

## **7.0 ANALYTICAL METHODS: THEIR APPLICATIONS AND LIMITATIONS**

### **7.1 INTRODUCTION**

This section summarizes those analytical methods which have been established by the New York State Department of Health (DOH) and the U.S. Environmental Protection Agency (EPA), and which have been used or have the potential for use in spill response. The methods described in this section are primarily geared to analyzing organic compounds with a few methods to metals, which are mentioned in the Extraction Procedure (EP) Toxicity procedure. The Extraction Procedure Toxicity procedure has been replaced by Toxicity Characteristic Leaching Procedure (TCLP) for the part of extraction procedure. An analytical method should be designated with the TCLP when it will be used. The numeric codes of analytical methods for various compounds are separately listed according to the following categories:

- Samples in the form of Water/Wastewater
- Samples in the form of Solid/Semi-solid Material (Soils,Sediments)
- Samples in the form of Oil/Paint/Solvents (Product's Own Form--Non-Aqueous)
- Air/Vapor Samples

Within each category, the DOH numeric code, the type of analytic method, the equivalent EPA numerical code, the descriptive name (analyte), the use the method was originally developed for, and target compounds and remarks are listed from left to right in columns in the tables. A numeric code without a parenthesis in the third column (EPA method code) means that the EPA method was adapted to derive the DOH method. A code with a parenthesis indicates that the EPA method determines the same target compounds and does more compounds in some cases.

### **7.2 DOH, EPA ANALYTICAL METHODS AND THEIR USE TO DETERMINE TARGET COMPOUNDS (POLLUTANTS)**

The DOH and EPA analytical methods and their target compounds are presented in Table 7-1 through Table 7-4 according to the type of sample form--water/wastewater, solid/semi-solid, free product (oil/paint/solvent), air/vapor.

The acronyms and abbreviations used in the tables are explained below:

GC-ECD - Gas chromatography with electron capture detector

GC-FID - Gas chromatography with flameionization detector

GC-HECD - Gas chromatography with Hall (electrolytic conductivity) detector

GC-HSD - Gas chromatography with halide specific detector

GC/MS - Gas chromatography/mass spectrometry

GC-NPD - Gas chromatography with nitrogen-phosphorus detector (in Section 7.3)

**GC-PID - Gas chromatography with photoionization detector**

**UV&FED - Ultraviolet and fluorescence detector (in Section 7.3)**

**C/D - Concentration/dilution**

**DI - Direct injection**

**Dilu. - Dilution**

**HPLC - High performance liquid chromatography (in Section 7.3)**

**HRGC/LRMS - High resolution capillary column Gas Chromatography/low resolution mass spectrometry (in Section 7.3)**

**L/L - Liquid/liquid extraction**

**L/S - Liquid/solid extraction**

**N-K(condenser) - Nielson - Kryger (condenser)**

**NPDES - National pollutant discharge elimination system**

**P/T - Purge and trap**

**Vari. - Various**

### **7.3 SIMILARITY OF ANALYTICAL METHODS WITHIN EPA 600s AND 8000s SERIES**

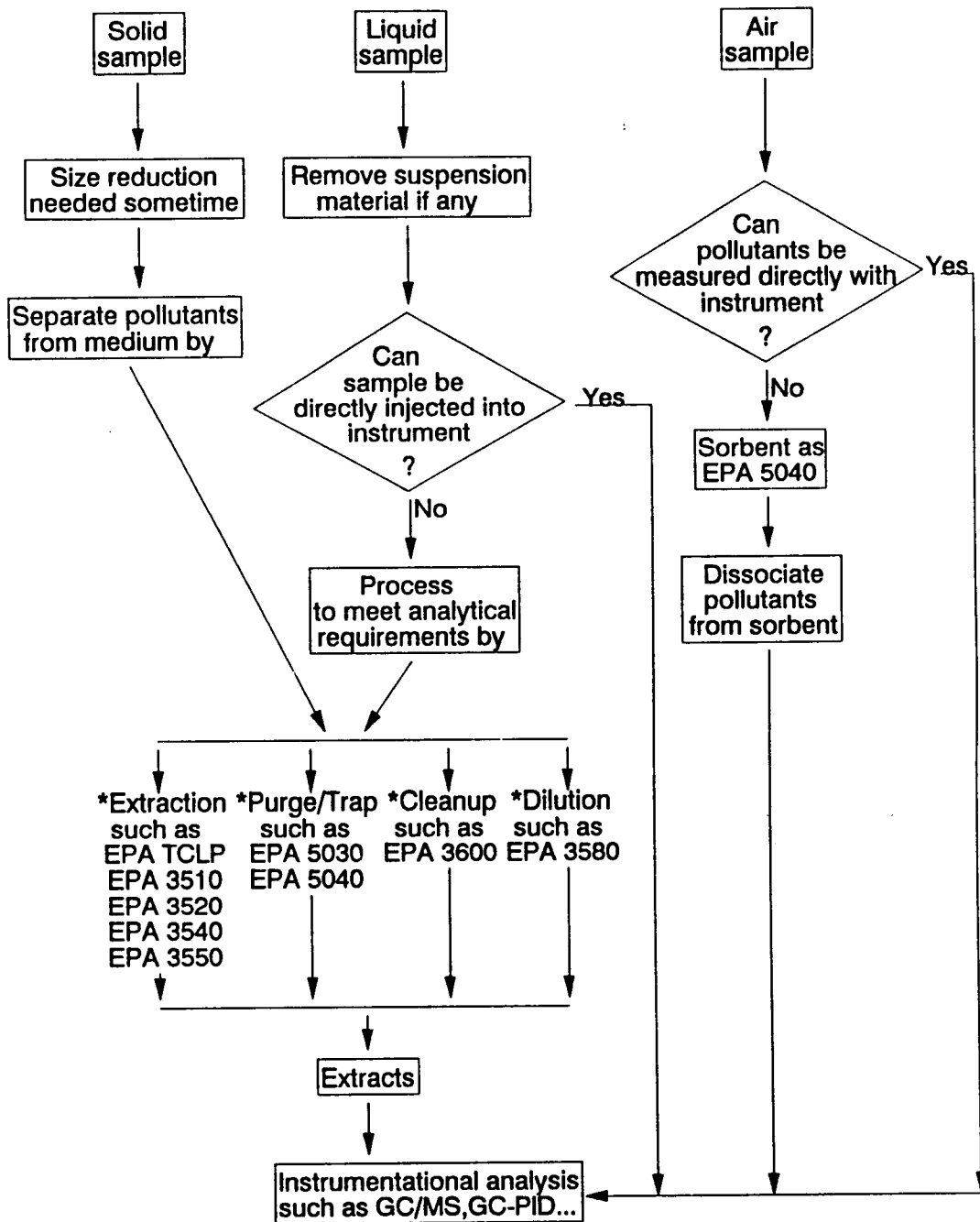
Comparisons of some of the analytical methods developed under the Clean Water Act, 40 CFR Part 136, and Resource Conservation and Recovery Act (RCRA), 40 CFR Part 261, are presented in Table 7.5.

### **7.4 ANALYTICAL METHODS UNDER SAFE DRINKING WATER ACT**

Some of the analytical methods which were developed under Safe Drinking Water Act and have been used to monitor organic chemicals in drinking water are listed in Table 7-6. Although these methods were developed primarily for finished drinking water, raw source water or drinking water in any treatment stage, they can also be used in any similar condition of waters.

### **7.5 SAMPLE PREPARATION BEFORE ANALYSIS (EPA Method 3500)**

Once a sample is taken, it often undergoes some form of preparation before being subjected to any chemical analysis. This is illustrated in the following diagram.



Sample preparation before instrumental chemical analysis is normally incorporated into a part of an analytical method. While sample preparation can be used or modified to suit any situation, confirmation of the usefulness of the whole analytical method should be verified if sample preparation is modified.

\* Please refer to EPA Publication SW 846: Test Methods for Evaluating Solid Waste

## **7.6 SELECTION OF ANALYTICAL METHODS TO DETERMINE POLLUTANTS**

For a quick reference on what compounds of petroleum products should be monitored and which analytical methods can be used in analyzing them in the Spill Response Program, see Chart 7-1. The chart lists five (5) general categories of petroleum products: volatile organics for gasoline, semi-volatile organics for kerosene-jet-diesel-turbine-fuel oil, lubricating oil/grease, halogenated solvents, and non-halogenated solvents. The compounds listed under each category except halogenated solvents are components of petroleum products and are included in EPA's list of priority pollutants and/or DOH's principal organic contaminant.

When the following parameters are taken into consideration, a general method for selection of a particular analytical method is provided in the schematic diagram Chart 7-2 below.

- The category or the source type of the sampled medium -- e.g. drinking water or wastewater.
- The original purpose the analytical method was developed for -- e.g. the analytical method which was developed for drinking water should be used to analyze a sample of potable water or a raw water which is to be used for drinking water.
- The specificity of the analytical method -- e.g. DOH 310-9, Table 7-1, may be preferred if you are interested in only BTX in water instead of DOH 310-8 which is often used to cover a broader range of compounds.
- The laboratory contractor's percent recovery and detection limits for any compounds of concern should be done and reported to DEC as part of the laboratory report on any method for the test to be acceptable.

**CHART 7-1 COMPOUNDS OF PETROLEUM PRODUCTS AND ANALYTICAL METHODS**

The table below contains currently known compounds of concern from petroleum products, and recommended analytical methods for the associated compounds in different sample forms of water, soil, and free product. The compounds are generally listed according to their volatility, the most volatile at the top. As the EPA 500s analytical methods series were originally developed for monitoring of drinking water and the 600s series for municipal and industrial wastewater, this table provides a separate, but parallel, method for each water category. Although the methods in either series can be used for both categories, the user should choose an analytical method based on category it was developed for. The reasons are: 1) the detection limit of analytical methods may be slightly different; 2) the requirements for drinking water may be more stringent than the other.

The analytical methods for water samples can be adapted and used for air samples by direct injection technique or by adsorbing pollutant onto a sorbent first, then dissociating the pollutant from the sorbent for analysis. For appropriate preparation of all sample forms before analysis, see EPA extraction procedures #1310, TCLP, #3500s, and #5000s if the preparation is not indicated within the analytical method. When interpreting the laboratory results, the laboratory contractor's percent recovery and method detection limit should be considered.

