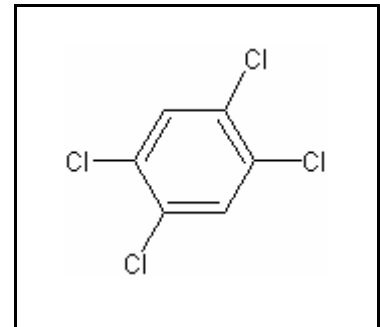




## TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

### 1,2,4,5-TETRACHLOROBENZENE

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

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

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

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

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

## Chronic Aquatic Life:

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

$$\text{SACR} = 18$$

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

## **Data**

Table 1. Toxicity data used in the derivation of the acute and chronic aquatic life values.

Species	LC <sub>50</sub> /EC <sub>50</sub> (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- tetrachlo- benzene	1,600	1,600	1	
Rainbow Trout <u>Oncorhynchus mykiss</u>	1,200	96	R,U	1,2,4,5- tetrachlo- benzene	1,200	1,200	4	
American Flagfish <u>Jordanella floridae</u>	2,150	96	FT,M	1,2,4,5- tetrachlo- benzene	2,150	2,150	3	
Cladoceran <u>Daphnia magna</u>	>530	48	S,U	1,2,4,5- tetrachlo- benzene	>530	>530	2	

## **References**

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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

## Contact Information

David B. Kallander  
Wetlands, Water Quality, and Sediments 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](mailto:dkalland@dem.state.in.us)