OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: Dimethyl phthalate Developed by: Chris J. Skalski
CAS # 131-11-3 Data Retrieval Date: 2-4-04
Internal Code # --- Fact Sheet Preparation Date: 2-11-04
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	45,900	S,M	48	38,919	38,919	1
Daphnia magna	33,000	S,U	48			2
Bluegill	50,000[c]	S,U	96	50,000	50,000	3
Lepomis macrochirus	50,000	S,M	96			1
Rainbow Trout	56,000	F,M	96	56,000	56,000	1
Oncorhynchus mykiss						
Midge	377,000	S,M	96	377,000	377,000	1
Paratanytarsus parthenogenica						
Fathead Minnow	121,000	F,M	96	68,695	68,695	4
Pimephales promelas	121,000	S,M	96			1
	39,000	F,M	96			1

[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 to calculate a SMAV since the author reported the presence of undissolved chemical during the test.

CHRONIC DATA

SPECIES	CHRONIC VALUE (µg/l)	METHOD	SMCV[a] (µg/l)	GMCV[a] (µg/l)	REFERENCE NUMBER
Cladoceran	9,600-23,000	Life Cycle	14,859	14,859	5
Daphnia magna	(14,859)				
Rainbow Trout	11,000-24,000	Early Life Stage	16,248	16,248	5
Oncorhynchus mykiss	(16,248)				

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

REFERENCES

1. 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.

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

3. 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.

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

5. 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	56,000
(b)	Bluegill	50,000
(c)	Fathead Minnow	68,695
(d)	*Daphnia magna*	38,919
(f)	Midge	377,000

Secondary Acute Factor (SAF) = 6.1

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 38,919 ÷ 6.1
= 6,380 = 6,400 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 6,380 ÷ 2
= 3,190 = 3,200 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*	45,900	14,859	3.09	3.09	
Rainbow Trout *Oncorhynchus mykiss*	56,000	16,248	3.45	3.45	

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Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(3.09)(3.45)(18)} = 5.77$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 6,380 ÷ 5.77
= 1,107 = 1,100 μg/l

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