

National Lake Fish Tissue Study Target Analyte List 268 Analytes

Chemical Group Method	Analytes	CAS Number	Minimum Level ¹
Dioxins/Furans ² Method 1613B (17 analytes)	2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	1746-01-6 40321-76-4 39227-28-6 57653-85-7 19408-74-3 35822-46-9 3268-87-9 51207-31-9 57117-41-6 57117-31-4 70648-26-9 57117-44-9 72918-21-9 60851-34-5 67562-39-4 55673-89-7 39001-02-0	0.1 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 1.0 ng/kg (ppt) 0.1 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 0.5 ng/kg (ppt) 1.0 ng/kg (ppt)
PCBs Method 1668 (159 individual congeners plus remaining congeners as pairs and total PCBs)	Polychlorinated Biphenyls (PCBs)		0.5 - 20 ng/kg (ppt)
Mercury Method 1631B (1 analyte)	Mercury	7439-97-6	2 ng/g (ppb)
Arsenic Method 1632A (5 analytes)	Arsenite Arsenate Dimethylarsonic Acid (DMA) Monomethylarsonic Acid (MMA) Total Inorganic Arsenic	22569-72-8 17428-41-0 75-60-5 124-58-3	0.1 µg/g (ppm) 0.1 µg/g (ppm) 0.1 µg/g (ppm) 0.05 µg/g (ppm) 0.1 µg/g (ppm)

Chemical Group Method	Analytes	CAS Number	Minimum Level ¹
Organochlorine Pesticides ³ Method 1656A (37 analytes)	2,4'-DDD	53-19-0	2.0 µg/kg (ppb)
	2,4'-DDE	3424-82-6	2.0 µg/kg (ppb)
	2,4'-DDT	789-02-6	2.0 µg/kg (ppb)
	4,4'-DDD	72-54-8	2.0 µg/kg (ppb)
	4,4'-DDE	72-55-9	2.0 µg/kg (ppb)
	4,4'-DDT	50-29-3	2.0 µg/kg (ppb)
	Aldrin	309-00-2	4.0 µg/kg (ppb)
	Chlordane, alpha-	5103-71-9	4.0 µg/kg (ppb)
	Chlordane, gamma-	5566-34-7	2.0 µg/kg (ppb)
	Dicofol	115-32-2	40.0 µg/kg (ppb)
	Dieldrin	60-57-1	1.0 µg/kg (ppb)
	Endosulfan I	959-98-8	4.0 µg/kg (ppb)
	Endosulfan II	33213-65-9	40.0 µg/kg (ppb)
	Endosulfan Sulfate	1031-07-8	10.0 µg/kg (ppb)
	Endrin	72-20-8	10.0 µg/kg (ppb)
	Ethalfuralin	55283-68-6	4.0 µg/kg (ppb)
	Heptachlor	76-44-8	2.0 µg/kg (ppb)
	Heptachlor Epoxide	1024-57-3	2.0 µg/kg (ppb)
	Hexachlorocyclohexane (BHC), alpha-	319-84-6	10.0 µg/kg (ppb)
	Hexachlorocyclohexane (BHC), beta-	319-85-7	4.0 µg/kg (ppb)
	Hexachlorocyclohexane (BHC), delta-	319-86-8	4.0 µg/kg (ppb)
	Hexachlorocyclohexane (BHC), gamma-	58-89-9	2.0 µg/kg (ppb)
	Isodrin	465-73-6	4.0 µg/kg (ppb)
	Kepone	143-50-0	40.0 µg/kg (ppb)
	Methoxychlor	72-43-5	20.0 µg/kg (ppb)
	Mirex	2385-85-5	4.0 µg/kg (ppb)
	Nonachlor, cis-	5103-73-1	4.0 µg/kg (ppb)
	Nonachlor, trans-	39765-80-5	4.0 µg/kg (ppb)
	Octachlorostyrene	29082-74-4	2.0 µg/kg (ppb)
	Oxychlordane	26880-48-8	4.0 µg/kg (ppb)
	Pendimethalin	40487-42-1	20.0 µg/kg (ppb)
	Pentachloroanisole	1825-21-4	4.0 µg/kg (ppb)
	Pentachloronitrobenzene	82-68-8	2.0 µg/kg (ppb)
Permethrin I	61949-76-6	100.0 µg/kg (ppb)	
Permethrin II	61949-77-7	40.0 µg/kg (ppb)	
Toxaphene	8001-35-2	100.0 µg/kg (ppb)	
Trifluralin	1582-09-8	10.0 µg/kg (ppb)	
Organophosphate Pesticides ^{4,5} Method 1657A (9 analytes)	Chlorpyrifos	2921-88-2	200.0 µg/kg (ppb)
	Diazinon	333-41-5	100.0 µg/kg (ppb)
	Disulfoton	298-04-4	500.0 µg/kg (ppb)
	Disulfoton Sulfone	2497-06-5	1000.0 µg/kg (ppb)
	Ethion	563-12-2	1000.0 µg/kg (ppb)
	Paraoxon	311-45-5	500.0 µg/kg (ppb)
	Parathion-Ethyl	56-38-2	500.0 µg/kg (ppb)
	Terbufos	13071-79-9	1000.0 µg/kg (ppb)
	Terbufos Sulfone	56070-16-7	200.0 µg/kg (ppb)

