Indiana Department of Environmental Management
Office of Water - Water Quality Standards Section

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

ANTIMONY

CAS RN: 7440-36-0

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 antimony does not exceed 80 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 720 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 18,800 µg/L
SAF = 13.0

SAV = 18,800/13.0 = 1446 µg/L

SMC = SAV/2 = 1446/2 = **720 µg/L**

Chronic Aquatic Life:

SCC = SAV/SACR

SACR = 18

SCC = 1446/18 = **80 μg/L**

Data

Table 1. GMAVs and SMAVs for antimony

Genus Mean Acute Value (μg/L)	Species	Species Mean Acute Value (μg/L)	Acute-Chronic Ratio	Reference Number
18,800	Cladoceran Daphnia magna	18,800		1
678,000	Tubificid Worm Tubifex tubifex	678,000		2

References

1. Kimball, G. 1985. The effects of lesser known metals and one organic on fathead minnows (Pimephales promelas) and Daphnia magna. Manuscript, Dept. of Entomology, Fisheries and Wildlife, University of Minnesota, Minnesota, MN: 88 p.

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

March 12, 1999 Values first developed
August 22, 2000 New search for data. No new studies added.

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