

Chemical Name: beta-Hexachlorocyclohexane Developed by: Bob Heitzman, John EstenikCAS # 319-85-7 IRIS Data Retrieval Date: 2-12-98Internal Code # 19 Fact Sheet Preparation Date: 2-12-98

## CRITERIA SUMMARY

Lake Erie Basin			
Tier I HNC ( $\mu\text{g/l}$ )		Tier II HCV ( $\mu\text{g/l}$ )	
Drinking	Nondrinking	Drinking	Nondrinking
ID	ID	0.013	0.014

## EXPOSURE AND TOXICITY DATA

Human health trophic level 3 bioaccumulation factor ( $\text{BAFHH}_{\text{TL3}}$ ) = 1,411 l/kg (USEPA 1995)Human health trophic level 4 bioaccumulation factor ( $\text{BAFHH}_{\text{TL4}}$ ) = 1,999 l/kg (USEPA 1995)

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

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

Cancer slope factor ( $q_1^*$ ) = 1.8 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 ( $\text{FC}_{\text{TL3}}$ ) = 0.0036 kg/day (OAC 3745-1-38)Mean consumption of trophic level four fish ( $\text{FC}_{\text{TL4}}$ ) = 0.0114 kg/day (OAC 3745-1-38)Risk associated dose (RAD) = Risk level  $\div$   $q_1^*$ =  $1\text{E-}5 \div 1.8$  per mg/kg/day=  $5.556\text{E-}6$  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.

## CALCULATION OF HUMAN NONCARCINOGENIC CRITERION (HNC) <sup>a</sup>

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

Insufficient data (no ADE).

## CALCULATION OF HUMAN CARCINOGENIC VALUE (HCV) <sup>a</sup>

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

$$\begin{aligned} \text{Drinking Water HCV} &= \frac{5.556\text{E-}6 \text{ mg/kg/day} \times 70 \text{ kg}}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 1,411 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1,999 \text{ l/kg})]} \\ &= 1.3\text{E-}5 \text{ mg/l} = 0.013 \text{ }\mu\text{g/l} \end{aligned}$$

$$\begin{aligned} \text{Nondrinking Water HCV} &= \frac{5.556\text{E-}6 \text{ mg/kg/day} \times 70 \text{ kg}}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 1,411 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1,999 \text{ l/kg})]} \\ &= 1.4\text{E-}5 \text{ mg/l} = 0.014 \text{ }\mu\text{g/l} \end{aligned}$$

<sup>a</sup>See Ohio Administrative Code 3745-1-38 effective October 31, 1997.