**VOLATILE ORGANICS  
GASOLINES**

**ANALYTICAL METHODS<sup>11</sup>**

CURRENTLY KNOWN COMPOUNDS OF CONCERN FROM PETROLEUM PRODUCTS <sup>2</sup>	WATER SAMPLE		FREE PRODUCT
	DRINKING WATER	NON-DRINKING WATER	
Benzene (B) <sup>1</sup>	EPA 502.2 or 524.2 for B,T,X,E, and those with superscript P5, P6, P7, A1, A2, P8 <sup>3</sup> , P9, and MTBE <sup>3</sup> .	EPA 8021 or 8260 for B,T,X,E, EDB, EDC, MTBE <sup>3</sup> , and those with superscript P5, P6, P7, P8 <sup>3</sup> , P9.	The methods for soil sample can be applied here. For dilution or preparation, see EPA 3500s and 5000s methods.
Toluene (T) <sup>2</sup>			
Xylenes (X) <sup>3</sup>			
Ethyl Benzene (E or EB) <sup>4</sup>	EPA 503.1 for B, T, X, E, and those with superscript P5, P6, P7, P8 <sup>3</sup> , P9, and MTBE <sup>3</sup> .	EPA 8020 for B,T,X,E & MTBE <sup>3</sup> .	
Propyl Benzenes <sup>5</sup>	EPA 525 for compounds with superscript P10, P11, P12, P13, P14 <sup>3</sup> .	DOH 310-10 or DOH 310-19 for B,T,E <sup>3</sup> and X <sup>3</sup> and MTBE <sup>3</sup> .	ASTM D1949 for separation of tetraethyl lead and tetra methyllead.
Trimethyl Benzenes <sup>6</sup>		DOH 310-22 for B,T,E,X, and compounds with superscript P5, P7, P8 <sup>3</sup> , P9.	ASTM D528 or D2547 for lead.
Buryl Benzenes <sup>7</sup>	EPA 502.1 for EDB and EDC.	EPA 625 or 8270 for DOH 310-8 for compounds with superscript P9, P10, P11, P12, P13, P14 <sup>3</sup> , A5, A6 <sup>3</sup> .	
Cyclohexane <sup>8</sup>	EPA 804 for phenols.	EPA 604 or 8040 for EDB and EDC.	
Naphthalene <sup>9</sup>	EPA 804 for Dimethyl Aniline <sup>3</sup>	DOH 310-13 for unknown situation or hydrocarbon scan.	
Anthracene <sup>10</sup>	Both EPA 524.2 + 525 or DOH 310-13 or DOH 310-14 for unknown situation.	EPA 610 or 8100 for compounds with superscript P9, P10, P11, P12, P13, P14 <sup>3</sup> , A6 <sup>3</sup> .	
Fluorene <sup>11</sup>		EPA 604 or 8040 for phenols.	
Phenanthrene <sup>12</sup>		DOH 310-29 for EDB and EDC.	
Pyrene <sup>13</sup>	EPA 7421 or ASTM D3559 for lead.	DOH 310-13 for unknown situation or hydrocarbon scan.	
Acenaphthene <sup>14</sup>		DOH 310-13 for unknown situation or hydrocarbon scan.	
Ethylene Dibromide (EDB) <sup>15</sup>		DOH 310-14 for unknown situation or petroleum product identification or fingerprint.	
Ethylene Dichloride (EDC) <sup>16</sup>		(EPA 8021 or 8260) <sup>3</sup> + (EPA 418.1 <sup>4</sup> or 625 or 8270) <sup>3</sup> for all concerned compounds or total petroleum hydrocarbon.	
Tetraethyl Lead (TEL) <sup>17</sup>		TCLP - Lead for lead.	
Phenols <sup>18</sup>			
Tetraethyl Amine <sup>19</sup>			
Methyl Tert. Butyl Ether (MTBE) <sup>20</sup>			

<sup>11</sup>When the medium is heavily contaminated, those heavy compounds listed under Kerosene - Fuel Oil may also need to be evaluated)

<sup>2</sup>This is a part of Section 7.0 of "Sampling Guidelines and Protocols", NYSDEC - Water Division.

Lead

(Inued)

**SEMI-VOLATILE ORGANICS  
KEROSENE-JET-DIESEL-TURBINE-FUEL**

**CURRENTLY KNOWN  
COMPOUNDS OF CONCERN  
FROM PETROLEUM PRODUCTS<sup>1,2</sup>**

- Benzene (B)<sup>P1</sup>
- Toluene (T)<sup>P2</sup>
- Xylenes (X)<sup>P3</sup>
- Ethyl Benzene (E or EB)<sup>P4</sup>
- Propyl Benzenes<sup>P5</sup>
- Trimethyl Benzenes<sup>P6</sup>
- Butyl Benzenes<sup>P7</sup>
- Cyclohexane<sup>P8</sup>
- Naphthalene<sup>P9</sup>
- Anthracene<sup>P10</sup>
- Fluorene<sup>P11</sup>
- Phenanthrene<sup>P12</sup>
- Pyrene<sup>P13</sup>
- Acenaphthene<sup>P14</sup>
- Methylanthracene<sup>P15</sup>
- Benz(a)anthracene<sup>P16</sup>
- Fluoranthene<sup>P17</sup>
- Benzo(b)fluoranthene<sup>P18</sup>
- Benzo(k)fluoranthene<sup>P19</sup>
- Chrysene<sup>P20</sup>
- Benzo(a)pyrene<sup>P21</sup>
- Benzo(e)pyrene<sup>P22</sup>
- Benzo(g,h)perylene<sup>P23</sup>
- Indeno(1,2,3-cd)pyrene<sup>P24</sup>
- Dibenzo(a,h)anthracene<sup>P25</sup>
- phenols<sup>A5</sup>

**DRINKING WATER**

EPA 824.2 or 825 or DOH 310-13 or DOH 310-14 with superscript P5, P6, P7, P8<sup>3</sup> and P9.  
EPA 503.1 for B.T.X.E. and those with superscript P5, P6, P7, P8<sup>3</sup> and P9.  
EPA 825 for compounds with superscript P10, P11, P12, P13, P14, P15<sup>3</sup>, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, and P14<sup>3</sup>, P15<sup>3</sup>, P17<sup>3</sup>, P22<sup>3</sup>.  
EPA 824.2 + 825 or DOH 310-13 or DOH 310-14 for unknown situation.  
EPA 804 for phenols.  
EPA 7421 or ASTM D3559 for lead if needed from gasoline contamination or other reason.

**NON-DRINKING WATER**

EPA 8021 for B.T.X.E, EDB, EDC, MTBE<sup>3</sup> and those with superscript P5, P6, P7, P8<sup>3</sup> and P9.  
EPA 802 or 803 or DOH 310-9 or DOH 310-10, DOH 310-13 for B.T.E., X.  
EPA 825 or DOH 310-8 for compounds with superscript P9, P10, P11, P12, P13, P14<sup>3</sup>, P15<sup>3</sup>, P16, P17, P18, P19, P20, P21, P22<sup>3</sup>, P23, P24, P25, A5, A6<sup>3</sup>.  
EPA 810 or 8100 for compounds with superscript P9, P10, P11, P12, P13, P14, P15<sup>3</sup>, P16, P17, P18, P19, P20, P21, P22<sup>3</sup>, P23, P24, P25.  
EPA 804 or 8040 for phenols.  
DOH 310-13 for unknown situation or hydrocarbon scans.  
DOH 310-14 for unknown situation or petroleum identification or fingerprint.  
EPA 8021 or 8260<sup>3</sup> + EPA 418.1<sup>4</sup> or 825 or 8270<sup>3</sup> for all concerned compounds or total petroleum hydrocarbon.  
ICLP-metal for metals.

**SOIL SAMPLE**

EPA 8021 for B.T.X.E, EDB, EDC, MTBE<sup>3</sup> and those with superscript P5, P6, P7, P8<sup>3</sup> and P9.  
EPA 8020 for B.T.E.X.  
EPA 8270 for compounds with superscript P9, P10, P11, P12, P13, P14, P15<sup>3</sup>, P16, P17, P18, P19, P20, P21, P22<sup>3</sup>, P23, P24, P25, A5.  
EPA 8100 for compounds with superscript P9, P10, P11, P12, P13, P14, P15<sup>3</sup>, P16, P17, P18, P19, P20, P21<sup>3</sup>, P22<sup>3</sup>, P23, P24, P25.  
EPA 8040 for phenols.  
DOH 310-13 for unknown situation or hydrocarbon scan.  
DOH 310-14 for unknown situation or petroleum identification or fingerprint.  
EPA 8021 or 8260<sup>3</sup> + EPA 8270<sup>3</sup> for all concerned compounds or total petroleum hydrocarbons.  
EPA 8021 or 8260<sup>3</sup> + EPA 8270 with ICLP<sup>3</sup> for confirming the acceptance of cleanliness.  
ICLP-metal for metals.

**FREE PRODUCT**

The methods for soil samples can be applied here. For dilution or preparation, see EPA 3500a and 5000a Methods.

ASTM D3328 for oil cross-matching.

CHART 7-1 (Continued)

**LUBRICATING OIL/GREASE  
FROM PETROLEUM**

**CURRENTLY KNOWN  
COMPOUNDS OF CONCERN  
FROM PETROLEUM PRODUCTS<sup>1</sup>**

- Naphthalene<sup>P8</sup>
- Phenanthrene<sup>P12</sup>
- Pyrene<sup>P13</sup>
- Acenaphthene<sup>P14</sup>
- Fluoranthene<sup>P17</sup>
- Benzo(b)fluoranthene<sup>P18</sup>
- Benzo(k)fluoranthene<sup>P19</sup>
- Chrysene<sup>P20</sup>
- Benzo(e)pyrene<sup>P21</sup>
- Benzo(a)pyrene<sup>P22</sup>
- Benzo(g,h)perylene<sup>P23</sup>
- Indeno(1,2,3-cd)pyrene<sup>P24</sup>
- Dibenz(a,h)anthracene<sup>P25</sup>
- Benzo(g,h,i)fluoranthene<sup>P26</sup>

**DRINKING WATER**

EPA 502.2 or 524.2 for compounds listed with drinking water under kerosene - fuel oil.  
EPA 525 for compounds with superscript P9<sup>3</sup>, P10, P11, P12, P13, P16, P18, P19, P20, P21, P23, P24, P25 and P14<sup>3</sup>, P15<sup>3</sup>, P17<sup>3</sup>, P22<sup>3</sup>, P26<sup>3</sup>.  
EPA 524.2 + 525 for unknown situation.

**WATER SAMPLE**

EPA 8021 for compounds listed with non-drinking water under kerosene - fuel oil.  
EPA 825 or 829 or DOH 310.8 for compounds with superscript P9, P10, P11, P12, P13, P14, P15<sup>3</sup>, P16, P17, P18, P19, P20, P21, P22<sup>3</sup>, P23, P24, P25, P26<sup>3</sup>, A5 and others<sup>3</sup>.  
EPA 810 or 810Q for compounds listed with non-drinking water under kerosene - fuel oil.  
DOH 310.13 for unknown situation or hydrocarbon scan.  
DOH 310.14 for unknown situation or petroleum identification or fingerprint.  
[EPA 8021 or 8280]<sup>3</sup> + [EPA 413.2]<sup>4</sup> or 525 or 8270]<sup>3</sup> for all concerned compounds or total petroleum hydrocarbons.  
ICLP-metal for metals.

