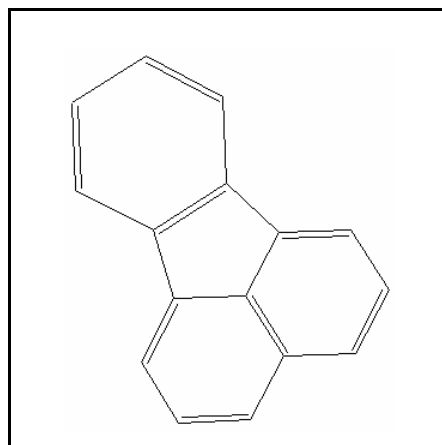




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

FLUORANTHENE

CAS RN: 95-94-3
Water Solubility: 0.0000265 g/100 mL
Log K_{ow}: 5.19



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 fluoranthene does not exceed 3.6 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 17 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 265.7 \text{ } \mu\text{g/L} \\ \text{SAF} &= 8.0\end{aligned}$$

$$\text{SAV} = 265.7/8.0 = 33.21 \text{ } \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 33.21/2 = 17 \text{ } \mu\text{g/L}$$

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 9.32 \quad (\text{Geometric mean of } 18, 18, 2.5)$$

$$SCV = 33.21/9.32 = 3.6 \text{ } \mu\text{g/L}$$

Data

Table 1. GMAVs and SMAVs for fluoranthene

<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>
4,000	Bluegill <u>Lepomis macrochirus</u>	4,000		1
320,000	Cladoceran <u>Daphnia magna</u>	320,000		2
265.7	Leopard Frog <u>Rana pipiens</u>	366		4
	Clawed Frog <u>Xenopus laevis</u>	193		4
	Mysid Shrimp <u>Mysidopsis bahia</u>		2.5	3

References

1. Buccafusco, R.J., S.J. Ells, G.A. LeBlanc 1981. Acute toxicity of priority pollutants to bluegill (Lepomis macrochirus). Bull. Environ. Contam. Toxicol. 26(4): 446-452.
2. LeBlanc, G.A. 1980. Acute toxicity of priority pollutants to water flea (Daphnia magna). Bull. Environ. Contam. Toxicol. 24: 684-691.
3. USEPA 1980. Ambient water quality criteria for fluoranthene. EPA 440/5-80-049.

4. Hatch, A.C. and A. Burton, Jr. 1998. Effects of photoinduced toxicity of fluoranthene on amphibian embryos and larvae. Environ. Toxicol. Chem. 9: 1777-1785.

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

August 21, 1997	Values first developed
April 11, 2001	New search for data. Frog data added. New values calculated.

Contact Information

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