CRIT-00069
00070

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES FOR BARIUM

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 barium does not exceeed 0.14 mg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 1.3 mg/L more than once every three (3) years on the average.

Calculations:

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 33.65 mg/L
SAF = 13.0

SAV = 33.65/13.0 = 2.588 mg/L

SMC = SAV/2 = 2.588/2 = **1.3 mg/L**

Chronic Aquatic Life:

SCV = SAV/SACR

SACR = 18

SCV = 2.588/18 = **0.14 mg/L**

Notes:

This chemical was not reviewed in the Michigan study. However, this study was QC'd and found acceptable for use in the calculation of other criteria by the Michigan study.

Table 1. GMAVs and SMAVs for barium

Genus Mean Acute Value (mg/L)	Species	Species Mean Acute Value (mg/L)	Acute-Chronic Ratio	Reference Number
410	Cladoceran *Daphnia magna*	410		1
33.65	Tubificid Worm *Tubifex tubifex*	33.65		2

References:

1. LeBlanc, G.A. 1980. Acute toxicity of priority pollutants to water flea (*Daphnia magna*). Bull. Environ. Contam. Toxicol. 24(5): 684-691.

2. Khangarot, B.S. 1991. Toxicity of metals to a freshwater tubificid worm, *Tubifex tubifex* (Muller). Bull. Environ. Contam. Toxicol. 46: 906-912.

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