OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

Chemical Name: Methylene chloride (Dichloromethane) Developed by: Chris J. Skalski
CAS # 75-09-2 Data Retrieval Date: 9-05-97
Internal Code # 92 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	220,000	S,U	48	172,852	172,852	1
Daphnia magna	135,808	S,U	48			2
	1,682,000[c]	S,U	48			3
Bluegill	220,000	S,U	96	220,000	220,000	4
Lepomis macrochirus						
Fathead Minnow	99,000	F,M	96	254,069	254,069	5
Pimephales promelas	193,000[d]	F,M	96			5
	310,000	S,U	96			5
	330,000	F,M	96			6
	502,000	F,M	96			7

[a] S = static; F= flow through; U = unmeasured; M = measured.
[b] SMAV = Species Mean Acute Value; GMAV = Genus Mean Acute Value.
[c] Data not used to calculate the SMAV since it varied by over an order of magnitude from the other data for this species.
[d] Data not used to calculate the SMAV since a corresponding EC_{50} was available from the study.

CHRONIC DATA

SPECIES	CHRONIC VALUE (µg/l)	METHOD	SMCV[a] (µg/l)	GMCV[a] (µg/l)	REFERENCE NUMBER
Fathead Minnow	82,500 - 142,000	Embryo-Larval	108,236	108,236	7
Pimephales promelas	108,236				

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

REFERENCES

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3. Kuhn, R., M. Pattard, K. Pernak and A. Winter. 1989. Results of the Harmful Effects of Selected Water Pollutants (Anilines, Phenols, Aliphatic Compounds) to *Daphnia magna*. Water Res. 23(4):495-499.

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7. Dill, D.C., P.G. Murphy and M.A. Mayes. 1987. Toxicity of Methylene Chloride to Life Stages of the Fathead Minnow, Pimephales promelas Rafinesque. Bull. Environ. Contam. Toxicol. 39(5):869-876.

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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	220,000
(c)	Fathead Minnow	254,069
(d)	*Daphnia magna*	172,852

Secondary Acute Factor (SAF) = 8.0

Secondary Acute Value (SAV) = Lowest GMAV ÷ SAF
= 172,852 ÷ 8.0
= 21,607 = 22,000 µg/l

Tier II Acute Aquatic Value (AAV) = SAV ÷ 2
= 21,606 ÷ 2
= 10,803 = 11,000 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*	502,000	108,236	4.64	4.64

Secondary Acute-Chronic Ratio (SACR) = $\sqrt[3]{(4.64)(18)(18)} = 11.46$

Chronic Aquatic Value (CAV) = SAV ÷ SACR
= 21,607 ÷ 11.46
= 1,885 = 1,900 µg/l

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