**NON-DRINKING WATER**

**SOIL SAMPLE**

The methods listed above for soil sample under kerosene - fuel oil can be applied here.  
In addition, EPA 413.3<sup>4</sup> (soxhlet extraction) can be used for the determination of total recoverable of oil and grease.

**FREE PRODUCT**

The methods for soil sample can be applied here. For dilution or preparation, see EPA 5500a and 5000a methods.

ASTM D3328 for oil cross-matching.

(If the lubricating oil/grease happens to be contaminated with fuel oil or gasoline, or is a used product, those lighter compounds listed under kerosene - fuel oil should also be evaluated)

CHART 7-1 (Continued)

HALOGENATED SOLVENTS

CURRENTLY KNOWN COMPOUNDS OF CONCERN FROM PETROLEUM PRODUCTS<sup>2</sup>

	DRINKING WATER	WATER SAMPLE	NON-DRINKING WATER	SOIL SAMPLE	FREE PRODUCT
Perchloroethylene <sup>H1</sup>	EPA 502.1 for compounds with superscript H1, H2, H3, H4, H5, H6, H7, H8 <sup>3</sup> , H9.	EPA 502.1 for compounds with superscript H1, H2, H3, H4, H5, H6, H7, H8 <sup>3</sup> , H9.	EPA 524 for compounds with superscript H1, H2, H3, H4, H5, H6, H7, H8 <sup>3</sup> , H9.	EPA 8240 or 8260 for compounds with superscript H1, H2, H3, H4, H5, H6, H7, H8 <sup>3</sup> , H9, N2, P1, P2, P3, N3, N6.	The methods for soil sample can be applied here. For dilution or preparation, see EPA 3500a and 5000a methods.
Methylene Chloride <sup>H2</sup>					
Trichloroethylene <sup>H3</sup>					
Chlorobenzene <sup>H4</sup>					
1,2-Dichlorobenzene <sup>H5</sup>					
1,1,1-Trichloroethane <sup>H6</sup>					
1,1,2-Trichloroethane <sup>H7</sup>					
1,2,2-Trifluoroethane <sup>H8</sup>					
Trichlorofluoromethane <sup>H9</sup> ...etc.					

NON-HALOGENATED SOLVENTS

Methanol <sup>H1</sup>	EPA 502.2 or 524.2 for compounds with superscript N2 <sup>3</sup> , P1, P2, P3, N4 <sup>3</sup> , N10.	EPA 502.2 or 524.2 for compounds with superscript N2 <sup>3</sup> , P1, P2, P3, N4 <sup>3</sup> , N10.	EPA 502.2 or 524.2 for compounds with superscript N2, P1, P2, P3, N3, N4 <sup>3</sup> , H8, H1.	EPA 8240 for compounds with superscript N2, P1, P2, P3, N3, N4 <sup>3</sup> , H6, H7, H9.	Same as those for soil sample.
Acetone <sup>H2</sup>	EPA 608 for Nitrobenzene.	EPA 625 or 6270 for N5, N9 <sup>3</sup> .	EPA 625 or 6270 for N5, N9 <sup>3</sup> .	EPA 8240 for compounds with superscript N2, P1, P2, P3, N3, N4 <sup>3</sup> , H6, H7, H9.	
Benzene <sup>H1</sup>	EPA 625 for Nitrobenzene, Pyridine <sup>3</sup> , Cresols <sup>3</sup>	DOH 310-25 or EPA 8015 for Methanol <sup>3</sup> , Acetone <sup>3</sup> , MEK, MIBK.	DOH 310-25 or EPA 8015 for Methanol <sup>3</sup> , Acetone <sup>3</sup> , MEK, MIBK.	EPA 8015 for Methanol <sup>3</sup> , Acetone <sup>3</sup> , MEK, MIBK.	
Toluene <sup>H2</sup>				EPA 8270 for Nitrobenzene, Pyridine, Cresols <sup>3</sup> .	
Xylene <sup>H3</sup>					
Isobutene <sup>H4</sup>					
Carbon Disulfide <sup>H4</sup>					
Nitrobenzene <sup>H5</sup>					
Pyridine <sup>H6</sup>					
Methyl Ethyl Ketone (MEK) <sup>H7</sup>					
Methyl Isobutyl Ketone (MIBK) <sup>H8</sup>					
Cresols (Crealylic Acid) <sup>H9</sup>					
Naphtha (Petroleum or Coal Tar) <sup>H10</sup> , etc.					

FOOTNOTE: \*1: The analytical method is not only used for the determination of the compounds indicated in this chart. For all the target compounds see the list of the target compounds listed with each respective methodology in Table 7-1 through 7-6.

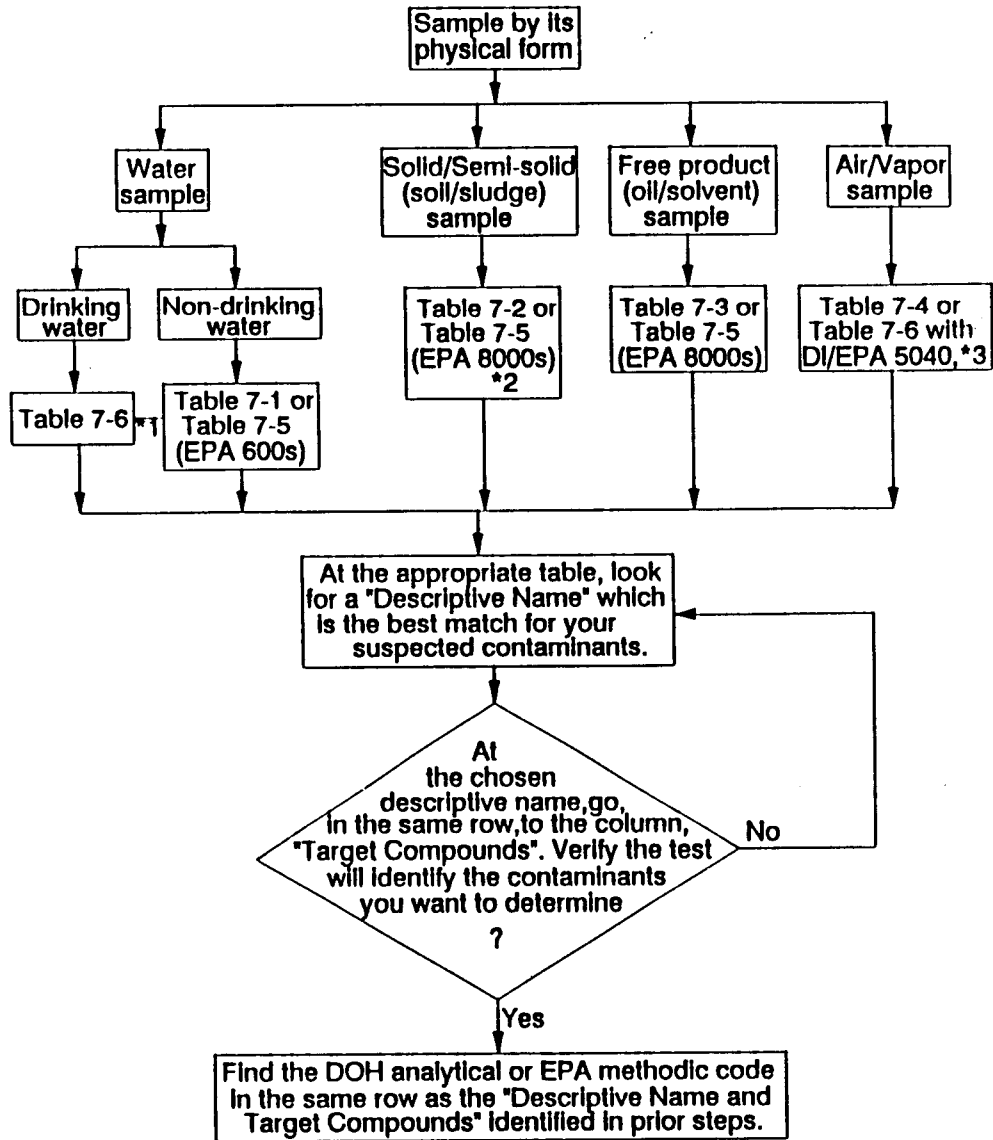
\*2: In this column, the letters P, A, B, H, N, of the superscript mean, respectively, "compounds from petroleum product", "compounds from additives", "compounds from blending agent", "halogenated compounds from solvent", and "non-halogenated compounds from solvent" in each category of petroleum products or man-made solvents.

\*3: The one with superscript "3" means that the analytical method has not originally included such compound in the identification, and that a verification is required.

\*4: EPA 418.1, total petroleum hydrocarbon, 413.2/413.3 (soxhlet extraction), total recoverable of oil and grease, only determine whether the medium is contaminated or not, it would not indicate what the contaminant is.



**CHART 7-2 SCHEMATIC DIAGRAM FOR SELECTING AN ANALYTICAL METHOD**



- \*1: The analytical methods for drinking and non-drinking water can be used exchangeably if a proper method for any contaminant that cannot be found in either sample category.
- \*2: EPA 8000s generally can be used in aqueous, non-aqueous (free products), and solid/semi-solid (soil) samples. Any question about the preparation of sample, see EPA SW-846 publication.
- \*3: The analytical methods for aqueous samples can be adapted and used in air/vapor sample by direct injection techniques or by adsorbing pollutant onto a sorbent first, then dissociating the pollutant from the sorbent for analysis, such as EPA 5040.

