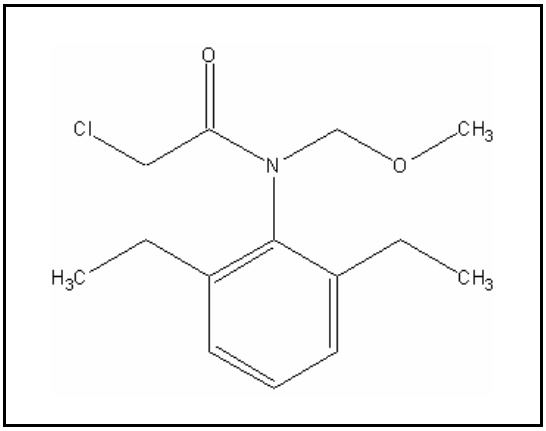
Indiana Department of Environmental Management
Office of Water - Water Quality Standards Section

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

ALACHLOR

CAS RN: 15972-60-8
Water Solubility: 0.024 g/100 mL
Log K_{ow}: -0.24^{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 alachlor does not exceed 21 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 190 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 5,000 µg/L
SAF = 13.0

SAV = 5,000/13.0 = 384.6 µg/L

SMC = SAV/2 = 384.6/2 = **190 µg/L**

Chronic Aquatic Life:

SCC = SAV/SACR

SACR = 18

SCC = 384.6/18 = 21 **µg/L**

Data

Table 1. GMAVs and SMAVs for alachlor

Genus Mean Acute Value (µg/L)	Species	Species Mean Acute Value (µg/L)	Acute-Chronic Ratio	Reference Number
7,900	Cladoceran Ceriodaphnia dubia	7,900		1
5,000	Fathead Minnow Pimephales promelas	5,000		2

References

1. Oris, J.T., R.W. Winner, and M. Moore 1991. A four-day survival and reproduction toxicity test for Ceriodaphnia dubia. Environ. Toxicol. Chem. 10: 217-224.

2. Broderius, S.J, M.D. Kahl, M.D. Hoglund 1995. Use of joint toxic response to define the primary mode of toxic action for diverse industrial organic chemicals. Environ. Toxicol. Chem. 14(9): 1591-1605.

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

February 15, 1999 Values first developed
August 19, 2000 New search for data. Fathead minnow data added. Two studies reviewed.

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