Chemical Name: Hexachlorobutadiene Developed by: Bob Heitzman, John Estenik
CAS # 87-68-3 IRIS Data Retrieval Date: 2-12-98
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CRITERIA SUMMARY

Lake Erie Basin			
Tier I HNC (μg/l)		Tier II HCV (μg/l)	
Drinking	Nondrinking	Drinking	Nondrinking
ID	ID	0.22	0.24

EXPOSURE AND TOXICITY DATA

Human health trophic level 3 bioaccumulation factor ($BAFHH_{TL3}$) = 6,352 l/kg (USEPA 1995)
Human health trophic level 4 bioaccumulation factor ($BAFHH_{TL4}$) = 1,341 l/kg (USEPA 1995)
Acceptable daily exposure (ADE) = Not available (IRIS, withdrawn 05/01/93)
Carcinogen assessment: Class C; possible human carcinogen (IRIS, last revised 04/01/91)
Cancer slope factor (q_1*) = 7.8E-2 per mg/kg/day (IRIS, last revised 04/01/91)
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 ÷ q_1*
= 1E-5 ÷ 7.8E-2 per mg/kg/day
= 1.282E-4 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) [a]

$$HNC = \frac{ADE \times BW \times RSC}{WC + [(FC_{TL3} \times BAFHH_{TL3}) + (FC_{TL4} \times BAFHH_{TL4})]}$$

Insufficient data (no ADE).

CALCULATION OF HUMAN CARCINOGENIC VALUE (HCV) [a]

$$HCV = \frac{RAD \times BW}{WC + [(FC_{TL3} \times BAFHH_{TL3}) + (FC_{TL4} \times BAFHH_{TL4})]}$$

$$\text{Drinking Water HCV} = \frac{1.282E\text{-}4 \text{ mg/kg/day} \times 70 \text{ kg}}{2.0 \text{ l/day} + [(0.0036 \text{ kg/day} \times 6{,}352 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1{,}341 \text{ l/kg})]}$$

$$= 2.2E\text{-}4 \text{ mg/l} = 0.22 \text{ } \mu\text{g/l}$$

$$\text{Nondrinking Water HCV} = \frac{1.282E\text{-}4 \text{ mg/kg/day} \times 70 \text{ kg}}{0.01 \text{ l/day} + [(0.0036 \text{ kg/day} \times 6{,}352 \text{ l/kg}) + (0.0114 \text{ kg/day} \times 1{,}341 \text{ l/kg})]}$$

$$= 2.4E\text{-}4 \text{ mg/l} = 0.24 \text{ } \mu\text{g/l}$$

[a] See Ohio Administrative Code 3745-1-38 effective October 31, 1997.