OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: 1,4-Dichlorobenzene Developed by: Chris J. Skalski
CAS # 106-46-7 Data Retrieval Date: 9-05-97
Internal Code # 51 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	11,000[d]	S,U	48	700	700	1
Daphnia magna	700	S,U	48			2
Fathead Minnow	34,500	S,M	96	4,099	4,099	3
Pimephales promelas	33,700	S,M	96			4
	30,000	S,M	96			5
	14,200	S,U	96			6
	11,700	S,U	96			6
	4,200	F,M	96			7
	4,000	F,M	96			8
	3,600	S,U	96			6
	2,852	R,M	96			9
	2,400	S,M	96			3
Rainbow Trout	1,120	F,M	96	1,120	1,120	10
Oncorhynchus mykiss	1,120[e]	F,M	96			11
Flagfish	2,053	F,M	96	2,053	2,053	12
Jordanella floridae	4,480	R,M	96			12
Guppy	2,896	R,M	96	2,896	2,896	9
Poecilia reticulata						
Midge	13,000	S,M	48	13,000	13,000	10
Tanytarsus dissimilis						
Midge	12,000	S,M	48	12,000	12,000	13
Chironomus riparius						
Bluegill	4,300[c]	S,U	96			14
Lepomis macrochirus						

[a] S = static; F= flow through; R = renewal; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.
[c] Data not used in the calculation of the SMAV because the presence of a precipitate in the test vessels was indicated by the author.
[d] Data not used to calculate the SMAV since it varied by more than a factor of 10 from the remaining toxicity data for this species and since toxicity data available for other species indicated higher toxicity.
[e] Duplicate data not used to calculate the SMAV.

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CHRONIC DATA

SPECIES	CHRONIC VALUE (µg/l)	METHOD	SMCV[a] (µg/l)	GMCV[a] (µg/l)	REFERENCE NUMBER
Fathead Minnow	570-1,000	Early Life Stage	755	755	7
Pimephales promelas	755				

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

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)[a]

Data Requirement OAC 3745-1-36(A)(1)	SPECIES	GMAV (µg/l)
(a)	Rainbow Trout	1,120
(b)	Flagfish	2,053
(c)	Fathead Minnow	4,099
(d)	*Daphnia magna*	700
(f)	Midge	12,000

Secondary Acute Factor (SAF) = 6.1

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 700 ÷ 6.1
= 114.7 = 110 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 114.7 ÷ 2
= 57 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
Fathead Minnow *Pimephales promelas*	4,200	755	5.56	5.56

Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(5.56)(18)(18)} = 12.17$

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Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 114.7 ÷ 12.17
= 9.4 μg/l

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