OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: 1,2-Dichloroethylene (total) Developed by: Chris J. Skalski
CAS # 540-59-0 Data Retrieval Date: 4-25-01
Internal Code # --- 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	341,000	S,U	48	273,898	273,898	1
Daphnia magna	220,000	S,U	48			2
Fathead Minnow *Pimephales promelas*	144,000	S,U	96	144,000	144,000	1
Bluegill *Lepomis macrochirus*	140,000	S,U	96	140,000	140,000	3

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

CHRONIC DATA

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

No Chronic Data Available

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

REFERENCES

1. ABC Laboratories. 1999. Toxicity of cis-1,2-Dichloroethylene to the Waterflea (*Daphnia magna*) and to the Fathead Minnow (*Pimephales promelas*) Determined Under Static Test Conditions. ABC Laboratories (Columbia, MO) No. 45638.

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.

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)[a]

Data Requirement OAC 3745-1-36(A)(1)	SPECIES	GMAV (µg/l)
(b)	Bluegill	140,000
(c)	Fathead Minnow	144,000
(d)	Cladoceran	273,898

Secondary Acute Factor (SAF) = 8.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 140,000 ÷ 8.0
= 17,500 = 18,000 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 17,500 ÷ 2
= 8,750 = 8,800 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
= 17,500 ÷ 18

= 972 = 970 μg/l

Note: The SAV, AAV, and CAV apply to the sum of cis-1,2-dichloroethylene and trans-1,2,-dichloroethylene.

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