



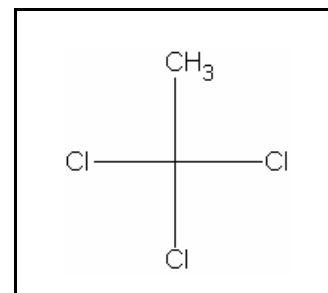
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## TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

### 1,1,1-TRICHLOROETHANE

CAS RN: 71-55-6  
Water Solubility: 0.1495 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 1,1,1-trichloroethane does not exceed 410  $\mu\text{g/L}$  more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 3,700  $\mu\text{g/L}$  more than once every three (3) years on the average.

#### Calculations

##### Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 59,350 \text{ mg/L} \\ \text{SAF} &= 8.0\end{aligned}$$

$$\text{SAV} = 59,350/8.0 = 7,419 \text{ mg/L}$$

$$\text{SMC} = \text{SAV}/2 = 7,419/2 = \mathbf{3,700 \mu\text{g/L}}$$

##### Chronic Aquatic Life:

$$\text{SCV} = \text{SAV}/\text{SACR}$$

$$\text{SACR} = 18$$

$$\text{SCV} = 7,419/18 = \mathbf{410 \mu\text{g/L}}$$

## Data

Table 1. GMAVs and SMAVs for 1,1,1-trichloroethane

<u>Genus Mean Acute Value (mg/L)</u>	<u>Species</u>	<u>Species Mean Acute Value (mg/L)</u>	<u>Acute- Chronic Ratio</u>	<u>Reference Number</u>
59,350	Fathead Minnow <u>Pimephales promelas</u>	52,800		1
	Fathead Minnow <u>Pimephales promelas</u>	105,000		1
	Fathead Minnow <u>Pimephales promelas</u>	52,900		3
	Fathead Minnow <u>Pimephales promelas</u>	42,300		3
72,000	Bluegill <u>Lepomis macrochirus</u>	72,000		2
>530,000	Cladoceran <u>Daphnia magna</u>	>530,000		4

## References

1. Alexander, H.C., W.M. McCarty and E.A. Bartlett 1978. Toxicity of perchloroethylene, 1,1,1-trichloroethane and methylene chloride to fathead minnows.
2. 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.
3. Geiger, D.L., S.H. Poirier, L.T. Brook et al. 1986. Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*), Vol. 3. Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, WI. 328 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 <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

June 1, 2001 New search for data. No new studies added.

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