

OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

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Chemical Name: Isophorone Developed by: Chris J. SkalskiCAS # 78-59-1 Data Retrieval Date: 5-12-98Internal Code # 87 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	120,000	S,U	48	120,000	120,000	1
<i>Daphnia magna</i>	117,000 ^c	S,U	48			2
Bluegill	220,000	S,U	96	220,000	220,000	3
<i>Lepomis macrochirus</i>						
Fathead Minnow	228,000	F,M	96	214,902	214,902	4
<i>Pimephales promelas</i>	145,000	F,M	96			5
	255,000	F,M	96			5
	253,000	F,M	96			6
	319,000	S,U	96			6
	275,000	S,M	96			6
	240,000	S,M	96			6
Sheepshead Minnow	165,000 ^d	S,U	96			2
<i>Cyprinodon variegatus</i>	295,000 ^d					

^a S = static; 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 Acute data used only to develop acute to chronic ratios, not an SMAV.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>
Sheepshead Minnow <i>Cyprinodon variegatus</i>	111,714 (80,000-156,000)	Life Cycle	111,714	111,714	2
Fathead Minnow <i>Pimephales promelas</i>	14,457 (11,000-19,000)	Embryo-Larval	14,457	14,457	5

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

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REFERENCES

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4. 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, WI: 332 p.
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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	220,000
(c)	Fathead Minnow	214,902
(d)	<i>Daphnia magna</i>	120,000

Secondary Acute Factor (SAF) = 8.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
 = 120,000 ÷ 8.0
 = 15,000 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
 = 15,000 ÷ 2
 = 7,500 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>
Fathead Minnow <i>Pimephales promelas</i>	192,289	14,457	13.3	13.3
Sheepshead Minnow <i>Cyprinodon variegatus</i>	165,000- 295,000	111,714	1.5-2.6	1.5-2.6 ^b

Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(13.3)(18)(18)} = 16.3$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
 = 15,000 ÷ 16.3
 = 922 = 920 µg/l

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

^bNot used to determine the SACR since it is not a definitive ratio.