

OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

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Chemical Name: 1,1-Dichloroethylene Developed by: Chris J. SkalskiCAS # 75-35-4 Data Retrieval Date: 9-05-97Internal Code # 56 Fact Sheet Preparation Date: 3-01-06ACUTE DATA

<u>SPECIES</u>	<u>EC₅₀/LC₅₀</u> <u>(µg/l)</u>	<u>TEST TYPE^a</u>	<u>DURATION</u> <u>(HOURS)</u>	<u>SMAV^b</u> <u>(µg/l)</u>	<u>GMAV^b</u> <u>(µg/l)</u>	<u>REFERENCE</u> <u>NUMBER</u>
Cladoceran	79,000	S,U	48	30,272	30,272	1
<i>Daphnia magna</i>	11,600	S,U	48			2
Fathead Minnow	169,000	S,U	96	108,000	108,000	2
<i>Pimephales promelas</i>	108,000	F,M	96			2
Bluegill	220,000	S,U	96	127,593	127,593	3
<i>Lepomis macrochirus</i>	74,000	S,U	96			4

^a S = static; F= flow through; U = unmeasured; M = measured.^b SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.CHRONIC DATA

<u>SPECIES</u>	<u>CHRONIC VALUE</u> <u>(µg/l)</u>	<u>METHOD</u>	<u>SMCV^a</u> <u>(µg/l)</u>	<u>GMCV^a</u> <u>(µg/l)</u>	<u>REFERENCE</u> <u>NUMBER</u>
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None Available

^a SMCV = Species Mean Chronic Value; GMCV = Genus Mean Chronic Value.REFERENCES

1. LeBlanc, G.A. 1980. Acute Toxicity of Priority Pollutants to Water Flea (*Daphnia magna*). Bull. Environ. Contam. Toxicol. 24(5):684-691.
2. Dill, D.C., W.M. McCarthy, H.C. Alexander and E.A. Bartlett. 1980. Toxicity of 1,1-Dichloroethylene (Vinylidene Chloride) to Aquatic Organisms. Ecol. Res. Ser., EPA 600/3-80-057, Environ. Res. Lab., U.S. EPA, Duluth, MN:17 p.
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. Dawson, G.W., A.L. Jennings, D. Drozdowski and E. Rider. 1977. The Acute Toxicity of 47 Industrial Chemicals to Fresh and Saltwater Fishes. J. Hazard. Mat. 1(4):303-318.

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)^a

<u>Data Requirement</u> <u>OAC 3745-1-36(A)(1)</u>	<u>SPECIES</u>	<u>GMAV</u> <u>(µg/l)</u>
(b)	Bluegill	127,593
(c)	Fathead Minnow	108,000
(d)	<i>Daphnia magna</i>	30,272

Secondary Acute Factor (SAF) = 8.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
 = 30,272 ÷ 8.0
 = 3,784 = 3,800 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
 = 3,272 ÷ 2
 = 1,892 = 1,900 µg/l

CALCULATION OF CHRONIC AQUATIC VALUE (CAV)^a

Experimentally determined Acute-Chronic Ratios (ACRs):

<u>SPECIES</u>	<u>ACUTE VALUE</u> <u>(µg/l)</u>	<u>CHRONIC VALUE</u> <u>(µg/l)</u>	<u>ACUTE-CHRONIC</u> <u>RATIO</u>	<u>SPECIES MEAN</u> <u>ACR</u>
				None Available

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

Chronic Aquatic Value (CAV) = SAV ÷ SACR
 = 3,784 ÷ 18
 = 210 µg/l

^aSee Ohio Administrative Code 3745-1-36 effective February 22, 2002.