**TABLE 7-1 ANALYTICAL METHODS USED ON SAMPLES IN WATER/WASTEWATER**

<b>DOH Analytic Code</b>	<b>Analytic Method</b>	<b>EPA Methodic Code</b>	<b>Descriptive Name (Analyte)</b>	<b>Use For</b>	<b>Target Compounds/Remarks</b>
310-1	—	—	Collection Instructions	Self-explanatory	For Trihalomethanes (THM), Max. THM potential (MTP) or other purgeable organics.
310-2	GC-ECD by Extraction	(EPA 608)	PCBs, BHCs, Mirex & Pesticides	Water/wastewater	See Table 310-2 in this section.
310-3	GC-ECD by Extraction	(EPA 8150)	Chlorophenoxy acid Herbicides in drinking water	Drinking water	2,4-D, Silvex, 2,4,5-T
310-4	GC-ECD by Extraction	(EPA 8080)	Organochlorine pesticides	Drinking water	Endrin, Lindane ( $\gamma$ -BHC), methoxychlor and Toxaphene
310-5	GC-HSD by P/T	EPA 501.1	Trihalomethanes (purge and trap tech)	Drinking water	Chloroform, Dichloro-bromo-methane, bromoform and dibromochloromethane
310-6	GC-ECD by Extraction	EPA 501.2	Trihalomethane in drinking water by L/L extraction	Drinking water and raw source water	Same as those in DOH 310-5
310-7	GC/MS by P/T	EPA 624	Priority pollutants purgeables	Municipal and industrial discharges (NPDES)	Listed in Table 310-7 but not for very volatile pollutant such as C Cl <sub>2</sub> F <sub>2</sub>
310-8	GC/MS by Extraction	EPA 625	Priority pollutants - Base/Neutrals, acids and pesticides	Municipal and industrial discharges (NPDES)	Listed in Table 310-8
310-9	GC/FID by P/T	(EPA 8240)	Volatile Hydrocarbons in Water (Superceded 9/10/80)	Water/wastewater	Benzene, Toluene and Xylene (BTX)
310-10	GC-PID by P/T	(EPA 8240) (EPA 602)	Volatile Hydrocarbons in Water/Wastewater	Water/wastewater	Benzene, Toluene and Xylene (BTX) other compounds possible but verification needed
310-11	GC/ECD by P/T	(EPA 601)	Volatile Halo Organics	Water/wastewater	9 halo compounds with one or two carbons (See Table 310-11)

**TABLE 7-1 ANALYTICAL METHODS USED ON SAMPLES IN WATER/WASTEWATER (Cont'd)**

<u>DOH Analytic Code</u>	<u>Analytic Method</u>	<u>EPA Methodic Code</u>	<u>Descriptive Name (Analyte)</u>	<u>Use For</u>	<u>Target Compounds/Remarks</u>
310-12	GC-PID by Head Space	—	Vinyl Chloride by Head Space Analysis	Water/Wastewater	Vinyl Chloride
310-13	GC-FID by Extraction	—	Petroleum Products (Hydrocarbon Scan) in Water	Water/Wastewater	Gasoline, Kerosene, Lubricating Oils, Fuel Oils. Can be applied to non-aqueous media with modification
310-14	GC-FID by DI after C/D	—	Petroleum Products Identification (Fingerprint)	Water/Wastewater	Same as the compounds in DOH310-13
310-15	GC-FID by Extraction	—	Kerosene and Fuel Oil (identification)	Water/Wastewater	Kerosene and Fuel Oil Identification with possible interference by weathering, other solvents
310-17	GC-ECD by Extraction	—	Total Chlorinated Hydrocarbons (TCH)	Water/Wastewater Leachate	Such as Lindane
310-18	GC-HSD by P/T	EPA 601	Purgeable Halocarbons	Municipal and industrial discharges (NPDES)	29 Purgeable Halocarbons listed in Table 310-18
310-19	GC-PID by P/T	EPA 602	Purgeable Aromatics	7-12 Aromatic Compounds (DOH 310-22 for over 30 compounds)	Benzene, Trichloroethene, Toluene, Tetrachloroethene, Ethylbenzene, Chlorobenzene, m-,o-, and p-xylene, (1,2), (1,3) and (1,4)-dichlorobenzene
310-22	GC-PID (GC/MS) by P/T	EPA 503.1	Photoionization Responsive Compounds	Aromatics in Water/Wastewater	See Table 310-22 over 30 (aromatic purgeables)
310-25	GC-FID by P/T	EPA 8015	Ketones in Water (tentative)	Water/Wastewater	Acetone, Methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK)
310-29	GC-HSD by P/T	EPA 502.1	Volatile Halogenated Organics	Municipal & industrial discharges (NPDES)	Listed in Table 310-29 (38 purgeable halocarbons)

**TABLE 7-1 ANALYTICAL METHODS USED ON SAMPLES IN WATER/WASTEWATER (Cont'd)**

<u>DOH Analytical Code</u>	<u>Analytical Method</u>	<u>EPA Methodic Code</u>	<u>Descriptive Name (Analyte)</u>	<u>Use For</u>	<u>Target Compounds/Remarks</u>
—	—	EPA 1310	EP Toxicity	Wastewater to Solid Materials	Includes 8 metals, 4 pesticides, 2 herbicides, analytical methods and compounds listed in Table-EPA 1310
—	GC/MS by P/T	EPA 8240	Volatile Organics	All types of Samples	80 Compounds listed in Table 8240
	*GC/MS vari. detector	EPA 8270	Semi-volatile organics by Capillary	All types of Samples	234 Compounds (with all different preparation tech.) listed in Table 8270

**Note:**

\*Matrix  
 Water  
 Soil/Sediment  
 Waste

Methods  
 3510, 3520  
 3540, 3550  
 3540, 3550, 3580

Cleaning Procedures for extracts, see context in Method 8270.

**TABLE 7-2 ANALYTICAL METHODS USED ON SAMPLES IN SOLID/SEMI-SOLID MATERIAL (SOILS, SEDIMENTS)**

<u>DOH Analytical Code</u>	<u>Analytic Method</u>	<u>EPA Methodic Code</u>	<u>Descriptive Name (Analyte)</u>	<u>Use For</u>	<u>Target Compounds/Remarks</u>
312-1	GC-ECD by Soxhlet Extraction	—	PCBs in soils, sludges and sediments	Soils, sludges, sediments	PCBs
312-2	GC-ECD by Steam Distillation	—	Modified N-K steam method for PCBs and BHCs	Soils, sludges, sediments	PCBs and BHCs with cleaner extracts than DOH 312-1
312-3	GC-ECD by Extraction	—	PCBs in Wipes	Wipe Test	PCBs as Aroclor on surface suspected of contamination
312-4	GC-vari. detector by P/T	—	Volatile organics in soil and sediments	Soils, sludges, sediments	Different compounds with different detector, listed in Table 312-4
312-5	GC-ECD by Steam Distillation	—	Modified N-K steam distillation for semi-volatile	Soils, sludges, sediments	Compounds listed in Table 312-5
		EPA 1310	EP Toxicity (RCRA)	Wastewater to Solid Materials	Includes 8 metals, 4 pesticides and 2 herbicides analytical methods and substances listed in Table EPA 1310
	GC/MS by P/T	EPA 8240	Volatile Organic by GC/MS (P/T)	All types of Samples	80 Compounds listed in Table 8240
	GC/MS (See Table 7-1)	EPA 8270	Semi-volatile organics by GC/MS (Capillary)	All types of Samples	234 Compounds (with all different preparation tech.) listed in Table 8270

**TABLE 7-3 ANALYTICAL METHODS USED ON SAMPLES IN OIL/PAINT/SOLVENTS (PRODUCTS OWN FORM--NON-AQUEOUS)**

<u>DOH Analytical Code</u>	<u>Analytical Method</u>	<u>EPA Methodic Code</u>	<u>Descriptive Name (Analyte)</u>	<u>Use For</u>	<u>Target Compounds/Remarks</u>
313-2	Conversion and Titration	--	Chlorine in oils	Chlorine in Greases and Oils	Chlorine content from additives
313-3	GC-ECD by DI after Dilu.	--	PCBs in oil	PCBs as Aroclors in Oil	PCBs as Aroclors 1016/1242, 1221, 1254, 1260 in oil
313-4	GC-ECD by DI after Dilu.	--	PCB in transformer fluid and waste oils	As Descriptive Name	PCBs
313-5	GC-HECD by DI after Dilu.	--	Volatile organics (halogenated)	Paints	Volatile halogenated compounds such as 1,1,1-Trichloroethane and methylene chloride

**TABLE 7-4 ORGANIC ANALYTICAL METHODS USED ON SAMPLES IN AIR**

<u>DOH Analytical Code</u>	<u>Analytical Method</u>	<u>EPA Methodic Code</u>	<u>Descriptive Name (Analyte)</u>	<u>Use For</u>	<u>Target Compounds/Remarks</u>
311-1	GC-ECD by trapping	--	PCBs in Air	Ambient Air	PCBs as aroclors 1016/1242, 1221, 1254, 1260 (Monsanto)
311-2	GC-Vari. detector by trapping	--	Volatile organics	Aromatic/halogenated organics in air	See Table 311-2 for compounds and detectors
311-3	Color matching and measurement by absorption	--	MDI in air	Polyurethane (insulation) odor	Methylene diphenyl diisocyanate (MDI) has other names for same products caused by polyurethane insulating material

TABLE 7-5 SIMILARITY OF ANALYTIC METHODS WITHIN EPA 600s AND 800s SERIES

CHEMICAL \ SAMPLE MATRIX	Under Clean Water Act 40 CFR Part 136, EPA		Under RCRA 40 CFR Part 261, EPA, SW 846		Target Compounds and Remarks		
	FOR WATER AND WASTEWATER		FOR HAZARDOUS AND SOLID WASTE				
	Methodic Code	Analytic Method	Determined Analyte	Methodic Code		Analytic Method	Determined Analyte
Purgeable Halocarbon	601	GC-HSD by P/T	29 Compounds	8010	GC-HSD by D.I. or P/T	39 Compounds	Compounds listed in Table 8010. See N1 & 'X'.
Non-Halogenated Volatile Organics	-	-	-	8015	GC-FID by D.I. or P/T	4 Compounds	Diethyl Ether, Ethanol, Methyl Ethyl Ketone (MEK), Methyl Isobutyl Ketone (MIBK).
Purgeable Aromatics	602	GC-PID by P/T	7 Compounds	8020	GC-PID by D.I. or P/T	8 Compounds	Compounds listed in Table 8020. See N1.
Volatile Organic Compounds	-	-	-	8021	GC-HSD & PID by P/T	58 Compounds	Compounds listed in Table 8021.
Acrolein and Acrylonitrile	603	GC-FID by P/T	2 Compounds	8030	GC-FID by D.I. or P/T	3 Compounds	x Acrolein, x Acrylonitrile, Acetonitrile. See N1 & 'X'.
Phenols	604	GC-FID by Extraction	11 Compounds	8040	GC-FID by Extraction	17 Compounds	Compounds listed in Table 8040. See N2 & 'X'.
Phthalate Esters	606	GC-ECD by Extraction	6 Compounds	8060	GC-ECD or FID by Extraction	6 Compounds	Benzyl Butyl phthalate, Bis(2-ethyl hexyl phthalate, Di-n-butyl phthalate, Diethyl phthalate, Dimethyl phthalate, Di-n-octyl phthalate. See N2.
Nitrosamines	607	GC-NPD by Extraction	3 Compounds	8070	GC-NPD by Extraction	3 Compounds	N-Nitrosodimethylamine, N-Nitrosodiphenylamine, N-Nitrosodi-n-propylamine. See N2 and 'X'.
Organochlorine Pesticides and PCB's	608	GC-ECD by Extraction	25 Compounds	8080	GC-ECD or HSD by Extraction	26 Compounds	Compounds listed in Table 8080. See N2 and 'X'.
Nitroaromatics and Isophorone (Cyclic Ketone)	609	GC-ECD or FID by Extraction	4 Compounds	8090	GC-ECD or FID by Extraction	6 Compounds	x Isophorone, x Nitrobenzene, x 2,4-Dinitrotoluene, x 2,6-Dinitrotoluene, Dinitrobenzene, Naphthoquinone. See N2.
Polynuclear Aromatic Hydrocarbons (PAH)	610	HPLC-UV&FD or GC-FID by Extraction	16 Compounds	8100	GC-FID by Extraction	24 Compounds	Compounds listed in Table 8100. See N2 and 'X'.

