OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: Toluene (Methylbenzene) Developed by: Chris J. Skalski
CAS # 108-88-3 Data Retrieval Date: 9-04-97
Internal Code # 118 Fact Sheet Preparation Date: 3-01-06

ACUTE DATA

SPECIES	EC_{50}/LC_{50} (µg/l)	TEST TYPE[a]	DURATION (HOURS)	SMAV[b] (µg/l)	GMAV[b] (µg/l)	REFERENCE NUMBER
Cladoceran	310,000[c]	S,U	48	19,180	19,180	1
Daphnia magna	19,600	S,U	48			2
	6,000	S,U	48			3
	60,000	S,U	48			4
Midge	47,000	S,M	48	47,000	47,000	5
Chironomus riparius						
Fathead Minnow	31,700	F,M	96	37,387	37,387	6
Pimephales promelas	36,200	F,M	96			7
	18,000	F,M	96			8
	25,000	F,M	96			8
	26,000	F,M	96			8
	27,000	F,M	96			8
	28,000	F,M	96			8
	30,000	F,M	96			8
	31,000	F,M	96			8
	36,000	F,M	96			8
	55,000	F,M	96			8
	59,000	F,M	96			8
	66,000	F,M	96			8
	72,000	F,M	96			8
	54,000	F,M	96			9
	56,400	F,M	96			9
	77,400	F,M	96			9
	17,030	F,M	96			10
	36,200	F,M	96			10
	12,600	S,U	96			2
	34,270	S,U	96			11
	42,330	S,U	96			11
Rainbow Trout	6,780	F,M	96	6,780	6,780	12
Oncorhynchus mykiss	5,800	R,M	96			13
	24,000	S,U	96			14
Bluegill	13,000	S,U	96	17,664	17,664	15
Lepomis macrochirus	24,000	S,U	96			11
	170,000[c]	S,U	96			14

[a] S = static; F= flow through; R = renewal; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.
[c] Data not used because it varies by over a factor of 10 from the other data for this species.

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Mosquitofish *Gambusia affinis*	1,180,000	S,U	96	1,180,000	1,180,000	16
Channel Catfish *Ictalurus punctatus*	240,000	S,U	96	240,000	240,000	14
Goldfish	22,800	F,M	96	22,800	22,800	17
Carassius auratus	57,680	S,U	96			11
Guppy	28,200	R,M	96	40,893	40,893	11
Poecilia reticulata	59,300	S,U	96			13

[a] S = static; F= flow through; R = renewal; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.

CHRONIC DATA

SPECIES	CHRONIC VALUE (µg/l)	METHOD	SMCV[a] (µg/l)	GMCV[a] (µg/l)	REFERENCE NUMBER

No Chronic Data Available

[a] SMCV = Species Mean Chronic Value; GMCV = Genus Mean Chronic Value.

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)[a]

Data Requirement OAC 3745-1-36(A)(1)	SPECIES	GMAV (μg/l)
(a)	Rainbow Trout	6,780
(b)	Bluegill	17,664
(c)	Goldfish	22,800
(d)	*Daphnia magna*	19,180
(f)	Midge	47,000

Secondary Acute Factor (SAF) = 6.1

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 6,780 ÷ 6.1
= 1,111 = 1,100 μg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 1,111 ÷ 2
= 556 = 560 μg/l

CALCULATION OF CHRONIC AQUATIC VALUE (CAV)[a]

Experimentally determined Acute-Chronic Ratios (ACRs):

SPECIES	ACUTE VALUE (μg/l)	CHRONIC VALUE (μg/l)	ACUTE-CHRONIC RATIO	SPECIES MEAN ACR

None Available

Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(18)(18)(18)} = 18$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 1,111 ÷ 18
= 62 μg/l

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[a]See Ohio Administrative Code 3745-1-36 effective February 22, 2002.