OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: 2,4,6-Tribromophenol Developed by: Chris J. Skalski
CAS # 118-79-6 Data Retrieval Date: 2-4-04
Internal Code # --- Fact Sheet Preparation Date: 2-9-04
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	1,308[d]	S,U	48	1,308	1,308	1
Daphnia magna	1,308[cd]	S,U	48			2
Fathead Minnow	6,500	F,M	96	6,520	6,520	3
Pimephales promelas	6,800	F,M	96			3
	6,540	F,M	96			4
	6,250	F, M	96			5

[a] S = static; F= flow through; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.
[c] Indicates duplicate data not used to calculate the SMAV.
[d] Indicates that although the test organisms were fed at test initiation, it does not appear that the food affected the toxicity of the test material since the test results are comparable to those of tests using fathead minnows where the test organisms were not fed. The value of 1,308 was calculated from a molar concentration as reported in the original article, and therefore differs slightly from the values reported in the USEPA Ecotox database for the indicated reference citation.

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. 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.

2. 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:88p.

3. Phipps, G.L., G.W. Holcombe and J.T. Fiandt. 1981. Acute Toxicity of Phenol and Substituted Phenols to the Fathead Minnow. Bull. Environ. Contam. Toxicol. 26(5):585-593.

4. 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.

5. Broderius, S.J., M.D. Kahl and M.D. Hoglund. 1995. Use of Joint Toxic Response to Define the Primary Mode of Toxic Action for Diverse Industrial Organic Chemicals. Environ. Toxicol. Chem. 14(9):1591-1605.

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)[a]

Data Requirement OAC 3745-1-36(A)(1)	SPECIES	GMAV (µg/l)
(b)	Fathead Minnow	6,520
(d)	*Daphnia magna*	1,308

Secondary Acute Factor (SAF) = 13.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 1,308 ÷ 13.0
= 100.6 = 100 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 100.6 ÷ 2
= 50.3 = 50 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 Available				

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

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 100 ÷ 18

= 5.55 = 5.6 μg/l

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