TABLE 7-5 SIMILARITY OF ANALYTIC METHODS WITHIN EPA 600s AND 8000s SERIES (Continued)

CHEMICAL    SAMPLE MATRIX - Descriptive Name	Under Clean Water Act 40 CFR Part 136, EPA		Under RCRA 40 CFR Part 261, EPA, SW 846 FOR HAZARDOUS AND SOLID WASTE		Target Compounds and Remarks	
	Methodic Code	Analytic Method	Determined Analyte	Methodic Code		Analytic Method
Polyuclear Aromatic Hydrocarbons (PAH)	610	HPLC-UV&FD or GC-FID by Extraction	16 Compounds	8310	HPLC-UV&FD by Extraction	16 Compounds
Chlorinated Hydrocarbons	612	GC-ECD by Extraction	9 Compounds	8120	GC-ECD by Extraction	15 Compounds
Polychlorinated Dibenzop-Dioxins & Polychlorinated Dibenzofurans	613	GC/MS by Spike and Extraction	only 2,3,7,8 TCDD	8280	HRGC/LRMS by Spike and Extraction	PCDDs & PCDFs
Purgeable-volatile Organics	624	GC/MS by P/T	31 Compounds	8240	GC/MS by P/T or D.I.	80 Compounds
Volatile Organics	-	-	-	8260	GC(Capillary)/MS by P/T	58 Compounds
Base/Neutrals and acids-semi-volatile Organics	625	GC(Packed)/M/S by Extraction	79 Compounds	8270	GC(Capillary)/MS by Extraction	234 (with all different preparation techniques)

NOTE: N1 - Method 624 provides GC-MS conditions appropriate for the qualitative and quantitative confirmation of results for most of the compounds listed in Method 601, 602 & 603.  
 N2 - Method 625 provides GC-MS conditions appropriate for the qualitative and quantitative confirmation of results for all or most of the compounds listed in Method 604, 606, 607, 608, 609, 610, 612 and 613.  
 x - Compounds with this 'x' mark at its front means that it is also one of the compounds determined by the equivalent Method 600 series.



**TABLE 7-6 ANALYTICAL METHODS FOR DRINKING WATER**

<u>Methodic Code</u>	<u>Analytic Method</u>	<u>Descriptive Name (Analyte)</u>	<u>Target Compounds and Remark</u>
(EPA) 501.1	GC-HSD by P/T	Analysis of Trihalomethanes	Bromoform, Chloroform, Dichlorobromomethane, Dibromochloromethane.
501.2	GC-HSD by L/L	Analysis of Trihalomethanes	Same as 501.1.
502.1	GC-HSD by P/T	Halogenated Chemicals	Carbon Tetrachloride, 1,2-Dichloroethane, tetrachloroethylene, 1,1,1-Trichloroethane, Trichloroethylene, Vinyl Chloride. Additional 44 compounds listed in Table 502.1.
502.2	GC-PID-HECD series by P/T	Volatile Organic Compounds	Compounds Listed in Table 502.2.
503.1	GC-PID by P/T	Aromatic Chemicals	Compounds listed in Table 503.1.
504	GC-ECD (GC/MS) by microextraction	1,2-Dibromoethane (EDB) 1,2-Dibromo-3 chloropropane (DBCP)	For compounds other than the two analytes, the analyst must demonstrate the usefulness of the method by using GC/MS.
524.1	GC/MS by P/T	Volatile Organic Compounds	Compounds listed in Table 524.1.
524.2	GC/MS by P/T (Capillary)	Volatile Organic Compounds	Compounds listed in Table 524.2.
525	GC/MS by L/S (Capillary)	Non-Volatile Organic Compounds	Compounds listed in Table 525.

**Table 310-2:** Compounds may be determined individually by DOH 310-2 Method.

Aldrin, alpha HCH, beta HCH, gamma HCH (Lindane), Delta HCH, Captan, Chlordane, DDD, DDE, DDT, Dichloran, Dieldrin, Endosulfan, Endrin, Heptachlor epoxide, Methoxychlor, Mirex, Strobane, Toxaphene, Trifluralin and Aroclors (PCBs).

**Table 310-7:** Compounds may be determined by DOH 310-7.

Acrolein	1,1-Dichloroethene
Acrylonitrile	trans-1,2-Dichloroethene
Benzene	1,2-Dichloropropane
Bromomethane	cis-1,3-Dichloropropene
Bromodichloromethane	trans-1,3-Dichloropropene
Bromoform	Ethylbenzene
Carbon tetrachloride	Methylene chloride
Chlorobenzene	1,1,2,2-Tetrachloroethane
Chloroethane	Tetrachloroethene
2-Chloroethylvinyl ether	1,1,1-Trichloroethane
Chloroform	1,1,2-Trichloroethane
Chloromethane	Trichloroethene
Dibromochloromethane	Trichlorofluoromethane
1,1-Dichloroethane	Toluene
1,2-Dichloroethane	Vinyl chloride

Detection limit is 10 ug/l for all compounds except acrolein and acrylonitrile at 100 ug/l.

**Table 310-8:** Compounds may be determined by DOH 310-8

**TABLE A  
BASE-NEUTRAL EXTRACTABLES**

Acenaphthene  
Acenaphthylene  
Anthracene  
Benzo(a)anthracene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Benzo(g,h,i)perylene  
Benzidine  
Bis(2-chloroethyl)ether  
Bis(2-chloroethoxy)methane  
Bis(2-ethylhexyl)phthalate  
Bis(2-chloroisopropyl)ether  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate  
2-Chloronaphthalene  
4-Chlorophenyl phenyl ether  
Chrysene  
Dibenzo(a,h)anthracene  
Di-n-butylphthalate  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
1,2-Dichlorobenzene  
3,3'-Dichlorobenzidine  
Diethylphthalate  
Dimethylphthalate  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene

**TABLE B  
ACID EXTRACTABLES**

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

**TABLE C  
PESTICIDE EXTRACTABLES**

Aldrin  
a-BHC  
b-BHC  
d-BHC  
g-BHC  
Chlordane  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
Dieldrin  
Endosulfan I  
Endosulfan II

**Table 310-8:** Compounds may be determined by DOH 310-8 (Cont'd)

**TABLE A  
BASE-NEUTRAL EXTRACTABLES**

Diocylphthalate  
1,2-Diphenylhydrazine  
Fluoranthane  
Flourene  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachloroethane  
Hexachlorocyclopentadiene  
Indeno(1,2,3-cd)pyrene  
Isophorone  
Naphthalene  
Nitrobenzene  
N-Nitrosodimethylamine  
N-Nitrosodi-n-propylamine  
N-Nitrosodiphenylamine  
Phenanthrene  
Pyrene  
2,3,7,8-Tetrachlorodibenzo-p-dioxin  
1,2,4-Trichlorobenzene

**TABLE C  
PESRICIDE EXTRACTABLES**

Endosulfan Sulfate  
Endrin  
Endrin aldehyde  
Heptachlor  
Heptachlor epoxide  
Toxaphene  
PCB-1016  
PCB-1221  
PCB-1232  
PCB-1242  
PCB-1248  
PCB-1254  
PCB-1260

**Table 310-11:** Compounds may be determined by DOH 310-11.

This method is applicable to the determination of the following nine compounds in water: chloroform, 1,1,1-trichloroethane, trichloroethene, bromodichloromethane, tetrachloroethene, carbon tetrachloride, bromoform, chlorodibromomethane, and 1,1,2-trifluorotrichloroethane.

**Table 310-18:** Compounds may be determined by DOH 310-18.

	<u>Detection Limit ug/l</u>		<u>Detection Limit ug/l</u>
Bromoform	0.02	1,1-Dichloroethane	0.004
Bromodichloromethane	0.006	1,2-Dichloroethane	0.006
Bromomethane	0.03	1,1-Dichloroethene	0.006
Carbon tetrachloride	0.007	trans-1,2-Dichloroethene	0.006
Chlorobenzene	0.003	1,2-Dichloropropane	0.004
Chloroethane	0.01	cis-1,3-Dichloropropene	0.008
2-Chloroethylvinyl ether	0.06	trans-1,3-Dichloropropene	0.006
Chloroform	0.006	Methylene chloride	0.01
Chloromethane	0.0009	1,1,2,2-Tetrachloroethane	0.006
Dibromochloromethane	0.01	Tetrachloroethene	0.007
1,2-Dichlorobenzene	0.04	1,1,1-Trichloroethane	0.005
1,3-Dichlorobenzene	0.04	1,1,2-Trichloroethane	0.006
1,4-Dichlorobenzene	0.04	Trichloroethene	0.005
Dichlorodifluoromethane	0.03	Trichlorofluoromethane	0.01
		Vinyl Chloride	0.01

**Table 310-22:** Compounds may be determined by DOH 310-22.

benzene	p-dichlorobenzene
toluene	m-dichlorobenzene
ethylbenzene	o-dichlorobenzene
m-xylene	chlorobenzene
hexachlorobutadiene (C-46)	p-xylene
naphthalene	o-xylene

**Table 310-22:** Compounds may be determined by DOH 310-22.(Cont'd)

cyclopropylbenzene	n-butylbenzene
tert-butylbenzene	p-bromofluorobenzene
p-cymene	1-chlorocyclohexene-1
bromobenzene	2,3-benzofuran
cumene	sec-butylbenzene
1,2,4-trimethylbenzene	styrene
1,3,5-trimethylbenzene	1,2,3-trichlorobenzene
n-propylbenzene	1,2,4-trichlorobenzene
trichloroethene	p-chlorotoluene
tetrachloroethene	m-chlorotoluene
	o-chlorotoluene

The minimum reportable concentration in water is 0.5 ug/l.

