OHIO EPA AQUATIC LIFE WATER QUALITY CRITERION FACT SHEET

Chemical Name: Tin Developed by: Chris J. Skalski
CAS # 7440-31-5 Data Retrieval Date: 2-13-98
Internal Code # 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	21,560	S,U	48	28,489	28,489	1
Daphnia magna	55,000	R,U	48			2
	19,500	S,U	48			3
Amphipod	50,100	R,U	96	50,100	50,100	4
Crangonyx pseudogracilis						
Tubificid Worm	21,230	S,U	96	25,237	25,237	5
Tubifex tubifex	30,000	S,U	96			6

[a] S = static; R= renewal; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.

CHRONIC DATA

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

None Available

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

REFERENCES

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2. Biesinger, K.E. and G.M. Christensen. 1972. Effects of Various Metals on Survival, Growth, Reproduction, and Metabolism of *Daphnia magna*. J. Fish. Res. Board Can. 29(12):1691-1700.

3. Khangarot, B.S., P.K. Ray and H. Chandra. 1987. *Daphnia magna* as a Model to Assess Heavy Metal Toxicity: Comparative Assessment with Mouse System. Acta. Hydrochim. Hydrobiol. 15(4):427-432.

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5. Khangarot, B.S. 1991. Toxicity of Metals to a Freshwater Tubificid Worm, *Tubifex tubifex* (Muller). Bull. Environ. Contam. Toxicol. 46:906-912.

6. Fargasova, A. 1994. A Comparative Study of the Toxicity and Inhibitory Effects of Inorganic Tin Compounds on Various Biological Subjects. Biologia (Bratisl.) 49(3):307-311.

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)[a]

Data Requirement OAC 3745-1-36(A)(1)	SPECIES	GMAV (µg/l)
(d)	*Daphnia magna*	28,489
(e)	Amphipod	50,100
(g)	Tubificid Worm	25,237

Secondary Acute Factor (SAF) = 8.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 25,237 ÷ 8.0
= 3,155 = 3,200 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 3,155 ÷ 2
= 1,577 = 1,600 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
= 3,155 ÷ 18
= 175 = 180 µg/l

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