



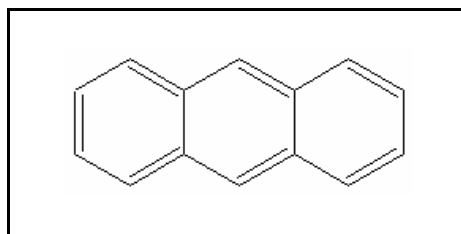
---

---

## TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

### ANTHRACENE

CAS RN: 120-12-7  
Water Solubility: 0.043 mg/L  
Log K<sub>ow</sub>: 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 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 6.1 µg/L more than once every three (3) years on the average.

#### Calculations

##### Acute Aquatic Life:

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

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

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

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

### 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 (<math>\mu\text{g/L}</math>)</u>	<u>Species</u>	<u>Species Mean Acute Value (<math>\mu\text{g/L}</math>)</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 <sub>ow</sub>	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](mailto:dkalland@dem.state.in.us)