**Table 310-29:** Compounds may be determined by DOH 310-29.

Bromobenzene	1,1-Dichloroethane
*Bromochloromethane	1,2-Dichloroethane
Bromodichloromethane	1,1-Dichloroethene
Bromoform	cis-1,2-Dichloroethene
Bromomethane	trans 1,2-Dichloroethene
Carbon tetrachloride	1,2-Dichloropropane
Chlorobenzene	1,3-Dichloropropane
Chloroethane	2,2-Dichloropropane
Chloroform	1,1-Dichloropropene
Chloromethane	Methylene chloride
2-Chlorotoluene	1,1,1,2-Tetrachloroethane
4-Chlorotoluene	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dibromoethane	1,1,1-Trichloroethane
Dibromomethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	1,2,3-Trichloropropane
Dichlorodifluoromethane	Vinyl chloride

\* SURROGATE Compound

The minimum reportable concentration is 0.5 microgram/liter (ug/l) for all compounds.

**Table 311-2 & Table 312-4:** Compounds in air may be determined by DOH 311-2 and in soil/sediment by DOH 312-4

**Electron Capture Detector (ECD)  
or Hall Detector (HECD)**

Chloroform  
1,1,1-trichloroethane  
trichloroethene  
carbon tetrachloride  
bromodichloromethane  
1,1,2-trichloroethane  
tetrachloroethene  
1,2-dibromoethane  
bromoform  
1,1,2,2-tetrachloroethane

**Photoionization Detector (PID)**

benzene  
toluene  
chlorobenzene  
o,p,m-xylene  
o,p-chlorotoluene

The method may be extended to the compounds listed below. However, validation of accuracy and precision for each additional compound is necessary.

**Table 311-2 & Table 312-4:** Compounds in air may be determined by DOH 311-2 and in soil/sediment by DOH 312-4.(Cont'd)

<p><b><u>ECD/HECD</u></b>  o,m,p-dichlorobenzene  cis-1,3-dichloropropene  dibromochloromethane  trans-1,3-dichloropropene  1,2-dichloroethane</p>	<p><b><u>PID</u></b>  ethylbenzene  cumene  styrene  n-propyl benzene  tert-butyl benzene</p>
<p><b><u>ECD/HECD</u></b>  trans-1,2-dichloroethene  1,1-dichloroethane  1,1-dichloroethene</p>	<p><b><u>PID</u></b>  bromobenzene  m-chlorotoluene  1,3,5-trimethyl benzene  1,2,4-trimethyl benzene  p-cymene  cyclo propyl benzene  sec-butyl benzene  n-butyl benzene</p>

**Table 312-5:** Compounds in soils may be determined by DOH 312-5.

<p>2,3,4-Trichlorophenol  2,3,5-Trichlorophenol  2,3,6-Trichlorophenol  2,4,5-Trichlorophenol  2,4,6-Trichlorophenol  3,4,5-Trichlorophenol  Pentachlorophenol  alpha HCH  beta HCH  gamma HCH  delta HCH  Mirex</p>	<p>Hexachlorobenzene  Pentachlorobenzene  1,3,5-Trichlorobenzene  1,2,4-Trichlorobenzene  1,2,3-Trichlorobenzene  1,2,3,5-Tetrachlorobenzene  1,2,3,4-Tetrachlorobenzene  2-Bromophenol  1,3,5-Tribromobenzene  m-Monochlorobenzotrifluoride  p-Monochlorobenzotrifluoride  o-Monochlorobenzotrifluoride  Hexachlorocyclopentadiene (C-56)</p>
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**Table 8010:** Compounds in solid waste may be determined by EPA 8010.

	<b>Mehtod Detection Limit (ug/l)</b>		<b>Method Detection Limit (ug/l)</b>
Benzyl chloride		x 1,3-Dichlorobenzene	0.32
Bis(2-chloroethoxy)methane		x 1,4-Dichlorobenzene	0.24
Bis(2-chloroisopropyl)ether		x Dichlorodifluoromethane	
Bromobenzene		x 1,1-Dichloroethane	0.07
x Bromodichloromethane	0.10	x 1,2-Dichloroethane	0.03
x Bromoform	0.20	x 1,1-Dichloroethylene	0.13
x Bromomethane		x trans-1,2-Dichloroethylene	0.10
x Carbon tetrachloride	0.12	x Dichloromethane	
Chloroacetaldehyde		x 1,2-Dichloropropane	0.04
x Chlorobenzene	0.25	x trans-1,3-Dichloropropylene	0.34
x Chloroethane	0.52	x 1,1,2,2-Tetrachloroethane	0.03
x Chloroform	0.05	x 1,1,1,2-Tetrachloroethane	
1-Chlorohexane		x Tetrachloroethylene	0.03
x 2-Chloroethyl vinyl ether	0.13	x 1,1,1-Trichloroethane	0.03
x Chloromethane	0.08	x 1,1,2-Trichloroethane	0.02
Chloromethylmethyl ether		x Trichloroethylene	0.12
Chlorotoluene		x Trichlorofluoromethane	
x Dibromochloromethane	0.09	Trichloropropane	

**Table 8010:** Compounds in solid waste may be determined by EPA 8010 (Continued)

	Method Detection Limit (ug/l)		Method Detection Limit (ug/l)
Dibromomethane		x Vinyl chloride	0.18
x 1,2-Dichlorobenzene	0.15		

x - Compound with "x" marked at its front means that it is also one of the compounds Determined by the equivalent method of 600s series (601 in this particular case)

**Table - EPA 1310:** MAXIMUM CONCENTRATION OF CONTAMINANTS FOR CHARACTERISTICS OF EP TOXICITY

Contaminant	Maximum Concentration (mg/L)	Analytical Method
Arsenic	5.0	7060, 7061
Barium	100.0	7080
Cadmium	1.0	7130, 7131
Total Chromium	5.0	7190, 7191
Lead	5.0	7420, 7421
Mercury	0.2	7470
Selenium	1.0	7740, 7741
Silver	5.0	7760
Endrin (1,2,3,4,10,10-Hexachloro-1 7-epoxy-1,4,4a, 5,6,7,8,8a-octahydro-1 4-endo, endo-5,8-dimethanonaphthalene)	0.02	8080
Lindane (1,2,3,4,5,6- Hexachlorocyclohexane, gamma isomer)	0.2	8080
Methoxychlor (1,1,1-Trichloro-2m2-bis (p-methoxyphenyl)ethane)	10.0	8080
Toxaphene (C <sub>10</sub> H <sub>10</sub> Cl <sub>10</sub> , Technical chlorinated camphene, 67-69% chlorine)	0.5	8080
2,4-D (2,4-Dichlorophenoxyacetic acid)	10.0	8150
2,4,5-TP (Silvex) (2,4,5- Trichlorophenoxypropionic acid)	1.0	8150

**Table 8020:** Compounds may be determined by Method 8020.

<u>Compound</u>	<u>Method Detection Limit<sup>a</sup> (ug/l)</u>
x Benzene	0.2
x Chlorobenzene	0.2
x 1,4-Dichlorobenzene	0.3
x 1,3-Dichlorobenzene	0.4
x 1,2-Dichlorobenzene	0.4
x Ethyl Benzene	0.2
x Toluene	0.2
Xylenes	

a - Using purge and trap method (Method 5030) and in reagent water

x - Compound is also one of the compounds determined by the equivalent Method 602.

**Table 8021:** Compounds may be determined by Method 8021.

Benzene	1,2-Dichloropropane
Bromobenzene	1,3-Dichloropropane
Bromochloromethane	2,2-Dichloropropane
Bromodichloromethane	1,1-Dichloropropane
Bromoform	Ethylbenzene
Bromomethane	Hexachlorobutadiene
n-Butylbenzene	Isopropylbenzene
sec-Butylbenzene	p-Isopropylbenzene
tert-Butylbenzene	Methylene chloride
Carbon tetrachloride	Naphthalene
Chlorobenzene	n-Propylbenzene
Chloroethane	Styrene
Chloroform	1,1,1,2-Tetrachloroethane
Chloromethane	1,1,2,2-Tetrachloroethane
2-Chlorotoluene	Tetrachloroethane
4-Chlorotoluene	Toluene
Dibromochloromethane	1,2,3-Trichlorobenzene
1,2-Dibromo-3-chloropropane	1,2,4-Trichlorobenzene
1,2-Dibromoethane	1,1,1-Trichloroethane
Dibromomethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	1,2,3-Trichloropropane
Dichlorodifluoromethane	1,2,4-Trimethylbenzene
1,1-Dichloroethane	1,3,5-Trimethylbenzene
1,2-Dichloroethane	Vinyl chloride
1,1-Dichloroethene	o-Xylene
cis-1,2-Dichloroethene	m-Xylene
trans-1,2-Dichloroethene	p-Xylene

**Table 8040:** Compounds may be determined by Method 8040.

<u>Compound</u>	<u>Method Detection limit (ug/l)</u>
2-sec-Butyl-4,6-dinitrophenol (DNBP)	
x 4-Chloro-3-methylphenol	0.36
x 2-Chlorophenol	0.31
Cresols (methyl phenols)	
2-Cyclohexyl-4,6-dinitrophenol	
x 2,4-Dichlorophenol	0.39
2,6-Dimchlorophenol	
x 2,4-Dimethylphenol	0.32
x 2,4-Dinitrophenol	13.0
x 2-Methyl-4,6-dinitrophenol	16.0
x 2-Nitrophenol	0.45
x 4-Nitrophenol	2.8
x Pentachlorophenol	7.4
x Phenol	0.14
Tetrachlorophenols	
Trichlorophenols	
x 2,4,6-Trichlorophenol	0.64

x - Compound is also one of the compounds determined by the equivalent method of 600s series (Method 604 in this case).

