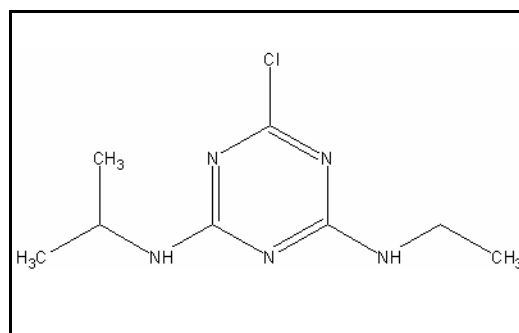




TIER I HUMAN HEALTH NONCANCER CRITERIA

ATRAZINE

CAS RN:	77-47-4
Water Solubility:	3.4 mg/L
Log K_{ow} :	4.645 ^P
Reference Dose:	0.007 mg/kg/day
Carcinogenicity Weight-of-Evidence Classification:	Class D; Not Classifiable



Standard

The human health noncancer atrazine criterion for drinking water sources is 920 $\mu\text{g/L}$. The human health noncancer criterion for nondrinking water sources is 15,000 $\mu\text{g/L}$.

Calculations

BAF predicted based on Log K_{ow}

$$\text{Log } K_{ow} = 2.396 \text{ (CLOGP program), } K_{ow} = 248.9$$

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

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

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (248.9)(1.010) = 253.9$$

$$\text{Baseline BAF}_{T4} = (248.9)(1.002) = 249.4$$

$$\text{Human health BAF}_{T3} = [(253.9)(0.0182)+1](1.0) = 5.621$$

$$\text{Human health BAF}_{T4} = [(249.4)(0.0310)+1](1.0) = 8.731$$

Acceptable Daily Exposure:

From the IRIS database:

Critical Effect: Decreased body weight gain

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{3.5 \text{ mg/kg-day}}{100} = 0.035 \text{ mg/kg/d}$$

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HNV} &= [(0.035)(70)(0.8)]/0.01 + [(0.0036)(5.621) + (0.0114)(8.731)] \\ &= 15,000 \text{ } \mu\text{g/L} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNV} &= [(0.035)(70)(0.8)]/2 + [(0.0036)(5.621) + (0.0114)(8.731)] \\ &= 920 \text{ } \mu\text{g/L} \end{aligned}$$

References

1. USEPA 1993. Integrated Risk Information System (IRIS database) chemical file for atrazine (CAS # 1912-24-9).
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 _{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

August 13, 1997 - Criteria first developed

March 24, 2000 – Criteria rechecked (no modifications). Fact sheet updated.

Contact Information

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