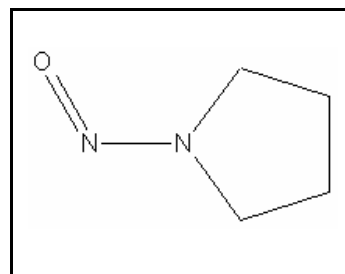




TIER I HUMAN HEALTH CANCER CRITERIA

N-NITROSOPYRROLIDINE

CAS RN:	930-55-2
Water Solubility:	
Log K_{ow} :	-0.104 ^P
Risk Associated Dose:	4.8×10^{-6} mg/kg/day
Carcinogenicity Weight-of-Evidence Classification:	Class B2; Probable human carcinogen



Standard

The human health cancer n-nitrosopyrrolidine criterion for drinking water sources is 0.16 $\mu\text{g/L}$.
The human health cancer criterion for nondrinking water sources is 13 $\mu\text{g/L}$.

Calculations

Bioaccumulation Factor:

BAF predicted based on Log K_{ow}

$$\text{Log } K_{ow} = -0.104 \text{ (CLOGP)}, K_{ow} = 0.7870$$

$$\text{Trophic level 3 FCM} = 1.0; \text{ trophic level 4 FCM} = 1.0$$

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

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (1.0)(0.7870) = 0.7870$$

$$\text{Baseline BAF}_{T4} = (1.0)(0.7870) = 0.7870$$

$$\text{Human health BAF}_{T3} = [(0.7870)(0.0182)+1](1.0) = 1.014$$

$$\text{Human health BAF}_{T4} = [(0.7870)(0.0310)+1](1.0) = 1.024$$

Risk Associated Dose:

From the IRIS database:

$$\begin{aligned} \text{RAD} &= 0.00001/\text{q1}^* = 0.00001/2.1 \\ &= 4.8 \times 10^{-6} \end{aligned}$$

Where:

RAD = Risk Associated Dose (mg/kg/day)
q1* = Cancer Slope Factor

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HCC} &= [(4.8 \times 10^{-6})(70)]/0.01+[(0.0036)(1.014)+(0.0114)(1.024)] \\ &= \mathbf{0.16 \mu\text{g/L}} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HCC} &= [(4.8 \times 10^{-6})(70)]/2+[(0.0036)(1.014)+(0.0114)(1.024)] \\ &= \mathbf{13 \mu\text{g/L}} \end{aligned}$$

References

1. USEPA 1994. Integrated Risk Information System (IRIS database) chemical file for n-nitrosopyrrolidine (CASRN 930-55-2).
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/Abbreviations

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
UF	Uncertainty factor

Revision History

July 22, 1999 - Criteria first developed.

Contact Information

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