



TIER I HUMAN HEALTH NONCANCER CRITERIA

CHROMIUM III

CAS RN: 16065-83-1
Water Solubility:
Log K_{ow} :
Reference Dose: 14.68 mg/kg/day
Carcinogenicity Weight-of-
Evidence Classification: Class D; Not Classifiable

Standard

The human health noncancer chromium III criterion for drinking water sources is 410,000 $\mu\text{g/L}$.
The human health noncancer criterion for nondrinking water sources is 43,000,000 $\mu\text{g/L}$.

Calculations

Bioaccumulation Factor:

BAF for inorganics is equal to the BCF (from Stephan 1993)
 $\text{BCF} = 0.60$; $\text{FCM} = 1.0$

Human health $\text{BAF}_{T3} = 0.60$

Human health $\text{BAF}_{T4} = 0.60$

Acceptable Daily Exposure:

From the IRIS database:

Critical Effect: decreased growth rate, food consumption, and organ weights

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{1468 \text{ mg/kg-day}}{100} = 14.68 \text{ mg/kg/d}$$

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HNC} &= [(14.68)(70)(0.8)]/0.01 + [(0.0036)(0.60) + (0.0114)(0.60)] \\ &= 43,000,000 \text{ } \mu\text{g/L} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNC} &= [(14.68)(70)(0.8)]/2 + [(0.0036)(0.60) + (0.0114)(0.60)] \\ &= 410,000 \text{ } \mu\text{g/L} \end{aligned}$$

References

1. Stephen, C.E. 1993. Derivation of Proposed Human Health and Wildlife Bioaccumulation Factors for the Great Lakes Initiative. Environmental Research Laboratory, Office of Research and Development, U.S. EPA, Duluth, MN.
2. USEPA 1997. Integrated Risk Information System (IRIS database) chemical file for chromium III (16065-83-1).

Acronyms

ADE	Acceptable Daily Exposure
BAF	Bioaccumulation Factor
CAS RN	Chemical Abstract Service Registry Number
FCM	Food Chain Multiplier
IRIS	Integrated Risk Information System
K _{ow}	Octanol-Water Partition Coefficient
LOAEL	Lowest observed adverse effect level
NOAEL	No observed adverse effect level
P (superscript)	Predicted value
RPLC	Reverse-phase Liquid Chromatography
UF	Uncertainty factor

Revision History

March 24, 1997 - Criteria first developed

April 11, 2000 – Fact sheet updated. No modifications to criteria.

Contact Information

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