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<b>TIER I HUMAN HEALTH NONCANCER CRITERIA</b>
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## COPPER

CAS RN:	7440-50-8
Water Solubility:	100 mg/L
Log $K_{ow}$ :	
Reference Dose:	0.01 mg/kg/day
Carcinogenicity Weight-of-Evidence Classification:	Class D; Not Classifiable

### Standard

The human health noncancer copper criterion for drinking water sources is 56,000  $\mu\text{g/L}$ . The human health noncancer criterion for nondrinking water sources is 280  $\mu\text{g/L}$ .

### Calculations

#### Bioaccumulation Factor:

BAF for inorganics is equal to the BCF (from Stephan 1993)

$$\text{BCF} = 0.0; \text{FCM} = 1.0$$

$$\text{Human health BAF}_{T3} = 0.0$$

$$\text{Human health BAF}_{T4} = 0.0$$

#### Acceptable Daily Exposure:

From NAS/NRC (1989):

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{0.5 \text{ mg/kg-day}}{50} = 0.01 \text{ mg/kg/d}$$

Where: Uncertainty factor = 50

10x for interhuman variability  
5x for less-than-lifetime exposure regime

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HNC} &= [(0.01)(70)(0.8)]/0.01 + [(0.0036)(0) + (0.0114)(0)] \\ &= \mathbf{56,000 \mu\text{g/L}} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNC} &= [(0.01)(70)(0.8)]/2 + [(0.0036)(0) + (0.0114)(0)] \\ &= \mathbf{280 \mu\text{g/L}} \end{aligned}$$

## 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. National Academy of Science/National Research Council 1989. Recommended Dietary Allowances (RDA). National Academy of Science/National Research Council, National Academy Press. 10th Ed. Washington, D.C. p. 228.

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## Acronyms/Abbreviations

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ADE	Acceptable Daily Exposure
BAF	Bioaccumulation Factor
CAS RN	Chemical Abstract Service Registry Number
FCM	Food Chain Multiplier
IRIS	Integrated Risk Information System
K <sub>ow</sub>	Octanol-Water Partition Coefficient
LOAEL	Lowest observed adverse effect level
NOAEL	No observed adverse effect level
P (superscript)	Predicted value
UF	Uncertainty factor

## Revision History

February 26, 1997 - Criteria first developed.

April 12, 2000 – Criteria rechecked (no modifications). Fact sheet updated.

## 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](mailto:dkalland@dem.state.in.us)