



TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES
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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 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 4,800 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

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

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

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

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 18$$

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

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

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