Chemical Group Method	Analytes	CAS Number	Minimum Level ¹
Other Semivolatile Organics / Method 1625 (40 analytes)	1,2,4,5-Tetrachlorobenzene	95-94-3	333.0 µg/kg (ppb)
	1,2,4-Trichlorobenzene (TCB) (Tier 1)	120-82-1	333.0 µg/kg (ppb)
	1,2-Dichlorobenzene	95-50-1	333.0 µg/kg (ppb)
	1,3-Dichlorobenzene	541-73-1	333.0 µg/kg (ppb)
	1,4-Dichlorobenzene(p)	106-46-7	333.0 µg/kg (ppb)
	2,4,5-Trichlorophenol	95-95-4	333.0 µg/kg (ppb)
	2,4,6-Tris(1,1-Dimethylethyl)Phenol	732-26-3	333.0 µg/kg (ppb)
	3,3' -Dichlorobenzidine	91-94-1	1665.0 µg/kg (ppb)
	4-Bromophenyl Phenyl Ether	101-55-3	333.0 µg/kg (ppb)
	4,4' -Methylenebis(2-Chloroaniline)	101-14-4	666.0 µg/kg (ppb)
	Acenaphthene (LMW Aromatics)	83-32-9	333.0 µg/kg (ppb)
	Acenaphthylene	208-96-8	333.0 µg/kg (ppb)
	Anthracene ⁶ (PAH)	120-12-7	1665.0 µg/kg (ppb)
	Benzo[a]Anthracene ⁶ (PAH)	56-55-3	333.0 µg/kg (ppb)
	Benzo[a]Pyrene ⁶ (PAH) (Tier 1)	50-32-8	333.0 µg/kg (ppb)
	Benzo(b)Fluoranthene ⁶ (PAH)	205-99-2	333.0 µg/kg (ppb)
	Benzo(ghi)Perylene ⁶ (PAH)	191-24-2	666.0 µg/kg (ppb)
	Benzo(j)Fluoranthene ⁶ (PAH)	205-82-3	333.0 µg/kg (ppb)
	Benzo(k)Fluoranthene	207-08-9	333.0 µg/kg (ppb)
	Bis(2-ethylhexyl) Phthalate	117-81-7	333.0 µg/kg (ppb)
	Butyl Benzyl Phthalate	85-68-7	333.0 µg/kg (ppb)
	Chrysene ⁶ (PAH)	218-01-9	333.0 µg/kg (ppb)
	Di-n-Butyl Phthalate (Tier 1)	84-74-2	333.0 µg/kg (ppb)
	Dibenz[a,h]Anthracene ⁶ (PAH)	53-70-3	333.0 µg/kg (ppb)
	Diethylstilbestrol (DES)	56-53-1	333.0 µg/kg (ppb)
	Fluoranthene ⁶ (PAH)	206-44-0	333.0 µg/kg (ppb)
	Fluorene	86-73-7	333.0 µg/kg (ppb)
	Hexachlorobenzene	118-74-1	333.0 µg/kg (ppb)
	Hexachlorobutadiene	87-68-3	333.0 µg/kg (ppb)
	Indeno(1,2,3-cd)Pyrene	193-39-5	666.0 µg/kg (ppb)
	Naphthalene	91-20-3	333.0 µg/kg (ppb)
	Nitrobenzene	98-95-3	333.0 µg/kg (ppb)
	Nonylphenol ⁷	25154-52-3	333.0 µg/kg (ppb)
	Pentachlorobenzene	608-93-5	666.0 µg/kg (ppb)
	Pentachlorophenol (Tier 1)	87-86-5	1665.0 µg/kg (ppb)
	Perylene ⁶ (PAH)	198-55-0	333.0 µg/kg (ppb)
	Phenanthrene ⁶ (PAH)	85-01-8	333.0 µg/kg (ppb)
	Phenol	108-95-2	333.0 µg/kg (ppb)
	Pyrene ⁶ (PAH)	129-00-0	333.0 µg/kg (ppb)
	Tetrabromobisphenol A	79-94-7	16650.0 µg/kg (ppb)

Notes:

1. The Minimum Level (ML) is equivalent to the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes, and processing steps have been employed. The ML is roughly three times greater than the Method Detection Limit (MDL), which is the measured concentration at which there is 99% confidence that a given analyte is present in a given sample matrix. The ML is comparable to the American Chemical Society's Limit of Quantitation (LOQ).

2. Reporting levels for dioxins/furans in the National Fish Tissue Study are ten (10) times lower than the ML specified in Method 1613B.

3. Hexachlorocyclohexane is reported as its individual components: alpha, beta, delta, and gamma BHC. See notation in list.

Notes (cont.):

4. S-fenvalerate was dropped from the study because it is not detected by Method 1657A, and pursuit of an alternate method was deemed unnecessary.

5. Disulfoton sulfoxide and terbufos sulfoxide will not be analyzed by Method 1657A due to lack of standards worldwide. They will be added back to the list if standards become available.

6. PAHs and Azaarenes. SRC has identified 30 polycyclic aromatic hydrocarbons or nitrogen analogs (azaarenes). These compounds are not commercially produced (and have never been, except for laboratory use because they are potent carcinogens), but are formed during combustion processes so they are widespread environmental contaminants.

7. Nonylphenol is calibrated, calculated, and integrated as a group of nonylphenol isomers, rather than as the single 4-nonylphenol isomer.