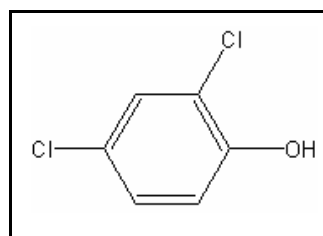




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

2,4-DICHLOROPHENOL

CAS RN:	120-83-2
Water Solubility:	0.45 g/100 mL
Log K _{ow} :	1.85 ^P
Vapor Pressure:	4.3 x 10 ⁻⁴ mm of Hg ^P
Environmental Partitioning @25 °C:	98.5% into Water ^P
Hydrolysis Half-life:	hydrolysis unlikely



Standard

The procedures described in the Tier II methodology indicate that, except possibly where a locally important species is very sensitive, aquatic organisms should not be affected unacceptably if the four (4) day average concentration of 2,4-dichlorophenol does not exceed 17 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 120 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

$$SAV = \text{lowest GMAV}/SAF$$

$$\text{Lowest GMAV} = 1,910 \text{ } \mu\text{g/L}$$

$$SAF = 8.0$$

$$SAV = 1,910/8.0 = 238.7 \text{ } \mu\text{g/L}$$

$$SMC = SAV/2 = 238.7/2 = \mathbf{120 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCC = SAV/SACR$$

$$SACR = 14.11 \text{ (Geometric mean of 18, 18, and 8.679)}$$

$$SCC = 238.7/14.11 = 17 \mu\text{g/L}$$

Calculation of ACR

Fathead Minnow (from reference #5)

$$MATC = 795 \mu\text{g/L}$$

$$ACR = 6,900/795 = 8.679$$

Data

Table 1. Toxicity data used in the derivation of the acute and chronic aquatic life values.

Species	LC ₅₀ /EC ₅₀ (µg/L)	Duration (hr)	Test Type	Chemical Form	SMAV (µg/L)	GMAV (µg/L)	Reference Number	EVISTRA Score N, U, M
<u>Bluegill</u> <u>Lepomis</u> <u>macrochirus</u>	2,000	96	S,U	2,4- dichloro- phenol	2,000	2,000	1	
<u>Fathead</u> <u>Minnow</u> <u>Pimephales</u> <u>promelas</u>	7,750	96	FT,M	2,4- dichloro- phenol	8,844	8,844	2	
<u>Fathead</u> <u>Minnow</u> <u>Pimephales</u> <u>promelas</u>	8,200	96	FT,M	2,4- dichloro- phenol			6	
<u>Fathead</u> <u>Minnow</u> <u>Pimephales</u> <u>promelas</u>	8,300	96	FT,M	2,4- dichloro- phenol			6	
<u>Fathead</u> <u>Minnow</u> <u>Pimephales</u> <u>promelas</u>	11,600	96	FT,M	2,4- dichloro- phenol			7	
<u>Cladoceran</u> <u>Daphnia</u> <u>magna</u>	1,400	48	S,U	2,4- dichloro- phenol	1,910	1,910	3	
<u>Cladoceran</u> <u>Daphnia</u>	2,600	48	S,U	2,4- dichloro-			4	

<u>magna</u>				phenol				
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References

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Acronyms/Abbreviations

CAS RN	Chemical Abstract Service Registry Number
K _{ow}	Octanol-Water Partition Coefficient
P (superscript)	Predicted value

SAV	Secondary Acute Value
GMAV	Genus Mean Acute Value
SAF	Secondary Acute Factor
SMC	Secondary Maximum Concentration
SCC	Secondary Continuous Concentration
SACR	Secondary Acute-Chronic Ratio
FT	Flow-thru
S	Static
U	Unmeasured
M	Measured
EVISTRA	Evaluation and Interpretation of Suitable Test Results in AQUIRE (EPA quality checking method/database)

Revision History

4/14/99 Values first developed
11/17/99 Fact sheet updated to new design
4/6/01 New search for data. Fathead minnow data added. No criteria change.

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