

## Numeric Criteria for Toxic Substances (2005)

Only Compounds Whose Human Health Criteria Changed in 2006 are Shown

**\*NOT CURRENT STATE RULE\***

**IDAPA 58  
TITLE 01  
CHAPTER 02**

### 58.01.02 - WATER QUALITY STANDARDS AND WASTEWATER TREATMENT REQUIREMENTS

#### 210. NUMERIC CRITERIA FOR TOXIC SUBSTANCES FOR WATERS DESIGNATED FOR AQUATIC LIFE, RECREATION, OR DOMESTIC WATER SUPPLY USE.

A		Human health for consumption of:			
(Number)	Compound	a CAS Number	Water & organisms (µg/L)		Organisms only (µg/L)
			C1	C2	
10	Selenium	7782492		h	h
12	Thallium	7440280	1.7	c	6.3
14	Cyanide	57125	700	c	220000
16	2, 3, 7, 8-TCDD Dioxin	1746016	0.000000013	l	0.000000014
17	Acrolein	107028	320		780
18	Acrylonitrile	107131	0.059	cl	0.66
19	Benzene	71432	1.2	cl	71
20	Bromoform	75252	4.3	cl	360
21	Carbon Tetrachloride	56235	0.25	cl	4.4
22	Chlorobenzene	108907	680	c	21000
23	Chlorodibromomethane	124481	0.41	cl	34
27	Dichlorobromomethane	75274	0.27	cl	22
29	1,2-Dichloroethane	107062	0.38	cl	99
30	1,1-Dichloroethylene	75354	0.057	cl	3.2
31	1,2-Dichloropropane	78875			
32	1,3-Dichloropropylene	542756	10	c	1700
33	Ethylbenzene	100414	3100	c	29000
34	Methyl Bromide	74839	48	c	4000
36	Methylene Chloride	75092	4.7	cl	1600
37	1,1,2,2-Tetrachloroethane	79345	0.17	cl	11
38	Tetrachloroethylene	127184	0.8	l	8.85
39	Toluene	108883	6800	c	200000
40	1,2-Trans-Dichloroethylene	156605			
42	1,1,2-Trichloroethane	79005	0.6	cl	42
43	Trichloroethylene	79016	2.7	l	81
44	Vinyl Chloride	75014	2	l	525
45	2-Chlorophenol	95578			
46	2,4-Dichlorophenol	120832	93	c	790
48	2-Methyl-4,6-Dinitrophenol	534521	13.4		765
49	2,4-Dinitrophenol	51285	70	c	14000
53	Pentachlorophenol	87865	0.28	cl	8.2
54	Phenol	108952	21000	c	4600000
55	2,4,6-Trichlorophenol	88062	2.1	cl	6.5
56	Acenaphthene	83329			
58	Anthracene	120127	9600	c	110000
59	Benzidine	92875	0.00012	cl	0.00054

60	Benzo(a)Anthracene	56553	0.0028	l	0.031	l
61	Benzo(a)Pyrene	50328	0.0028	l	0.031	l
62	Benzo(b)Fluoranthene	205992	0.0028	l	0.031	l
64	Benzo(k)Fluoranthene	207089	0.0028	l	0.031	l
66	Bis(2-Chloroethyl)Ether	111444	0.031	cl	1.4	cl
67	Bis(2-Chloroisopropyl) Ether	108601	1400	c	170000	c
68	Bis(2-Ethylhexyl) Phthalate	117817	1.8	cl	5.9	cl
70	Butylbenzyl Phthalate	85687				
71	2-Chloronaphthalene	91587				
73	Chrysene	218019	0.0028	l	0.031	l
74	Dibenzo(a,h)Anthracene	53703	0.0028	l	0.031	l
75	1,2-Dichlorobenzene	95501	2700	c	17000	c
76	1,3-Dichlorobenzene	541731	400		2600	
77	1,4-Dichlorobenzene	106467	400		2600	
78	3,3'-Dichlorobenzidine	91941	0.04	cl	0.077	cl
79	Diethyl Phthalate	84662	23000	c	120000	c
80	Dimethyl Phthalate	131113	313000		2900000	
81	Di-n-Butyl Phthalate	84742	2700	c	12000	c
82	2,4-Dinitrotoluene	121142	0.11	l	9.1	l
85	1,2-Diphenylhydrazine	122667	0.040	cl	0.54	cl
86	Fluoranthene	206440	300	c	370	c
87	Fluorene	86737	1300	c	14000	c
88	Hexachlorobenzene	118741	0.00075	cl	0.00077	cl
89	Hexachlorobutadiene	87683	0.44	cl	50	cl
90	Hexachloro-cyclopentadiene	77474	240	c	17000	c
91	Hexachloroethane	67721	1.9	cl	8.9	cl
92	Ideno (1,2,3-cd) Pyrene	193395	0.0028	l	0.031	l
93	Isophorone	78591	8.4	cl	600	cl
95	Nitrobenzene	98953	17	c	1900	c
96	N-Nitrosodimethylamine	62759	0.00069	cl	8.1	cl
97	N-Nitrosodi-n-Propylamine	621647				
98	N-Nitrosodiphenylamine	86306	5.0	cl	16	cl
100	Pyrene	129000	960	c	11000	c
101	1,2,4-Trichlorobenzene	120821				
102	Aldrin	309002	0.00013	cl	0.00014	cl
103	alpha-BHC	319846	0.0039	cl	0.013	cl
104	beta-BHC	319857	0.014	cl	0.046	cl
105	gamma-BHC (Lindane)	58899	0.019	l	0.063	l
107	Chlordane	57749	0.00057	cl	0.00059	cl
108	4,4'-DDT	50293	0.00059	cl	0.00059	cl
109	4,4'-DDE	72559	0.00059	cl	0.00059	cl
110	4,4'-DDD	72548	0.00083	cl	0.00084	cl
111	Dieldrin	60571	0.00014	cl	0.00014	cl
112	alpha-Endosulfan	959988	0.93	c	2.0	c
113	beta-Endosulfan	33213659	0.93	c	2.0	c
114	Endosulfan Sulfate	1031078	0.93	c	2.0	c
115	Endrin	72208	0.76	c	0.81	c
116	Endrin Aldehyde	7421934	0.76	c	0.81	c
117	Heptachlor	76448	0.00021	cl	0.00021	cl
118	Heptachlor Epoxide	1024573	0.00010	cl	0.00011	cl
119	Polychlorinated Biphenyls PCBs:	n	0.00017	o	0.00017	o
120	Toxaphene	8001352	0.00073	cl	0.00075	cl

