

OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Page 1 of 3

Chemical Name: Acrylonitrile Developed by: Chris J. SkalskiCAS # 107-13-1 Data Retrieval Date: 9-05-97Internal Code # 4 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	10,950	S,U	48	9,116	9,116	1
<i>Daphnia magna</i>	10,250	R,U	48			2
	10,000	R,U	48			3
	7,380	R,U	48			2
	7,600	S,U	48			4
Common Carp	18,070	R,U	96	19,646	19,646	2
<i>Cyprinus carpio</i>	21,360	R,U	96			2
Bluegill	9,300	F,M	96	9,300	9,300	5
<i>Lepomis macrochirus</i>	23,600	S,U	96			5
	10,000	S,U	96			6
	11,800	S,U	96			7
Fathead Minnow	8,400	F,U	96	14,949	14,949	8
<i>Pimephales promelas</i>	34,000	S,M	96			8
	10,100	F,U	96			7
	14,300	S,U	96			7
	18,100	S,U	96			7
Oligochaete	15,870	S,U	96	16,845	16,845	2
<i>Limnodrilus hoffmeisteri</i>	17,880	S,U	96			2
Guppy	33,500	S,U	96	33,500	33,500	7
<i>Poecilia reticulata</i>						

^a S = static; F= flow through; R = renewal; 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>
Cladoceran	500-1000	Life Cycle	707	707	2
<i>Daphnia magna</i>	707				

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

OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Page 2 of 3

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OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Page 3 of 3

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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	9,300
(c)	Fathead Minnow	14,949
(d)	<i>Daphnia magna</i>	9,116
(g)	Oligochaete	16,845

Secondary Acute Factor (SAF) = 7.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
 = 9,116 ÷ 7.0
 = 1,302 = 1,300 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
 = 1,302 ÷ 2
 = 651 = 650 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>
Cladoceran	10,250	707	14.5	14.5
<i>Daphnia magna</i>				

Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(14.5)(18)(18)} = 16.75$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
 = 1,302 ÷ 16.75
 = 77.8 = 78 µg/l

^aSee Ohio Administrative Code 3745-1-36 effective February 22, 2006.

OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Page 4 of 3

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