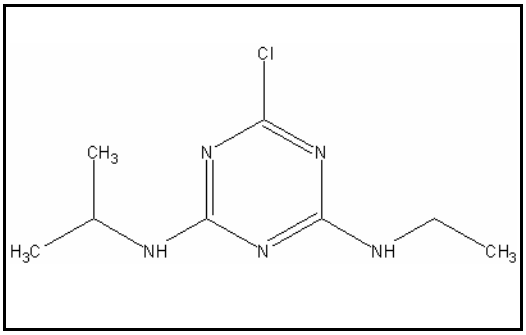
Indiana Department of Environmental Management
Office of Water - Water Quality Standards Section

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 µg/L. The human health noncancer criterion for nondrinking water sources is 15,000 µg/L.

Calculations

BAF predicted based on Log K_{ow}

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

Trophic level 3 FCM = 1.010; trophic level 4 FCM = 1.002

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

Baseline $BAF_{T3} = (FCM)(K_{ow}) = (248.9)(1.010) = 253.9$

Baseline $BAF_{T4} = (248.9)(1.002) = 249.4$

Human health $BAF_{T3} = [(253.9)(0.0182)+1](1.0) = 5.621$

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

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

Calculation of Criteria:

Non Drinking Water HNV = [(0.035)(70)(0.8)]/0.01+[(0.0036)(5.621)+(0.0114)(8.731)]

= **15,000 μg/L**

Drinking Water HNV = [(0.035)(70)(0.8)]/2+[(0.0036)(5.621)+(0.0114)(8.731)]

= **920 μg/L**

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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