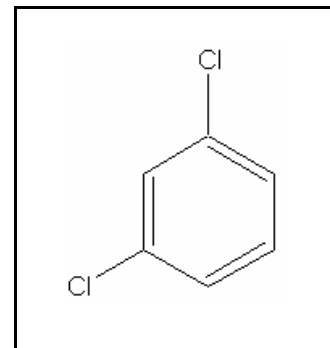




## TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

### 1,3-DICHLOROBENZENE

CAS RN: 541-73-1  
Water Solubility: 0.0125 g/100 mL  
Log  $K_{ow}$ :



#### 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 1,3-dichlorobenzene does not exceed 52  $\mu\text{g/L}$  more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 310  $\mu\text{g/L}$  more than once every three (3) years on the average.

#### Calculations

##### Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 5000 \mu\text{g/L} \\ \text{SAF} &= 8.0\end{aligned}$$

$$\text{SAV} = 5000/8.0 = 625 \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 625/2 = \mathbf{310 \mu\text{g/L}}$$

##### Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 12.11 \text{ (Geometric mean of 18, 18, and 5.482)}$$

$$SCV = 625/12.11 = \mathbf{52 \mu g/L}$$

Calculation of ACR:

Daphnia magna

$$NOEC = 690 \mu g/L$$

$$LOEC = 1500 \mu g/L$$

$$CV = \text{Geometric Mean of 690 and 1500} = 1017$$

$$ACR = 5575/1017 = 5.482$$

## Data

Table 1. GMAVs and SMAVs for 1,3-dichlorobenzene

<u>Genus Mean Acute Value (<math>\mu g/L</math>)</u>	<u>Species</u>	<u>Species Mean Acute Value (<math>\mu g/L</math>)</u>	<u>Acute- Chronic Ratio</u>	<u>Reference Number</u>
8434	Fathead Minnow <u>Pimephales promelas</u>	9,120		1
	Fathead Minnow <u>Pimephales promelas</u>	7,800		5
5000	Bluegill <u>Lepomis macrochirus</u>	5000		2
9547	Cladoceran <u>Daphnia magna</u>	28,000		3
	Cladoceran <u>Daphnia magna</u>	7,400		4
	Cladoceran	4,200		4

Daphnia magna

**References**

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Buccafusco, R.J., S.J. Ells, and G.A. LeBlanc 1981. Acute toxicity of priority pollutants to bluegill (*Lepomis macrochirus*). *Bull. Environ. Contam. Toxicol.* 24(5): 446-452.
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4. Richter, J.E., S.F. Peterson, and C.F. Kleiner 1983. Acute and chronic toxicity of some chlorinated benzenes, chlorinated ethanes, and tetrachloroethylene to Daphnia magna. *Arch. Environ. Contam. Toxicol.* 12: 679-684.
5. Veith, G.D., D.J. Call and L.T. Brooke 1983. Estimating the acute toxicity of narcotic industrial chemicals to fathead minnows. In: *Aquatic Toxicology and Hazard Assessment: Sixth Symposium*. ASTM STP 802, W.E. Bishop, R.D. Cardwell and B.B. Heidolph (Eds.). American Society of Testing and Materials. Philadelphia, PA.

**Acronyms/Abbreviations**

CAS RN	Chemical Abstract Service Registry Number
K <sub>ow</sub>	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-through
S	Static
U	Unmeasured
M	Measured
EVISTRA	Evaluation and Interpretation of Suitable Test Results in AQUIRE (EPA quality checking method/database)

## Revision History

December 30, 1998 Values first developed  
April 25, 2001 New search for data. No new studies added.

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