OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: 4-Methylphenol Developed by: Chris J. Skalski
CAS # 104-44-5 Data Retrieval Date: 9-05-97
Internal Code # 60 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	1,400 [d]	S,U	48	12,716	16,990	1
Daphnia magna	7,700	S,U	48			2
	21,100	S,U	48			3
	21,100 [c]	S,U	48			4
	21,100 [c]	S,U	48			5
Cladoceran *Daphnia pulicaria*	22,700	F,M	48	22,700		6
Rainbow Trout	7,500	F,M	96	7,697	7,697	7
Oncorhynchus mykiss	7,900	F,M	96			6
Fathead Minnow	16,500	F,M	96	21,723	21,723	8
Pimephales promelas	19,000	S,U	96			9
	28,600	F,M	96			6

[a] S = static; R = renewal; 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 because it varied by more than a factor of 10 from the other data for this species and the data for *Daphnia pulicaria*.

CHRONIC DATA

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

No Chronic Data

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

REFERENCES

1. Parkhurst, B.R., A.S. Bradshaw, J.L. Forte and G.P. Wright. 1979. An Evaluation of the Acute toxicity to Aquatic Biota of a Coal Conversion Effluent and its Major Components. Bull. Environ. Contam. Toxicol. 23(3):349-356.

2. Kuhn, R., M. Pattard, K. Pernak and A. Winter. 1989. Results of the Harmful Effects of Selected Water Pollutants (Anilines, Phenols, Aliphatic Compounds) to *Daphnia magna*. Water Res. 23(4):495-499.

3. Kopperman, H.L., R.M. Carlson and R. Caple. 1974. Aqueous Chlorination and Ozonation Studies. I. Structure-Toxicity Correlations of Phenolic Compounds to *Daphnia magna*. Chem.-Biol. Interact. 9(4):245-251.

4. Carlson, R.M., H.L. Kopperman, R. Caple and R.E. Carlson. 1975. Structure-Activity Relationships Applied. In: Int. Joint Comm. Symp. Structure-Activity Correlations in Studies of Toxicity and Bioconcentration with Aquatic Oganisms, March 11-13, 1975, Canada Center for Inland Waters, Burlington, Ontario, Canada:57-72.

5. Carlson, R.M. and R. Caple. 1977. Chemical/Biological Implications of Using Chlorine and Ozone for Disinfection. EPA-600/3-77-066, U.S. EPA, Duluth, MN:88 p.

6. DeGraeve, G.M., D.L. Geiger, J.S. Meyer and H.L. Bergman. 1980. Acute and Embryo-Larval Toxicity of Phenolic Compounds to Aquatic Biota. Arch. Environ. Contam. Toxicol. 9(5):557-568.

7. Hodson, P.V., D.G. Dixon and K.L.E. Kaiser. 1984. Measurement of Median Lethal Dose as a Rapid Indication of Contaminant Toxicity to Fish. Environ. Toxicol. Chem. 3(2):243-254.

8. 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.

9. Mattson, V.R., J.W. Arthur and C.T. Walbridge. 1976. Acute Toxicity of Selected Organic Compounds to Fathead Minnows. Ecol. Res. Ser. EPA-600/3-76-097, Environ. Res. Lab., U.S. EPA, Duluth, MN:12 p.

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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	7,697
(c)	Fathead Minnow	21,723
(d)	*Daphnia spp.*	16,990

Secondary Acute Factor (SAF) = 8.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 7,697 ÷ 8.0
= 962 = 960 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 962 ÷ 2
= 481 = 480 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
No Chronic Data				

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

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 962 ÷ 18
= 53 µg/l

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