



TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

STRONTIUM

CAS RN: 7440-24-6
Water Solubility:
Log K_{ow} :

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 strontium does not exceed 530 $\mu\text{g/L}$ more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 4,800 $\mu\text{g/L}$ more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 123,755 \mu\text{g/L} \\ \text{SAF} &= 13.0\end{aligned}$$

$$\text{SAV} = 123,755/13.0 = 9,520 \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 9,520/2 = \mathbf{4,800 \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 18$$

$$SCV = 9,520/18 = 530 \mu\text{g/L}$$

Data

Table 1. GMAVs and SMAVs for strontium

<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>
123,755	Cladoceran <u>Daphnia magna</u>	162,930		1
	Cladoceran <u>Daphnia magna</u>	94,000	1	
240,800	Tubificid Worm <u>Tubifex tubifex</u>	240,800		2

References

1. Khangarot, B.S. and P.K. Ray 1989. Investigation of Correlation Between Physicochemical Properties of Metals and Their Toxicity to the Water Flea *Daphnia magna* Straus. *Ecotoxicol. Environ. Saf.* 18(2):109-120.
2. Khangarot, B.S. 1991. Toxicity of Metals to a Freshwater Tubificid Worm, *Tubifex tubifex* (Muller) *Bull. Environ. Contam. Toxicol.* 46:906-912.

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

September 2, 1999 Values first developed

September 19, 2001 New search for data. No 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