

Analysis of PCBs in Drinking Water – Certification for Screening Methods offered

Background

Historically the DNR's Drinking Water and Groundwater program has required all drinking water compliance samples for PCBs to be analyzed by EPA method 508A. Subsequently, the LabCert program has only offered certification for the analysis of PCBs in drinking water by EPA method 508A.

Method 508A, and s. NR 809.21 (12) indicate that a screening analysis for PCBs may be performed using any approved method for organochlorine pesticides in drinking water, and no further analysis by method 508A is required if Aroclors are not detected. This provision has not been offered (until now) due to the inability of most laboratories to meet the detection limit requirements necessary to use the screening technique.

With advances in instrument and detection technology, the mandated detection requirements associated with the screening protocol can be more readily achieved. Consequently the LabCert program is now prepared to offer certification for PCB screening using approved methods.

Rules for PCB screening certification

1. Laboratories shall use one of the following EPA test methods to screen for PCBs (as Aroclors): 505, 508, 508.1, 525.2.

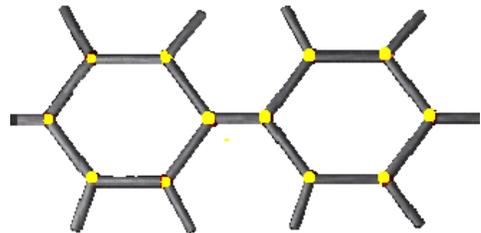
NOTE: One or more of these methods may lack the sensitivity required to detect total PCBs as described below.

2. The Aroclors to be tested must include, at a minimum: 1016, 1221, 1232, 1242, 1248, 1254 and 1260.

3. Laboratories shall demonstrate and document that each test method used to screen for PCBs has sufficient sensitivity to identify and quantify each Aroclor at the concentration level listed in Table 1 below. The required detection limit (LOD) for total PCBs is 0.1 µg/L as DCB.

Table 1: Required Detection Limits for Screening PCBs in Drinking Water

Aroclor	Required Detection Limit LOD (µg/L)
1016	0.08
1221	20.
1232	0.5
1242	0.3
1248	0.1
1254	0.1
1260	0.2
Total PCB	0.1



4. If no individual Aroclor is detected above the levels specified in Table 1, and it is determined that total PCBs are not detectable at a concentration level greater than or equal to 0.1 µg/L, the laboratory may report the sample result as “< 0.5 µg/L as DCB”. No further analysis is required.

5. If, however, one or more Aroclors are detected at a concentration level greater than or equal to the required LOD for that (those) Aroclor(s), the laboratory shall identify the Aroclor(s) detected and must use EPA method 508A to quantify and report total PCBs as DCB. If the laboratory is only certified to perform the “screening” analysis, then the sample(s) must be subcontracted to a laboratory properly certified by the WIDNR LabCert Program to perform the analysis of PCBs as Decachlorobiphenyl by EPA method 508A.

WI DNR requirements for obtain certification for PCB screening in drinking water:

- ❑ An application form must be submitted.

http://www.dnr.state.wi.us/org/es/science/lc/APPLICATION/4800_02FY09r2.pdf

- ❑ **Pay the requisite revised application fee.**

- ▶ **No charge**

Any lab that is **either** certified for PCBs (as Decachlorobiphenyl) - EPA 508A **OR** is certified for any analyte under the class “SOC-Organochlorine pesticides” (see below) **AND** is certified for anything under the class, “SOC - Miscellaneous” (see below)

- ▶ **Revised Application Fee only**

Any lab that is NOT certified for PCBs (as Decachlorobiphenyl) - EPA 508A **AND** is NOT certified for any analyte under the class “SOC-Organochlorine pesticides” (see below) **BUT** is certified for anything under the class, “SOC - Miscellaneous” (see below)

Application fee (3 RVU, \$204 through 6/30/09; \$172.50 after 7/1/09)

- ▶ **Drinking water class fee only**

Any lab that is certified for any analyte under the class “SOC-Organochlorine pesticides” (see below) **BUT** is NOT certified for anything under the class, “SOC - Miscellaneous” (see below)

Class” fee for “SOC - Miscellaneous“ (4 RVU, \$272.00 through 6/30/09; \$230.00 after 7/1/09)

- ▶ **Revised Application Fee + Class fee**

Any lab that is NOT certified for any analyte under the class “SOC-Organochlorine pesticides” (see below) **AND** is NOT certified for anything under the class, “SOC - Miscellaneous” (see below)

Application fee (3 RVU, \$204 through 6/30/09; \$172.50 after 7/1/09)

+ Class” fee for “SOC - Miscellaneous“ (4 RVU, \$272.00 through 6/30/09; \$230.00 after 7/1/09).

