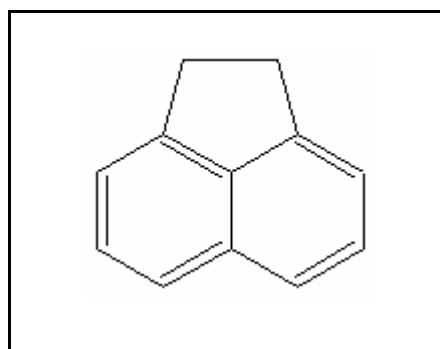




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

ACENAPHTHENE

CAS RN: 83-32-9
Water Solubility: 3.47 mg/L
Log K_{ow} : 3.92



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 acenaphthene does not exceed 27 $\mu\text{g/L}$ more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 140 $\mu\text{g/L}$ more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned} \text{Lowest GMAV} &= 1664 \mu\text{g/L} \\ \text{SAF} &= 6.1 \end{aligned}$$

$$\text{SAV} = 1664/6.1 = 272.8 \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 272.8/2 = \mathbf{140 \mu\text{g/L}}$$

Chronic Aquatic Life:

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

$$\text{SACR} = 10.01 \quad (\text{Geometric mean of } 18, 18, 3.1)$$

$$\text{SCC} = 272.8/10.01 = \mathbf{27 \mu\text{g/L}}$$

Data

Table 1. GMAVs and SMAVs for acenaphthene

<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>
1700	Bluegill <u>Lepomis macrochirus</u>	1700		1
1,664	Fathead Minnow <u>Pimephales promelas</u>	1,664		2,6
1,720,000	Channel Catfish <u>Ictalurus punctatus</u>	1,720,000		2
623,380	Rainbow Trout <u>Onchorhynchus mykiss</u>	670,000		2
	Brown Trout <u>Salmo trutta</u>	580,000		2
2,040,000	Snail <u>Aplexa hypnorum</u>	2,040,000		2
2097	Cladoceran <u>Daphnia magna</u>	2097		3,4
	Sheepshead Minnow <u>Cyprinodon variegatus</u>		3.1	5

References

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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

January 16, 1997 Values first developed
August 17, 2000 New search for data. No new studies added.

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