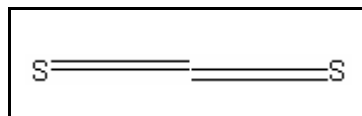




## TIER I HUMAN HEALTH NONCANCER CRITERIA

### CARBON DISULFIDE

CAS RN: 75-15-0  
Water Solubility: 1,185 mg/L  
Log  $K_{ow}$ : 1.94<sup>P</sup>  
Reference Dose: 0.11 mg/kg/day  
Carcinogenicity Weight-of-  
Evidence Classification:



#### Standard

The human health noncancer carbon disulfide criterion for drinking water sources is 3,000  $\mu\text{g/L}$ .  
The human health noncancer criterion for nondrinking water sources is 100,000  $\mu\text{g/L}$ .

#### Calculations

Bioaccumulation Factor:

BAF predicted based on Log  $K_{ow}$

Log  $K_{ow}$  = 1.94 (CLOGP program),  $K_{ow}$  = 87.10

Trophic level 3 FCM = 1.0; trophic level 4 FCM = 1.0

$$f_{fd} = 1/(1+(0.00000024 \text{ kg/L})(K_{ow})) = 1.0$$

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (87.10)(1.0) = 87.10$$

$$\text{Baseline BAF}_{T4} = (87.10)(1.0) = 87.10$$

$$\text{Human health BAF}_{T3} = [(87.10)(0.0182)+1](1.0) = 2.585$$

$$\text{Human health BAF}_{T4} = [(87.10)(0.0310)+1](1.0) = 3.700$$

Acceptable Daily Exposure:

From the IRIS database:

Critical Effect: fetal toxicity/malformations

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{11 \text{ mg/kg-day}}{100} = 0.11 \text{ mg/kg/d}$$

Calculation of Criteria:

$$\begin{aligned} \text{NonDrinking Water HNC} &= [(0.11)(70)(0.8)]/0.01+[(0.0036)(2.585)+(0.0114)(3.7)] \\ &= \mathbf{100,000 \mu\text{g/L}} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNC} &= [(0.11)(70)(0.8)]/2+[(0.0036)(2.585)+(0.0114)(3.7)] \\ &= \mathbf{3,000 \mu\text{g/L}} \end{aligned}$$

## References

1. USEPA Integrated Risk Information System (IRIS database) chemical file for carbon disulfide (CAS # 75-15-0).
2. Leo, A. and D. Weininger 1997. Daylight Software CLogP Version 3.15+ for Unix Pomona Medical Chemistry Project, Pomona College, Claremont, CA. Distributed by Daylight Chemical Information Systems, Inc., 3952 Claremont St., Irving, CA 92714 (Reference for the Log  $K_{ow}$ )

## 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 <sub>ow</sub>	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

December 1, 1998 - Criteria first developed

April 7, 2000 – Fact sheet updated. No modifications made to criteria.

## Contact Information

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