= Total fee of \$476.00 through 6/30/09; \$402.50 after 7/1/09)

- ❑ **Submit the appropriate page(s) (page 6 of 7) from Appendix A-3** to the application form. Select the screening method(s) for which certification is desired.

<http://www.dnr.state.wi.us/org/es/science/lc/APPLICATION/App3DW.pdf>

- ❑ **The laboratory must successfully participate in a PT study (WS) for Aroclor identification (and quantitation)** by EPA method 505, 508, 508.1 or 525.2 (whichever method(s) for which the lab is certified to perform screening. Participation in and successful analysis of PTs (WS) for 508A (PCBs as Decachlorobiphenyl) are additionally required to be certified to perform that method should PCB detections be identified in compliance samples.

For those already certified for drinking water organochlorine pesticides or PCBs as Decachlorobiphenyl, the PT results requirement will be waived for the current fiscal year, but will be required for certification renewal for the FY2010 fiscal year beginning September 1, 2009.

NOTE: *In order to obtain certification to perform the analysis of PCBs as Decachlorobiphenyl by method 508A, a laboratory must also successfully participate in a PT study for total PCBs quantification by EPA method 508A.*

- ❑ **Submit method detection limit data.** The laboratory must submit documentation that each of the test method(s) for which certification is desired to screen for PCBs has sufficient sensitivity to identify and quantify each Aroclor at or below the respective concentration levels listed above. Documentation required to be submitted are the results of individual replicates performed in accordance with the EPA’s determination of method detection limits. As detection limits are required to be verified at least annually, this determination must have been performed within 1 year of the application date.

Analytes covered under the class “SOC-Miscellaneous”

<input type="checkbox"/> Benzo(a)pyrene - EPA 525.2	<input type="checkbox"/> Glyphosate - EPA 547
<input type="checkbox"/> Benzo(a)pyrene - EPA 550	<input type="checkbox"/> <u>Glyphosate- SM 6651B (19th ed.)</u>
<input type="checkbox"/> <u>Benzo(a)pyrene - EPA 550.1</u>	<input type="checkbox"/> Hexachlorobenzene - EPA 505
<input type="checkbox"/> Carbofuran - EPA 531.1	<input type="checkbox"/> Hexachlorobenzene - EPA 508
<input type="checkbox"/> Carbofuran - EPA 531.2	<input type="checkbox"/> Hexachlorobenzene - EPA 508.1
<input type="checkbox"/> <u>Carbofuran - SM 6610B (19th ed.)</u>	<input type="checkbox"/> Hexachlorobenzene - EPA 525.2
<input type="checkbox"/> Di(2-ethylhexyl)adipate - EPA 506	<input type="checkbox"/> <u>Hexachlorobenzene - EPA 551.1</u>
<input type="checkbox"/> Di(2-ethylhexyl)adipate - EPA 525.2	<input type="checkbox"/> Hexachlorocyclopentadiene - EPA 505
<input type="checkbox"/> Di(2-ethylhexyl)phthalate - EPA 506	<input type="checkbox"/> Hexachlorocyclopentadiene - EPA 508
<input type="checkbox"/> <u>Di(2-ethylhexyl)phthalate - EPA 525.2</u>	<input type="checkbox"/> Hexachlorocyclopentadiene - EPA 508
<input type="checkbox"/> Dibromochloropropane (DBCP) - EPA 504.1	<input type="checkbox"/> Hexachlorocyclopentadiene - EPA 525.2
<input type="checkbox"/> <u>Dibromochloropropane (DBCP) - EPA 551.1</u>	<input type="checkbox"/> <u>Hexachlorocyclopentadiene - EPA 551.1</u>
<input type="checkbox"/> <u>Diquat - EPA 549.2</u>	<input type="checkbox"/> Oxamyl (Vydate) - EPA 531.1
<input type="checkbox"/> <u>Endothall - EPA 548.1</u>	<input type="checkbox"/> Oxamyl (Vydate) - EPA 531.2
<input type="checkbox"/> Ethylene Dibromide (EDB) - EPA 504.1	<input type="checkbox"/> <u>Oxamyl (Vydate) - 6610B (19th ed.)</u>
<input type="checkbox"/> <u>Ethylene Dibromide (EDB) - EPA 551.1</u>	<input type="checkbox"/> PCBs (as Decachlorobiphenyl) - EPA 508A

