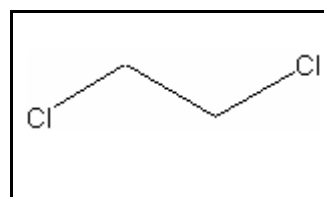




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

1,2-DICHLOROETHANE

CAS RN: 107-06-2
Water Solubility: 8,608 mg/L
Log K_{ow} : 1.458^P



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 1,2-dichloroethane does not exceed 860 $\mu\text{g/L}$ more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 7,300 $\mu\text{g/L}$ more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 117,499 \mu\text{g/L} \\ \text{SAF} &= 8.0\end{aligned}$$

$$\text{SAV} = 117,499/8.0 = 14,687 \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 14,687/2 = \mathbf{7,300 \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 15 \text{ (Geometric mean of 18, 18, 10.53)}$$

$$SCV = 14,687/15 = \mathbf{980 \mu g/L}$$

Calculation of ACR's

Daphnia magna

$$NOEC = 11,000 \mu g/L$$

$$LOEC = 21,000 \mu g/L$$

$$CV = \text{Geometric Mean of 11,000 and 21,000} = 15,199$$

$$ACR = 160,000/15,199 = 10.53$$

Data

Table 1. GMAVs and SMAVs for 1,2-dichloroethane

| <u>Genus Mean Acute Value ($\mu g/L$)</u> | <u>Species</u> | <u>Species Mean Acute Value ($\mu g/L$)</u> | <u>Acute- Chronic Ratio</u> | <u>Reference Number</u> |
|--|--|--|---------------------------------|-----------------------------|
| 357,360 | Cladoceran <u>Daphnia magna</u> | 324,000 | | 1 |
| | Cladoceran <u>Daphnia magna</u> | 220,000 | | 2 |
| | Cladoceran <u>Daphnia magna</u> | 1,430,000 | | 3 |
| | Cladoceran <u>Daphnia magna</u> | 160,000 | 10.53 | 4 |
| 117,499 | Fathead Minnow <u>Pimephales promelas</u> | 118,000 | | 5 |
| | Fathead Minnow <u>Pimephales promelas</u> | 117,000 | | 6 |

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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-through |
| S | Static |
| U | Unmeasured |
| M | Measured |
| EVISTRA | Evaluation and Interpretation of Suitable Test Results in AQUIRE (EPA quality checking method/database) |

Revision History

November 24, 1998 Values first developed
 April 25, 2001 New search for data. No new studies added.
 November 15, 2002 ACR was corrected.

Contact Information

David B. Kallander
Water Quality Standards Section
Indiana Department of Environmental Management
100 North Senate Ave., P.O. Box 6015
Indianapolis, IN 46206-6015
(317) 233-2472
Email: dkalland@dem.state.in.us