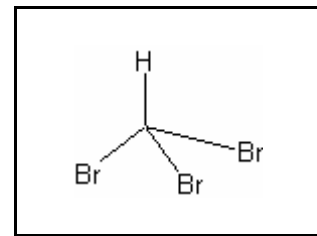




## TIER I HUMAN HEALTH CANCER CRITERIA

### BROMOFORM

CAS RN:	75-25-2
Water Solubility:	3,010 mg/L
Log $K_{ow}$ :	2.372 <sup>P</sup>
Risk Associated Dose:	0.018 mg/kg/day
Carcinogenicity Weight-of-Evidence Classification:	Class B2; Probable Human Carcinogen



### Standard

The human health cancer bromoform criterion for drinking water sources is 42  $\mu\text{g/L}$ . The human health cancer criterion for nondrinking water sources is 710  $\mu\text{g/L}$ .

### Calculations

#### Bioaccumulation Factor:

BAF predicted based on Log  $K_{ow}$

$$\text{Log } K_{ow} = 2.372 \text{ (CLOGP program), } K_{ow} = 235.50$$

$$\text{Trophic level 3 FCM} = 1.010; \text{ trophic level 4 FCM} = 1.002$$

$$f_{fd} = 1/(1+(0.00000024 \text{ kg/L})(K_{ow})) = 1.00$$

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (1.010)(235.50) = 237.86$$

$$\text{Baseline BAF}_{T4} = (1.002)(235.50) = 235.98$$

$$\text{Human health BAF}_{T3} = [(237.86)(0.0182)+1](1.00) = 5.329$$

$$\text{Human health BAF}_{T4} = [(235.98)(0.0310)+1](1.00) = 8.315$$

Acceptable Daily Exposure:

From the IRIS database:

$$\begin{aligned} \text{RAD} &= 0.00001/q1^* = 0.00001/ 0.0079 \\ &= 0.001266 \text{ mg/kg/day} \end{aligned}$$

Where:

$$\begin{aligned} \text{RAD} &= \text{Risk Associated Dose (mg/kg/day)} \\ q1^* &= \text{Cancer Slope Factor} \end{aligned}$$

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HCC} &= [(0.001266)(70)]/0.01+[(0.0036)(5.329)+(0.0114)(8.315)] \\ &= \mathbf{710 \mu\text{g/L}} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HCC} &= [(0.001266)(70)]/2+[(0.0036)(5.329)+(0.0114)(8.315)] \\ &= \mathbf{42 \mu\text{g/L}} \end{aligned}$$

## References

1. USEPA 1991. Integrated Risk Information System (IRIS database) chemical file for bromoform (CAS # 75-25-2).
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

April 7, 2000 - Criteria first developed

## Contact Information

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