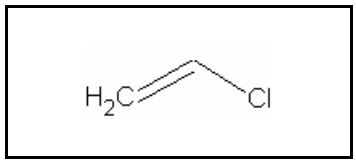
Indiana Department of Environmental Management
Office of Water Quality - Water Quality Standards Section

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

VINYL CHLORIDE

CAS RN:	75-01-4
Water Solubility:	0.11 g/100 mL at 25 ^{0}C
Log K_{ow}:	1.36^{P}



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 vinyl chloride does not exceed 930 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 8,400 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 218,000 µg/L
SAF = 13.0

SAV = 218,000/13.0 = 16,769 µg/L

SMC = SAV/2 = 16,769/2 = 8,400 **µg/L**

Chronic Aquatic Life:

SCV = SAV/SACR

SACR = 18

SCV = 16,769/18.0 = 930 **µg/L**

Data

Table 1. GMAVs and SMAVs for vinyl chloride

Genus Mean Acute Value (µg/L)	Species	Species Mean Acute Value (µg/L)	Acute-Chronic Ratio	Reference Number
218,000	Fathead Minnow *Pimephales promelas*	218,000		1
521,000	Cladoceran *Daphnia magna*	521,00		1

References

1. RMT, Inc. 2000. Findings of the toxicity testing for vinyl chloride as part of the situation specific response plan for ACL exceedences in groundwater. Report to Michigan DEQ.

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

June 26, 2001 Values first developed

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