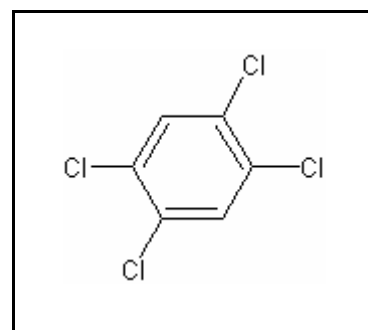




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

1,2,4,5-TETRACHLOROBENZENE

CAS RN:	95-94-3
Water Solubility:	< 1000 mg/L
Log K_{ow} :	4.51
K_H :	8.95×10^{-4} atm-m ³ /mol
Environmental Partitioning @25 °C:	76% into Air ^P
Hydrolysis Half-life:	>20 days



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 1,2,4,5-tetrachlorobenzene does not exceed 8.3 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 75 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 1,200 \text{ } \mu\text{g/L} \\ SAF &= 8.0\end{aligned}$$

$$SAV = 1,200/8.0 = 150 \text{ } \mu\text{g/L}$$

$$SMC = SAV/2 = 150/2 = \mathbf{75 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCC = SAV/SACR$$

$$SACR = 18$$

$$SCC = 150/18 = \mathbf{8.3 \mu g/L}$$

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
Bluegill <u>Lepomis macrochirus</u>	1,600	96	S,U	1,2,4,5- tetrachloro- benzene	1,600	1,600	1	
Rainbow Trout <u>Oncorhynchus mykiss</u>	1,200	96	R,U	1,2,4,5- tetrachloro- benzene	1,200	1,200	4	
American Flagfish <u>Jordanella floridae</u>	2,150	96	FT,M	1,2,4,5- tetrachloro- benzene	2,150	2,150	3	
Cladoceran <u>Daphnia magna</u>	>530	48	S,U	1,2,4,5- tetrachloro- benzene	>530	>530	2	

References

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2. LeBlanc, G.A. 1980. Acute Toxicity of Priority Pollutants to Water Flea (*Daphnia magna*). Bull. Environ. Contam. Toxicol. 24(5):684-691. (AQUIRE Ref. Number 5184)
3. Smith, A.D., A. Bharath, C. Mallard, D. Orr, K. Smith, J.A. Sutton, J. Vukmanich, L.S. McCarty, and G.W. Ozburn. 1991. The Acute and Chronic Toxicity of Ten Chlorinated Organic Compounds to the American Flagfish (*Jordanella floridae*). Arch. Environ. Contam. Toxicol. 20(1):94-102. (AQUIRE Ref. Number 3116)
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Acronyms

CAS RN	Chemical Abstract Service Registry Number
K _H	Henry's Constant (indication of the relative volatility of a substance)
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
R	Renewal
S	Static
U	Unmeasured
M	Measured
EVISTRA	Evaluation and Interpretation of Suitable Test Results in AQUIRE (EPA quality checking method/database)

Revision History

12/16/99 Values first developed

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