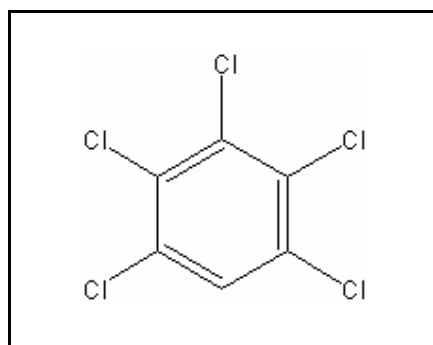




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

PENTACHLOROBENZENE

CAS RN: 608-93-5
Water Solubility: 0.24 mg/L
Log K_{ow} : 5.106
Vapor Pressure: 8.21×10^{-4} mm of Hg^P
Environmental Partitioning
@25 °C: 1.74% into Water^P
Hydrolysis Half-life: hydrolysis unlikely



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 pentachlorobenzene does not exceed 3.1 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 16 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\text{Lowest GMAV} = 250 \text{ } \mu\text{g/L}$$

$$SAF = 8.0$$

$$SAV = 250/8.0 = 31.25 \text{ } \mu\text{g/L}$$

$$SMC = SAV/2 = 31.25/2 = \mathbf{16 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCC = SAV/SACR$$

$$SACR = 10.06 \text{ (geometric mean of 18, 18, and 3.143)}$$

$$SCC = 31.25/10.06 = \mathbf{3.1 \mu g/L}$$

Calculation of ACR's (from Oris et al. 1991):

Ceriodaphnia dubia

$$MATC = 350 \mu g/L$$

$$ACR = 1,100/350 = 3.143$$

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>	250	96	S,U	1,2,4,5- tetrachlo- benzene	2,000	2,000	1	
Rainbow Trout <u>Oncorhynchus mykiss</u>	710	96	FT,M	1,2,4,5- tetrachlo- benzene	710	710	2	
Cladoceran <u>Ceriodaphnia dubia</u>	1,100	48	S,U	1,2,4,5- tetrachlo- benzene	1,910	1,910	3	
Cladoceran <u>Daphnia magna</u>	5,300	48	S,U	1,2,4,5- tetrachlo- benzene	5,300	5,300	4	

References

1. Buccafusco, R.J., S.J. Ellis, and G.A. LeBlanc 1981. Acute Toxicity of Priority Pollutants to Bluegill (*Lepomis macrochirus*). Bull. Environ. Contam. Toxicol. 26(4):446-452
2. Call, D.J., L.T. Brooke, N. Ahmad, and J.E. Richter 1983. Toxicity and Metabolism

Studies with EPA Priority Pollutants and Related Chemicals in Freshwater Organisms. EPA 600/3-83-095, U.S. EPA, Duluth, MN:120 p. (U.S. NTIS PB83-263665)

3. Oris, J.T., R.W. Winner, and M.V. Moore 1991. A Four-Day Survival and Reproduction Toxicity Test for *Ceriodaphnia dubia* Environ. Toxicol. Chem. 10(2):217-224.

Acronyms

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

Revision History

12/7/99 Values first developed

Contact Information

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