**Table 8080:** Compounds may be determined by Method 8080.

<u>Compound</u>	<u>Method Detection limit (ug/l)</u>	<u>Compounds</u>	<u>Method Detection limit (ug/l)</u>
x Aldrin	0.004	x Endrin	0.006
x $\alpha$ -BHC	0.003	x Endrin aldehyde	0.023
x $\beta$ -BHC	0.006	x Heptachlor	0.003
x $\delta$ -BHC	0.009	x Heptachlor expoxide	0.083
x $\gamma$ -BHC (Lindane)	0.004	Methoxychlor	0.176
x Chlordane (technical)	0.012	x Toxaphene	0.24
x 4,4'-DDD	0.011	x PCB-1016 e	nd
x 4,4'-DDE	0.004	x PCB-1221 e	nd
x 4,4'-DDT	0.012	x PCB-1232 e	nd
x Dieldrin	0.002	x PCB-1242 e	0.065
x Endosulfan I	0.014	x PCB-1248 e	nd
x Endosulfan II	0.004	x PCB-1254 e	nd
x Endosulfan sulfate	0.066	x PCB-1260 e	nd

x -- Compound is also one of the compounds determined by the equivalent Method 608. This Method is from Method 617.

e -- Multiple peak response

nd-- Not determined



**Table 8100:** Compounds may be determined by Method 8100.

x Acenaphthene	x Dibenzo(a,h)anthracene
x Acenaphthylene	7H-Dibenzo(c,g)carbazole
x Anthracene	Dibenzo(a,e)pyrene
x Benzo(a)anthracene	Dibenzo(a,h)pyrene
x Benzo(a)pyrene	Dibenzo(a,i)pyrene
x Benzo(b)fluoranthene	x Fluoranthene
Benzo(j)fluoranthene	x Fluorene
x Benzo(k)fluoranthene	x Indeno(1,2,3-cd)pyrene
x Benzo(ghi)perylene	3-Methylchloanthrene
x Chrysene	x Naphthalene
Dibenz(a,h)acridine	x Phenanthrene
Dibenz(a,j)acridine	x Pyrene

x - Compound is also one of the compounds determined by the equivalent Method 610.

**Table 8120:** Compounds may be determined by Method 8120.

<u>Compound</u>	<u>Method Detection limit (ug/l)</u>	<u>Compounds</u>	<u>Method Detection limit (ug/l)</u>
Benzal chloride		x Hexachlorobutadiene	0.34
Benzotrichloride		Hexachlorocyclohexane	
Benzyl chloride		x Hexachlorocyclopentadiene	0.40
x 2-Chloronaphthalene	0.94	x Hexachloroethane	0.03
x 1,2-Dichlorobenzene	1.14	Tetrachlorobenzenes	
x 1,3-Dichlorobenzene	1.19	x 1,2,4-Trichlorobenzene	0.05
x 1,4-Dichlorobenzene	1.34	Pentachlorohexane	
x Hexachlorobenzene	0.05		

x - Compound is also one of the compounds determined by the equivalent Method 612.

**Table 8240:** Compounds may be determined by Method 8240.

Acetone	x Ethylbenzene
Acetonitrile	Ethylene oxide
Acrolein	Ethyl methacrylate
Acrylonitrile	2-Hexanone
Allyl alcohol	2-Hydroxypropionitrile
Allyl chloride	Iodomethane
x Benzene	Isobutyl alcohol
Benzyl chloride	Malononitrile
Bromoacetone	Methacrylonitrile
Bromochloromethane (I.S.)	x Methylene chloride
x Bromodichloromethane	Methyl iodide
4-Bromofluorobenzene (surr.)	Methyl methacrylate
x Bromoform	4-Methyl-2-pentanone
x Bromomethane	Pentachloroethane
2-Butanone	2-Picoline
Carbon disulfide	Propargyl alcohol
x Carbon tetrachloride	b-Propiolactone
x Chlorobenzene	Propioitrile
Chlorobenzene-d5 (I.S.)	n-Propylamine
Chlorodibromomethane	Pyridine
x Chloroethane	Stryrene
2-Chloroethanol	1,1,1,2-Tetrachloroethane
x 2-Chloroethyl vinyl ether	x 1,1,2,2-Tetrachloroethane
x Chloroform	x Tetrachloroethene

**Table 8240:** Compounds may be determined by Method 8240. (Continued)

x Chloromethane	x Toluene
Chloroprene	Toluene-d8 (surr.)
3-Chloropropionitrile	x 1,1,1-Trichloroethane
1,2-Dibromo-3-chloropropane	x 1,1,2-Trichloroethane
1,2-Dibromoethane	x Trichloroethene
Dibromoethane	x Trichlorofluormethane
1,4-Dichloro-2-butene	1,2,3-Trichloropropane
Dichlorodifluormethane	Vinyl acetate
x 1,1-Dichloroethane	x Vinyl chloride
x 1,2-Dichloroethane	Xylene (Total)
1,2-Dichloroethane-d4(surr.)	+ Dibromochloromethane
x 1,1-Dichloroethene	+ 1,2-Dichlorobenzene
x trans-1,2-Dichloroethene	+ 1,3-Dichlorobenzene
x 1,2-Dichloropropane	+ 1,4-Dichlorobenzene
1,3-Dichloro-2-propanol	
x cis-1,3-Dichloropropene	
x trans-1,3-Dichloropropene	
1,2,3,4-Diepoxybutane	
1,4-Difluorobenzene (I.S.)	
1,4-Dioxane	
Epichlorohydrin	
Ethanol	

x - Compound with an "x" marked at its front means that it is one of the compounds determined by the equivalent method of 600s series (Method 624 in this case).

+ - Compound is determined only by Method 624, not by Method 8240.

I.S. - Internal Standard. Surr. -- Surrogate

**Table 8260:** Compounds may be determined by Method 8260.

Benzene	1,2-Dichloropropane
Bromobenzene	1,3-Dichloropropane
Bromochloromethane	2,2-Dichloropropane
Bromodichloromethane	1,1-Dichloropropene
Bromoform	Ethylbenzene
Bromomethane	Hexachlorobutadiene
n-Butylbenzene	Isopropylbenzene
sec-Butylbenzene	p-Isopropyltoluene
tert-Butylbenzene	Methylene chloride
Carbon tetrachloride	Naphthalene
Chlorobenzene	n-Propylbenzene
Chloroethane	Styrene
Chloroform	1,1,1,2-Tetrachlorethane
Chloromethane	1,1,2,2-Tetrachlorethane
2-Chlorotoluene	Tetrachloroethene
4-Chlorotoluene	Toluene
Dibromochloromethane	1,2,3-Trichlorobenzene
1,2-Dibromo-3-chloropropane	1,2,4-Trichlorobenzene
1,2-Dibromoethane	1,1,1-Trichloroethane
Dibromomethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Trichlorofluormethane
1,4-Dichlorobenzene	1,2,3-Trichloropropane
Dichlorodifluoromethane	1,2,4-Trimethylbenzene
1,1-Dichloroethane	1,3,5-Trimethylbenzene
1,2-Dichloroethane	Vinyl chloride

**Table 8260:** Compounds may be determined by Method 8260.(Cont'd)

1,1-Dichloroethene	o-Xylene
cis-1,2-Dichloroethene	m-Xylene
trans-1,2-Dichloroethene	p-Xylene

**Table 8270:** Compounds may be determined by Method 8270.

x Acenaphthene	x Aroclor - 1221
Acenaphthene - d10 (I.S.)	x Aroclor - 1232
x Acenaphthylene	x Aroclor - 1242
Acetophenone	x Aroclor - 1248
2-Acetylaminofluorene	x Aroclor - 1254
1-Acetyl-2-thiourea	x Aroclor - 1260
x Aldrin	Azinphos-methyl
2-Aminoanthraquinone	Barban
Aminoazobenzene	xxx Benzidine
4-Aminobiphenyl	Benzoic acid
Anilazine	x Benz(a)anthracene
Aniline	x Benz(b)fluoranthene
o-Anisidine	x Benz(k)fluoranthene
x Anthracene	x Benzo(g,h,i)perylene
Aramite	x Benzo(a)pyrene
x Aroclor - 1016	p-Benzoquinone
Benzyl alcohol	Dibenzofuran
α-BHC	Dibenzo(a,e)pyrene
xxx β-BHC	x Di-n-butylphthalate
xxx δ-BHC	Dichlone
τ-BHC (Lindane)	x 1,2-Dichlorobenzene
x Bis(2-chloroethoxy)methane	x 1,3-Dichlorobenzene
x Bis(2-chloroethyl)ether	x 1,4-Dichlorobenzene
x Bis(2-chloroisopropyl)ether	1,4-Dichlorobenzene-d4 (I.S.)
x Bis(2-ethylhexyl)phthalate	x 3,3'-Dichlorobenzidine
x 4-Bromophenyl phenyl ether	xx 2,4-Dichlorophenol
Bromoxynil	2,6-Dichlorophenol
x Butyl benzyl phthalate	Dichlorovos
Captafol	Dicrotophos
Captan	x Dieldrin
Carbaryl	x Diethyl phthalate
Carbofuran	Diethyl stilbesterol
Carbophenothion	Diethyl sulfate
x Chlordane	Dimethoate
Chlorofenvinphos	
4-Chloraniline	3,3'-Dimethoxybenzidine
Chlorobenzilate	Dimethylaminoazobenzene
5-Chloro-2-methylaniline	7,12-Dimethylbenz(a)anthracene
xx 4-Chloro-3-methylphenol	
3-(Chloromethyl)pyridine	3,3'-Dimethylbenzidine
hydrochloride	α,α-Dimethylphenethylamine
1-Chloronaphthalene	xx 2,4-Dimethylphenol
x 2-Chloronaphthalene	x Dimethyl phthalate
x 2-Chlorophenol	1,2-Dinitrobenzene
x 4-Chlorophenyl phenyl ether	1,3-Dinitrobenzene
x Chrysene	1,4-Dinitrobenzene
Chrysene-d12 (I.S.)	xx 4,6-Dinitro-2-methylphenol
Coumaphos	xx 2,4-Dinitrophenol
p-Cresidine	x 2,4-Dinitrotoluene
Crotoxyphos	x 2,6-Dinitrotoluene
2-Cyclohexyl-4,6-dinitro-phenol	Dinocap

x 4,4'-DDD	Dinoseb
x 4,4'-DDE	Diphenylamine
x 4,4'-DDT	5,5-Diphenylhydantoin
Demeton-o	1,2-Diphenylhydrazine
Demeton-s	x Di-n-octylphthalate
Diallate (cis or trans)	Disulfoton
Diallate (trans or cis)	xxx Endosulfan I
2,4-Diaminotoluene	xxx Endosulfan II
	x Endosulfan sulfate
Dibenz(a,j)acridine	xxx Endrin
x Dibenz(a,h)anthracene	Mexacarbate
x Endrin aldehyde	
Endrin ketone	Mirex
EPN	Monocrotophos
Ethion	Naled
Ethyl carbamate	x Naphthalene
Ethyl methanesulfonate	Naphthalene-d8 (I.S.)
Famphur	1,4-Naphthoquinone
Fensulfothion	1-Naphthylamine
Fenthion	2-Naphthylamine
Fluchloralin	Nicotine
x Fluoranthene	5-Nitroacenaphthene
x Fluorene	2-Nitroaniline
2-Fluorobiphenyl (surr.)	3-Nitroaniline
2-Fluorophenol (surr.)	4-Nitroaniline
x Heptachlor	5-Nitro-o-anisidine
x Heptachlor epoxide	x Nitrobenzene
x Hexachlorobenzene	Nitrobenzene-d5 (surr.)
x Hexachlorobutadiene	4-Nitrobipheyl
xxx Hexachlorocyclopentadiene	Nitrofen
x Hexachloroethane	xx 2-Nitrophenol
Hexachlorophene	xx 4-Nitrophenol
	5-Nitro-o-toluidine
Hexachloropropene	Nitroquinoline-1-oxide
Hexamethyl phosphoramidate	N-Nitrosodibutylamine
Hydroquinone	N-Nitrosodiethylamine
x Indeno(1,2,3-cd)pyrene	xxx N-Nitrosodimethylamine
Isodrin	N-Nitrosomethylethylamine
x Isophorone	xxx N-Nitrosodiphenylamine
Isosafrole	x N-Nitrosodi-n-propylamine
Kepone	N-Nitrosomorpholine
Leptophos	N-Nitrosopiperidine
Malathion	N-Nitrosopyrrolidine
Maleic anhydride	Octamethyl pyrophosphoramidate
Mestranol	4,4'-Oxydianiline
Methapyrilene	Parathion
Methoxychlor	Pentachlorobenzene
3-Methylcholanthrene	Pentachloronitrobenzene
4,4'-Methylenebis (2-chloroaniline)	xx Pentachlorophenol
Methylmethanesulfonate	Perylene-d12 (I.S.)
2-Methylnaphthalene	Phenacetin
Methyl parathion	x Phenanthrene
2-Methylphenol	Phenanthrene-d10 (I.S.)
3-Methylphenol	Phenobarbital
4-Methylphenol	xx Phenol
Mevinphos	Phenol-d6 (surr.)
	1,4-Phenylenediamine

