OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: Ethylbenzene Developed by: Chris J. Skalski
CAS # 100-41-4 Data Retrieval Date: 9-05-97
Internal Code # 77 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	75,000	S,U	48	75,000	75,000	1
Daphnia magna	2,123[c]	S,U	48			8
Channel Catfish	210,000	S,U	96	210,000	210,000	2
Ictalurus punctatus						
Rainbow Trout	4,200	R,M	96	7,668	7,668	3
Oncorhynchus mykiss	14,000	S,U	96			2
Goldfish	94,440	S,U	96	94,440	94,440	4
Carassius auratus						
Bluegill	32,000	S,U	96	98,926	98,926	4
Lepomis macrochirus	150,000[d]	S,U	96			5
	88,000	S,U	96			2
	84,000	S,U	96			2
	140,000	S,U	96			2
	56,000	S,U	96			2
	86,000	S,U	96			2
	285,000	S,U	96			2
	135,000	S,U	96			2
	134,000	S,U	96			2
	80,000	S,U	96			2
	135,000	S,U	96			2
Fathead Minnow	9,090	F,M	96	10,488	10,488	6
Pimephales promelas	12,100	F,M	96			7
	48,510	S,U	96			4
	42,330	S,U	96			4
Guppy	97,100[c]	S,U	96	9,600	9,600	4
Poecilia reticulata	9,600	R,M	96			3

[a] S = static; F= flow through; 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, the concentration was not measured, and the test was static.
[d] Data not used in the calculation because the presence of a precipitate during the test was indicated.

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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.

REFERENCES

1. LeBlanc, G.A. 1980. Acute Toxicity of Priority Pollutants to Water Flea (Daphnia magna). Bull. Environ. Contam. Toxicol. 24(5):684-691.

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4. Pickering, Q.H. and C. Henderson. 1966. Acute Toxicity of Some Important Petrochemicals to Fish. J. Water Pollut. Control Fed. 38(9):1419-1429.

5. Buccafusco, R.J., S.J. Ells and G.A. LeBlanc. 1981. Acute toxicity of Priority Pollutants to Bluegill (Lepomis macrochirus). Bull. Environ. Contam. Toxicol. 26(4):446-452.

6. Geiger, D.L., L.T. Brooke and D.J. Call. 1990. Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*), Vol. 5. Center for Lake Superior Environmental Studies, Univ. of Wisconsin, Superior, WI:332 p.

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8. Bobra, A.M., W.Y. Shiu and D. Mackay. 1983. A Predictive Correlation for the Acute Toxicity of Hydrocarbons and Chlorinated Hydrocarbons to the Water Flea (*Daphnia magna*). Chemosphere 12(9-10):1121-1129.

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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	7,668
(b)	Bluegill	98,926
(c)	Fathead Minnow	10,488
(d)	*Daphnia magna*	75,000

Secondary Acute Factor (SAF) = 7.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 7,668 ÷ 7.0
= 1,100 μg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 1,095 ÷ 2
= 548 = 550 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
= 1,095 ÷ 18
= 61 μg/l

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

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