OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: Diethyl phthalate Developed by: Chris J. Skalski
CAS # 84-66-2 Data Retrieval Date: 5-12-98
Internal Code # 62 Fact Sheet Preparation Date: 3-01-06
Reviewed by: Bob Heitzman

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	52,000	S,U	48	66,873	66,873	1
Daphnia magna	86,000	S,U	48			2
	52,100[c]	S,U	48			3
Bluegill	110,000[d]	S,U	96	16,700	16,700	4
Lepomis macrochirus	16,700	S,U	96			2
Rainbow Trout Oncorhynchus mykiss	12,000	F,U	96	12,000	12,000	2
Midge Paratanytarsus parthenogenes	131,000	S,U	96	131,000	131,000	2
Fathead Minnow	31,800	F,M	96	31,800	31,800	5
Pimephales promelas	16,800	S,U	96			2
	17,000	F,U	96			2

[a] S = static; F= flow through; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.
[c] Duplicate data not used to calculate the SMAV.
[d] Data not used to calculate the SMAV since the author reported the presence of undissolved chemical in the test beaker.

CHRONIC DATA

SPECIES	CHRONIC VALUE (µg/l)	METHOD	SMCV[a] (µg/l)	GMCV[a] (µg/l)	REFERENCE NUMBER
Cladoceran *Daphnia magna*	38,406 (25,000-59,000)	Life Cycle	38,406	38,406	6

[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.

2. Adams, W.J., G.R. Biddinger, K.A. Robillard and J.W. Gorsuch. 1995. A Summary of the Acute Toxicity of 14 Phthalate Esters to Representative Aquatic Organisms. Environ. Toxicol. Chem. 14(9):1569-1574.

3. U.S. EPA. 1980. Ambient Water Quality Criteria for Phthalate Esters. EPA 440/5-80-067.

4. 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.

5. Geiger, D.L., C.E. Northcott, D.J. Call and L.T. Brooke. 1985. Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*), Volume 2. Center for Lake Superior Environmental Studies, Univ. of Wisconsin, Superior, WI: 326 p.

6. Rhodes, J.E., W.J. Adams, G.R. Biddinger, K.A. Robillard and J.W. Gorsuch. 1995. Chronic Toxicity of 14 Phthalate Esters to Daphnia magna and Rainbow Trout (*Oncorhynchus mykiss*). Environ. Toxicol. Chem. 14(11):1967-1976.

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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	12,000
(b)	Bluegill	16,700
(c)	Fathead Minnow	31,800
(d)	*Daphnia magna*	66,873
(f)	Midge	131,000

Secondary Acute Factor (SAF) = 6.1

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 12,000 ÷ 6.1
= 1,967 = 2,000 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 1,967 ÷ 2
= 984 = 980 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
Cladoceran *Daphnia magna*	86,000	38,406	2.24	2.24	

Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(2.24)(18)(18)} = 9.00$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 1,967 ÷ 9.00
= 219 = 220 µg/l

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