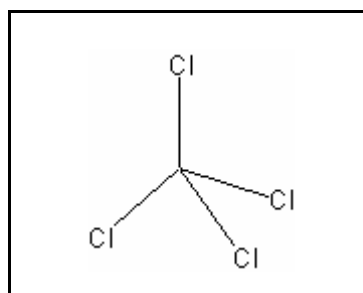




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

CARBON TETRACHLORIDE

CAS RN: 75-25-2
Water Solubility: 0.08048 g/100 mL
Log K_{ow} : 2.875



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 carbon tetrachloride does not exceed 40 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 360 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\text{Lowest GMAV} = 5809 \text{ µg/L}$$

$$SAF = 8.0$$

$$SAV = 5809/8.0 = 726.1 \text{ µg/L}$$

$$SMC = SAV/2 = 726.1/2 = \mathbf{360 \text{ µg/L}}$$

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$\text{SACR} = 18$$

$$\text{SCV} = 726.1/18 = 40 \text{ } \mu\text{g/L}$$

Data

Table 1. GMAVs and SMAVs for carbon tetrachloride

| Genus Mean Acute Value ($\mu\text{g/L}$) | Species | Species Mean Acute Value ($\mu\text{g/L}$) | Acute- Chronic Ratio | Reference Number |
|--|--|--|-------------------------|---------------------|
| 5809 | Bluegill <u>Lepomis macrochirus</u> | 5809 | | 1,2 |
| 35000 | Cladoceran <u>Daphnia magna</u> | 35000 | | 3 |
| 41400 | Fathead Minnow <u>Pimephales promelas</u> | 41400 | | 4 |

References

1. 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.
2. Dawson, G.W., A.L. Jennings, D. Drozdowski, et al. 1977. The acute toxicity of 47 chemicals to fresh and saltwater fishes. J. Haz. Mat. 1: 303-318.
3. Geiger, D.L., L.T. Brooke, and D.J. Call 1990. Acute toxicities of organic chemicals to fathead minnows (Pimephales promelas), Vol. 5. Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, WI: 332 pp.
4. LeBlanc, G.A. 1980. Acute toxicity of priority pollutants to water flea (Daphnia magna). Bull Environ. Contam. Toxicol. 24(5): 684-691.

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

September 18, 1997 Values first developed
October 4, 2000 New search for data. No new studies added.

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