**Table 8270:** Compounds may be determined by Method 8270 (Continued)

Phorate	2,3,4,6-Tetrachlorophenol
Phosalone	Tetrachlorvinphos
Phosmet	Tetraethyl pyrophosphate
Phosphamidon	Thionazine
Phthalic anhydride	Thiophenol (Benzenethiol)
	Toluene diisocyanate
2-Picoline	o-Toluidine
Piperonyl sulfoxide	x Toxaphene
Pronamide	2,4,6-Tribromophenol (surr.)
Propylthiouracil	x 1,2,4-Trichlorobenzene
x Pyrene	2,4,5-Trichlorophenol
Pyridine	xx 2,4,6-Trichlorophenol
Resorcinol	Trifluralin
	2,4,5-Trimethylaniline
Safrole	Trimethyl phosphate
Strychnine	1,3,5-Trinitrobenzene
	Tris(2,3-dibromopropyl) phosphate
Sylfallate	Tri-p-tolyl phosphate
Terbufos	0,0,0-Triethyl phosphoro- thioate
Terphenyl-d14 (surr.)	
1,2,4,5-Tetrachlorobenzene	

x -- are Base/Neutral Extractables;

xx -- are Acid Extractables;

xxx -- See the context of Method 625 for the preferred methods

All compounds with these marks are also one of the compounds determined by Method 625.

I.S.-Internal Standard.

Surr. - Surrogate

**Table 502.1:** Compounds may be determined by Method 502.1

chloromethane	1,3-dichloropropane
bromomethane	chlorodibromomethane
dichlorodifluoromethane	1,1,2-trichloroethane
vinyl chloride	cis-1,3-dichloropropene
chloroethane	1,2-dibromoethane
dichloromethane	2-chloroethylethyl ether
fluorotrichloromethane	2-chloroethylvinyl ether
allylchloride	bromoform
1,1-dichloroethylene	1,1,1,2-tetrachloroethane
bromochloromethane	1,2,3-trichloropropane
1,1-dichloroethane	chlorocyclohexane
trans-1,2-dichloro-ethylene	1,1,2,2-tetrachloroethane
cis-1,2-dichloro-ethylene	1,1,2,2-tetrachloroethylene
chloroform	pentachloroethane
1,2-dichloroethane	1-chlorocyclohexene-1
dibromomethane	chlorobenzene
1,1,1-trichloroethane	1-chlorohexane
carbon tetrachloride	bis-2-chloroethyl ether
dichloroacetonitrile	1,2-dibromo-3-chloropropane
bromodichloromethane	bromobenzene
2,3-dichloropropene	o-chlorotoluene
1,2-dichloropropane	bis-2-chloroisopropyl ether
1,1-dichloropropene	m-dichlorobenzene
trans-1,3-dichloropropene	o-dichlorobenzene
1,1,2-trichloroethylene	p-dichlorobenzene

**Table 502.2:** Compounds may be determined by Method 502.2

Benzene	trans-1,2-Dichloroethene
Bromobenzene	1,2-Dichloropropane
Bromochloromethane	1,3-Dichloropropane
Bromodichloromethane	2,2-Dichloropropane
Bromoform	1,1-Dichloropropene
Bromomethane	Ethylbenzene
n-Butylbenzene	Hexachlorobutadiene
sec-Butylbenzene	Isopropylbenzene
tert-Butylbenzene	p-Isopropyltoluene
Carbon tetrachloride	Methylene chloride
Chlorobenzene	Naphthalene
Chloroethane	n-Propylbenzene
Chloroform	Styrene
Chloromethane	1,1,1,2-Tetrachloroethane
2-Chlorotoluene	1,1,2,2-Tetrachloroethane
4-Chlorotoluene	Tetrachloroethane
Dibromochloromethane	Toluene
1,2-Dibromo-3-chloropropane	1,2,3-Trichlorobenzene
1,2-Dibromomethane	1,2,4-Trichlorobenzene
Dibromomethane	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,3-Dichlorobenzene	Trichloroethene
1,4-Dichlorobenzene	Trichlorofluoromethane
Dichlorodifluoromethane	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	o-Xylene
	m-Xylene
	p-Xylene

**Table 503.1:** Compounds may be determined by Method 503.1

Benzene	p-Chlorotoluene
1,1,2-Trichloroethylene	Bromobenzene
a,-Trifluorotoluene	sec-Butylbenzene
Toluene	1,3,5-Trimethylbenzene
1,1,2,2-Tetrachloroethylene	p-Cymene
Ethylbenzene	1,2,4-Trimethylbenzene
1-Chlorocyclohexene-1	p-Dichlorobenzene
p-Xylene	m-Dichlorobenzene
Chlorobenzene	Cyclopropylbenzene
m-Xylene	n-Butylbenzene
o-Xylene	2,3-Benzofuran
Iso-propylbenzene	o-Dichlorobenzene
Styrene	Hexachlorobutadiene
p-Bromofluorobenzene	1,2,4-Trichlorobenzene
n-Propylbenzene	Naphthalene
tert-butylbenzene	1,2,3-Trichlorobenzene
o-Chlorotoluene	

**Table 524.1:** Compounds may be determined by Method 524.1

Benzene	trans-1,2-Dichloroethene
Bromobenzene	1,2-Dichloropropane
Bromochloromethane	1,3-Dichloropropane
Bromodichloromethane	2,2-Dichloropropane

**Table 524.1:** Compounds may be determined by Method 524.1 (Continued)

Bromoform	1,1-Dichloropropene
Bromomethane	Ethylbenzene
sec-Butylbenzene	Hexachlorobutadiene
tert-Butylbenzene	Isopropylbenzene
Carbon tetrachloride	Methylene chloride
Chlorobenzene	n-Propylbenzene
Chloroethane	Styrene
Chloroform	1,1,1,2-Tetrachloroethane
Chloromethane	1,1,2,2-Tetrachloroethane
2-Chlorotoluene	Tetrachloroethene
4-Chlorotoluene	Toluene
Dibromochloromethane	1,1,1-Trichloroethane
1,2-Dibromo-3-chloropropane	1,1,2-Trichloroethane
1,2-Dibromoethane	Trichloroethene
Dibromomethane	Trichlorofluoromethane
1,2-Dichlorobenzene	1,2,3-Trichloropropane
1,3-Dichlorobenzene	Vinyl chloride
1,4-Dichlorobenzene	o-Xylene
Dichlorodifluoromethane	m-Xylene
1,1-Dichloroethane	p-Xylene
1,2-Dichloroethane	
1,1-Dichloroethene	
cis-1,2-Dichloroethene	

**Table 524.2:** Compounds may be determined by Method 524.2

Benzene	trans-1,2-Dichloroethane
Bromobenzene	1,2-Dichloropropane
Bromochloromethane	1,3-Dichloropropane
Bromodichloromethane	2,2-Dichloropropane
Bromoform	1,1-Dichloropropane
Bromomethane	Ethylbenzene
n-Butylbenzene	Hexachlorobutadiene
sec-Butylbenzene	Isopropylbenzene
tert-Butylbenzene	p-Isopropyltoluene
Carbon tetrachloride	Methylene chloride
Chlorobenzene	Naphthalene
Chloroethane	n-Propylbenzene
Chloroform	Styrene
Chloromethane	1,1,1,2-Tetrachloroethane
2-Chlorotoluene	1,1,2,2-Tetrachloroethane
4-Chlorotoluene	Tetrachloroethene
Dibromochloromethane	Toluene
1,2-Dibromo-3-chloropropane	1,2,3-Trichlorobenzene
1,2-Dibromoethane	1,2,4-Trichlorobenzene
Dibromomethane	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,3-Dichlorobenzene	Trichloroethene
1,4-Dichlorobenzene	Trichlorofluoromethane
Dichlorodifluoromethane	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	o-Xylene
	m-Xylene
	p-Xylene

**Table 525:** Compounds may be determined by Method 525.

Acenaphthylene	2,3-Dichlorobiphenyl
Alachlor	Diethylphthalate
Aldrin	Di(2-ethylhexyl)adipate
Anthracene	Di(2-ethylhexyl)phthalate
Atrazine	Dimethylphthalate
Benz[a]anthracene	Endrin
Benzo[b]fluoranthene	Fluorene
Benzo[k]fluoranthene	Heptachlor
Benzo[a]pyrene	Heptachlor epoxide
Benzo[g,h,i]perylene	2,2',3,3',4,4',6-Heptachlorobiphenyl
Butylbenzylphthalate	Hexachlorobenzene
Chlordane components	2,2',4,4',5,6'-Hexachlorobiphenyl
Alpha-chlordane	Hexachlorocyclopentadiene
Gamma-chlordane	Indeno[1,2,3,c,d]pyrene
Trans nonachlor	Lindane
2-Chlorobiphenyl	Methoxychlor
Chrysene	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
Dibenz[a,h]anthracene	2,2',3',4,6-Pentachlorobiphenyl
Di-n-butylphthalate	Pentachlorophenol
	Phenanthrene
	Pyrene
	Simazine
	2,2',4,4'-Tetrachlorobiphenyl
	Toxaphene mixture
	2,4,5-Trichlorobiphenyl