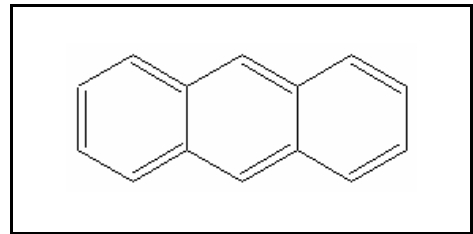




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

ANTHRACENE

CAS RN: 120-12-7
Water Solubility: 0.043 mg/L
Log K_{ow} : 4.54



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 anthracene does not exceed 0.68 $\mu\text{g/L}$ more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 6.1 $\mu\text{g/L}$ more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 267.6 \mu\text{g/L} \\ \text{SAF} &= 21.9\end{aligned}$$

$$\text{SAV} = 267.6/21.9 = 12.22 \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 12.22/2 = 6.1 \mu\text{g/L}$$

Chronic Aquatic Life:

$$SCC = SAV/SACR$$

$$SACR = 18$$

$$SCC = 12.22/18 = \mathbf{0.68 \mu g/L}$$

Data

Table 1. GMAVs and SMAVs for anthracene

<u>Genus Mean Acute Value ($\mu\text{g/L}$)</u>	<u>Species</u>	<u>Species Mean Acute Value ($\mu\text{g/L}$)</u>	<u>Reference Number</u>
267.6	Cladoceran <u>Daphnia magna</u>	95	1
	Cladoceran <u>Daphnia pulex</u>	754	2

References

1. Munoz, M.J. and J.V. Tarazona 1993. Synergistic effect of 2 and four- component combinations of the polycyclic aromatic hydrocarbons: Phenanthrene, anthracene, naphthalene, and acenaphthene on Daphnia magna. Bull. Environ. Toxicol. 50: 363-368.
2. Smith, S.B., J.F. Savino and M.A. Blouin 1988. Acute toxicity to Daphnia pulex of six classes of chemical compounds potentially hazardous to Great Lakes aquatic biota. J. Great Lakes Res. 14(4): 394-404.

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 3, 1997 Values first developed
August 22, 2000 New search for data. No new studies added.

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