

Chemical Name: alpha-Hexachlorocyclohexane Developed by: Bob Heitzman, John EstenikCAS # 319-84-6 IRIS Data Retrieval Date: 2-12-98Internal Code # 18 Fact Sheet Preparation Date: 2-12-98

CRITERIA SUMMARY

Lake Erie Basin			
Tier I HNC ($\mu\text{g/l}$)		Tier I HCC ($\mu\text{g/l}$)	
Drinking	Nondrinking	Drinking	Nondrinking
ID	ID	0.0048	0.0053

EXPOSURE AND TOXICITY DATA

Human health trophic level 3 bioaccumulation factor ($\text{BAFHH}_{\text{TL3}}$) = 1,035 l/kg (USEPA 1995)Human health trophic level 4 bioaccumulation factor ($\text{BAFHH}_{\text{TL4}}$) = 1,517 l/kg (USEPA 1995)

Acceptable daily exposure (ADE) = Not available (IRIS)

Carcinogen assessment: Class B2; probable human carcinogen (IRIS, last revised 07/01/93)

Cancer slope factor (q_1^*) = 6.3 per mg/kg/day (IRIS, last revised 07/01/93)

Body weight of average human (BW) = 70 kg (OAC 3745-1-38)

Relative source contribution factor (RSC) = 0.8 (OAC 3745-1-38)

Per capita water consumption (WC) = 2.0 l/day for drinking water criteria (OAC 3745-1-38)

= 0.01 l/day for nondrinking water criteria (OAC 3745-1-38)

Mean consumption of trophic level three fish (FC_{TL3}) = 0.0036 kg/day (OAC 3745-1-38)Mean consumption of trophic level four fish (FC_{TL4}) = 0.0114 kg/day (OAC 3745-1-38)

Risk associated dose (RAD) = Risk level \div q_1^*
 = $1\text{E-}5 \div 6.3$ per mg/kg/day
 = $1.587\text{E-}6$ mg/kg/day

REFERENCES

Integrated Risk Information System. USEPA Office of Research and Development, National Center for Environmental Assessment.

Ohio Administrative Code rule 3745-1-38: Methodologies for Development of Human Health Criteria and Values for the Lake Erie Drainage Basin. Effective 10/31/97.

USEPA. 1995. Great Lakes Water Quality Initiative Technical Support Document for the Procedure to Determine Bioaccumulation Factors. EPA-820-B-95-005. March 1995. p. H-3.

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CALCULATION OF HUMAN NONCARCINOGENIC CRITERION (HNC) ^a

$$\text{HNC} = \frac{\text{ADE} \times \text{BW} \times \text{RSC}}{\text{WC} + [(\text{FC}_{\text{TL3}} \times \text{BAFH}_{\text{TL3}}) + (\text{FC}_{\text{TL4}} \times \text{BAFH}_{\text{TL4}})]}$$

Insufficient data (no ADE).

CALCULATION OF HUMAN CARCINOGENIC CRITERION (HCC) ^a

$$\text{HCC} = \frac{\text{RAD} \times \text{BW}}{\text{WC} + [(\text{FC}_{\text{TL3}} \times \text{BAFH}_{\text{TL3}}) + (\text{FC}_{\text{TL4}} \times \text{BAFH}_{\text{TL4}})]}$$

$$\begin{aligned} \text{Drinking Water HCC} &= \frac{1.587\text{E-}6 \text{ mg/kg/day} \times 70 \text{ kg}}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 1,035 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1,517 \text{ l/kg})]} \\ &= 4.8\text{E-}6 \text{ mg/l} = 0.0048 \text{ }\mu\text{g/l} \end{aligned}$$

$$\begin{aligned} \text{Nondrinking Water HCC} &= \frac{1.587\text{E-}6 \text{ mg/kg/day} \times 70 \text{ kg}}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 1,035 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1,517 \text{ l/kg})]} \\ &= 5.3\text{E-}6 \text{ mg/l} = 0.0053 \text{ }\mu\text{g/l} \end{aligned}$$

^aSee Ohio Administrative Code 3745-1-38 effective October 31, 1997.