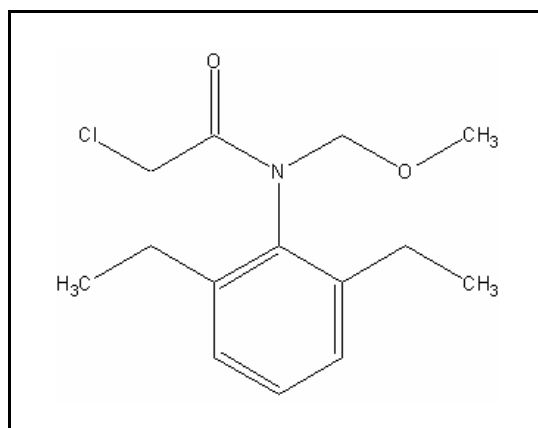




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

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:

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

$$\begin{aligned}\text{Lowest GMAV} &= 5,000 \text{ } \mu\text{g/L} \\ \text{SAF} &= 13.0\end{aligned}$$

$$\text{SAV} = 5,000/13.0 = 384.6 \text{ } \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 384.6/2 = \mathbf{190 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

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

$$\text{SACR} = 18$$

$$\text{SCC} = 384.6/18 = 21 \text{ } \mu\text{g/L}$$

Data

Table 1. GMAVs and SMAVs for alachlor

<u>Genus Mean Acute Value ($\mu\text{g/L}$)</u>	<u>Species</u>	<u>Species Mean Acute Value ($\mu\text{g/L}$)</u>	<u>Acute- Chronic Ratio</u>	<u>Reference Number</u>
7,900	Cladoceran <u>Ceriodaphnia dubia</u>	7,900		1
5,000	Fathead Minnow <u>Pimephales promelas</u>	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.

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