IST-200	***	IST-200-1	***		
nitrobenzene-d₅	IST-210	***	IST-210-1	***		
2,3,4,5,6-pentafluorobiphenyl	IST-220	***	IST-220-1	***		
phenanthrene-d₁₀	IST-230	***	IST-230-1	***		
For the Acid Fraction:						
2-fluorophenol	IST-250	***	IST-250-1	***		
pentafluorophenol	IST-260	***	IST-260-1	***		
phenol-d₅	IST-270	***	IST-270-1	***		

GC/MS Calibration and Tuning Standards EPA Method 625

Base/Neutrals Test Mixture

2 Analytes

benzidine	2000 µg/mL
decafluorotriphenylphosphine	1000 µg/mL

In Methylene Chloride

GCM-130	4 x 1 mL	***
GCM-130-1	1 x 1 mL	***

Acids Test Mixture

2 Analytes

pentachlorophenol	
decafluorotriphenylphosphine (DFTPP)	

@ 1000 µg/mL in Methylene Chloride

GCM-140	4 x 1 mL	***
GCM-140-1	1 x 1 mL	***

Extractables GC/MS Calibration Standard

decafluorotriphenylphosphine (DFTPP)

@ 100 µg/mL in Methylene Chloride

IST-341	4 x 1 mL	***
IST-341-1	1 x 1 mL	***

@ 1000 µg/mL in Acetone

47995N	4 x 1 mL	***
47995N-1	1 x 1 mL	***

Extractables GC/MS Calibration Standards

benzidine

@ 2000 µg/mL in Methylene Chloride

GCS-110	4 x 1 mL	***
GCS-110-1	1 x 1 mL	***

pentachlorophenol

@ 1000 µg/mL in Methylene Chloride

GCS-120	4 x 1 mL	***
GCS-120-1	1 x 1 mL	***

Extractables GC/MS Calibration Kit

Kit - contains five ampules:

1 x 1 mL of each of the following standards

DFTPP Solution	(47995N-1)
Benzidine Solution	(GCS-110-1)
Pentachlorophenol Soln.	(GCS-120-1)
Base/Neutrals Test Mix	(GCM-130-1)
Acids Test Mixture	(GCM-140-1)

GCM-100K	Kit	***
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EPA Method 632

Carbamate and Urea Pesticides

Method 632 is used to measure carbamate and urea pesticides. Samples are extracted, then quantitated using HPLC.

To read the complete method, log onto our website at www.ultrasci.com.

Carbamate and Urea Pesticides Mixture

19 Analytes

aminocarb	methomyl
barban	mexacarbate
carbaryl	monuron
carbofuran	neburon
chlorpropham	oxamyl
diuron	propham
fenuron	propoxur
fluometuron	siduron
linuron	swep
methiocarb	

@ 100 µg/mL in Methanol

PPM-632A	4 x 1 mL	***
PPM-632A-1	1 x 1 mL	***

EPA Method 632.1

Carbamate and Amide Pesticides

Method 632.1 is used to measure carbamate and amide pesticides. Samples are extracted, then quantitated using HPLC.

To read the complete method, log onto our website at www.ultrasci.com.

Carbamate and Amide Pesticides Mixture

2 Analytes

napropamide
propanil

@ 100 µg/mL in Acetonitrile/Acetone (9:1)

PPM-632B	4 x 1 mL	***
PPM-632B-1	1 x 1 mL	***



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EPA Method 633

Organonitrogen Pesticides

Method 633 is used to measure organonitrogen pesticides. Samples are extracted, then quantitated using a GC/NPD.

To read the complete method, log onto our website at www.ultrasci.com.

Organonitrogen Pesticides Mixture

7 Analytes

bromacil
deet
hexazinone
metribuzin
terbacil
triadimefon
tricyclazole

@ 100 µg/mL in Acetone

NPM-633	4 x 1 mL	***
NPM-633-1	1 x 1 mL	***

Standards for EPA Method 680 (PCBs) May Be Found on Page 293.

Additional Non-Conventional Pesticides Methods 629 - 644 Standards

EPA Non-Conventional Pesticides Method Standards

EPA Method	Compound	Concentration	Catalog #	Unit Size	Price
629	cyanazine	1000 µg/mL in Methanol	EPA-1165	1 x 1 mL	***
630 & 630.1	carbon disulfide	5000 µg/mL in Methanol	EPA-1012	1 x 1 mL	***
	ziram	Neat Material	PST-1750	1 x 100 mg	***
631	carbendazim	100 µg/mL in Methanol	PST-1285M100A01	1 x 1 mL	***
	rotenone	1000 µg/mL in Methanol	EPA-1168	1 x 1 mL	***
636	bensulide	1000 µg/mL in Methanol	EPA-1169	1 x 1 mL	***
638	oryzalin	1000 µg/mL in Acetonitrile	EPA-1170	1 x 1 mL	***
639	bendiocarb	1000 µg/mL in Methanol	EPA-1171	1 x 1 mL	***
641	thiabendazole	1000 µg/mL in Methanol	EPA-1173	1 x 1 mL	***
643	bentazon	1000 µg/mL in Methanol	EPA-1174	1 x 1 mL	***
644	picloram	1000 µg/mL in Methanol	EPA-1175	1 x 1 mL	***