Analytes covered under the class “SOC- Organochlorine Pesticides”

<input type="checkbox"/> Chlordane - EPA 505	<input type="checkbox"/> Heptachlor epoxide - EPA 525.2
<input type="checkbox"/> Chlordane - EPA 508	<input type="checkbox"/> Heptachlor epoxide - EPA 551.1
<input type="checkbox"/> Chlordane - EPA 508.1	<hr/>
<input type="checkbox"/> Chlordane - EPA 525.2	<input type="checkbox"/> Lindane (gamma-BHC) - EPA 505
<hr/>	<input type="checkbox"/> Lindane (gamma-BHC) - EPA 508
<input type="checkbox"/> Endrin - EPA 505	<input type="checkbox"/> Lindane (gamma-BHC) - EPA 508.1
<input type="checkbox"/> Endrin - EPA 508	<input type="checkbox"/> Lindane (gamma-BHC) - EPA 525.2
<input type="checkbox"/> Endrin - EPA 508.1	<input type="checkbox"/> Lindane (gamma-BHC) - EPA 551.1
<input type="checkbox"/> Endrin - EPA 525.2	<hr/>
<input type="checkbox"/> Endrin- EPA 551.1	<input type="checkbox"/> Methoxychlor - EPA 505
<hr/>	<input type="checkbox"/> Methoxychlor - EPA 508
<input type="checkbox"/> Heptachlor - EPA 505	<input type="checkbox"/> Methoxychlor - EPA 508.1
<input type="checkbox"/> Heptachlor - EPA 508	<input type="checkbox"/> Methoxychlor - EPA 525.2
<input type="checkbox"/> Heptachlor - EPA 508.1	<input type="checkbox"/> Methoxychlor - EPA 551.1
<input type="checkbox"/> Heptachlor - EPA 525.2	<hr/>
<input type="checkbox"/> Heptachlor - EPA 551.1	<input type="checkbox"/> Toxaphene - EPA 505
<hr/>	<input type="checkbox"/> Toxaphene - EPA 508
<input type="checkbox"/> Heptachlor epoxide - EPA 505	<input type="checkbox"/> Toxaphene - EPA 508.1
<input type="checkbox"/> Heptachlor epoxide - EPA 508	<input type="checkbox"/> Toxaphene - EPA 525.2
<input type="checkbox"/> Heptachlor epoxide - EPA 508.1	

Pertinent sections of ch. NR809

NR 809.21 Synthetic organic contaminant sampling and analytical requirements.

(6) Detection as used in this section shall be defined as greater than or equal to the following concentrations for each contaminant.

Contaminant	Detection Limit (ug/L)
25. Polychlorinated biphenyls (PCBs as decachlorobiphenyl)	0.1

(12) Analysis for PCBs shall be conducted as follows:

(a) Each system which monitors for PCBs shall analyze each sample using either Method 505 or Method 508 [*NOTE: methods 508.1 and 525.2 are also allowable options*] as specified in s. NR 809.725 (1), Table B.

(b) If one or more of 7 PCB Aroclors are detected as designated in this paragraph in any sample analyzed using Methods 505 and 508 [*508.1 and 525.2 are also acceptable*], the sample shall be reanalyzed using Method 508A to quantitate PCBs as decachlorobiphenyl.

<u>Aroclor</u>	<u>Detection Limit (ug/L)</u>
1016	0.08
1221	20
1232	0.5
1242	0.3
1248	0.1
1254	0.1
1260	0.2