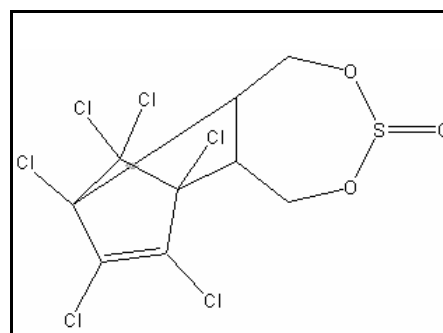




TIER II HUMAN HEALTH NONCANCER VALUES

ENDOSULFAN

CAS RN: 115-29-7
Water Solubility: < 0.1 g/100 mL
Log K_{ow} : 3.65^P
Reference Dose: 6×10^{-3} mg/kg/day
Carcinogenicity Weight-of-
Evidence Classification: None



Standard

The human health noncancer, endosulfan value for drinking water sources is 85 $\mu\text{g/L}$. The human health noncancer value for nondrinking water sources is 170 $\mu\text{g/L}$.

Calculations

Bioaccumulation Factor:

BAF predicted based on Log K_{ow}
Log K_{ow} = 3.65 (CLOGP), K_{ow} = 4467
Trophic level 3 FCM = 1.103; trophic level 4 FCM = 1.023

$$f_{fd} = 1/(1+(0.00000024 \text{ kg/L})(K_{ow})) = 0.999$$

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (0.999)(4467) = 4927$$

$$\text{Baseline BAF}_{T4} = (0.999)(4467) = 4570$$

$$\text{Human health BAF}_{T3} = [(4927)(0.0182)+1](0.999) = 90.57$$

$$\text{Human health BAF}_{T4} = [(4570)(0.0310)+1](0.999) = 142.5$$

Acceptable Daily Exposure:

From the IRIS database:

Critical Effect: Reduced body weight gain, etc.

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{0.6 \text{ mg/kg-day}}{100} = 0.006 \text{ mg/kg/d}$$

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HNV} &= [(0.006)(70)(0.8)]/0.01 + [(0.0036)(16.56) + (0.0114)(26.96)] \\ &= 170 \text{ } \mu\text{g/L} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNV} &= [(0.006)(70)(0.8)]/2 + [(0.0036)(16.56) + (2.698)(26.96)] \\ &= 85 \text{ } \mu\text{g/L} \end{aligned}$$

References

1. USEPA 1988. Integrated Risk Information System (IRIS database) chemical file endosulfan (115-29-7).
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

September 9, 1999 - Values first developed

November 22, 1999 - Fact sheet updated no modifications to values.

Contact Information

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