**Note to table:** Table values are from 57 FR 60910, December 22, 1992 (National Toxics Rule) except as noted.

**Table Footnotes**

- a.**Chemical Abstracts Service (CAS) registry numbers which provide a unique identification for each chemical.
- b.**See Definitions, Section 003 of these rules.
- c.**This criterion has been revised to reflect The Environmental Protection Agency's q1\* or RfD, as contained in the Integrated Risk Information System (IRIS) as of December 22, 1992. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.
- d.**Inorganic form only. The criterion for arsenic is the MCL in effect as of April 5, 2000.
- e.**Criteria for these metals are expressed as a function of the water effect ratio, WER, as defined in Subsection 210.03.c.iii. CMC = column B1 value X WER. CCC = column B2 value X WER.
- f.**Criterion expressed as total recoverable (unfiltered) concentrations.
- g.**No aquatic life criterion is adopted for inorganic mercury. However, the narrative criteria for toxics in Section 200 of these rules applies. The Department believes application of the human health criterion for methylmercury will be protective of aquatic life in most situations.
- h.**No numeric human health criteria has been established for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the narrative criteria for toxics from Section 200 of these rules.
- i.** Aquatic life criteria for these metals are expressed as a function of total hardness (mg/L as calcium carbonate), the pollutant's water effect ratio (WER) as defined in Subsection 210.03.c.iii and multiplied by an appropriate dissolved conversion factor as defined in Subsection 210.02. For comparative purposes only, the values displayed in this table are shown as dissolved metal and correspond to a total hardness of one hundred (100) mg/L and a water effect ratio of one (1.0).
- j.**Criteria are expressed as weak acid dissociable (WAD) cyanide.
- k.**Total chlorine residual concentrations.
- l.**This criterion is based on carcinogenicity of  $10^{-6}$  risk.
- m.**Aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows. Values displayed above in the table correspond to a pH of seven and eight tenths (7.8).  
CMC =  $\exp(1.005(\text{pH})-4.830)$   
CCC =  $\exp(1.005(\text{pH})-5.290)$
- n.**PCBs are a class of chemicals which include Aroclors, 1242, 1254, 1221, 1232, 1248, 1260, and 1016, CAS numbers 53469219, 11097691, 11104282, 11141165, 12672296, 11096825 and 12674112 respectively. The aquatic life criteria apply to this set of PCBs.
- o.**This criterion applies to total PCBs, (e.g. the sum of all congener, isomer, or Aroclor analyses).
- p.**This fish tissue residue criterion (TRC) for methylmercury is based on a human health reference dose (RfD) of 0.0001 mg/kg body weight-day; a relative source contribution (RSC) estimated to be 27% of the RfD; a human body weight (BW) of 70 kg (for adults); and a total fish consumption rate of 0.0175 kg/day for the general population, summed from trophic level (TL) breakdown of TL2 = 0.0038 kg fish/day + TL3 = 0.0080 kg fish/day + TL4 = 0.0057 kg fish/day. This is a criterion that is protective of the general population. A site-specific criterion or a criterion for a particular subpopulation may be calculated by using local or regional data, rather than the above default values, in the formula:  $\text{TRC} = [\text{BW} \times \{\text{RfD} (\text{RSC} \times \text{RfD})\}] / \text{TL}$ . In waters inhabited by species listed as threatened or endangered under the Endangered Species Act or designated as their critical habitat, the Department will apply the human health fish tissue residue criterion for methylmercury to the highest trophic level available for sampling and analysis.