

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for 1,3-Dichloropropene (CAS No. 542-756-6)
FROM: Mike Depa, AQD Toxics Unit
SUBJECT: Screening Level
DATE: October 5, 2015

1,3-Dichloropropene is not a Hazardous Air Pollutant (HAP). The cancer risk-based screening levels and Reference Concentration (RfC) for 1,3-dichloropropene were established on June 7, 2000 based on U.S. EPA (2000). Based on the unit risk estimate (URE) of $4E-6$ ($\mu\text{g}/\text{m}^3$)⁻¹, the IRSL and SRSL are derived as follows:

$$\text{IRSL} = \frac{1E-6}{4 \times 10^{-6} \text{ per } \mu\text{g}/\text{m}^3} = 0.2 \mu\text{g}/\text{m}^3 \text{ (annual AT)}$$

$$\text{SRSL} = \frac{1E-5}{4 \times 10^{-6} \text{ per } \mu\text{g}/\text{m}^3} = 2 \mu\text{g}/\text{m}^3 \text{ (annual AT)}$$

Where IRSL is the Initial Threshold Screening Level, SRSL is the Secondary Risk Screening Level, and AT is averaging time.

The RfC for 1,3-dichloropropene is $20 \mu\text{g}/\text{m}^3$ with annual AT:

RfC (mg/m ³)	System	Basis	PoD*	Composite UF**	Confidence
2×10^{-2}	Respiratory Bronchio-alveolar adenoma***	Hypertrophy/ hyperplasia of the nasal respiratory epithelium	BMCL10 (HEC****): $7.2 \times 10^{-1} \text{ mg}/\text{m}^3$	30	High

*PoD= point of departure; **UF=uncertainty factor; *** Lomax et al., 1989; ****HEC=human equivalent concentration [Table adapted from U.S. EPA, 2000]

References

Lomax, LG; Stott, WT; Johnson, KA; et al. (1989) The chronic toxicity and oncogenicity of inhaled technical grade 1,3-dichloropropene in rats and mice. *Fundam Appl Toxicol* 12:418-431.

U.S. EPA. (2000) Integrated Risk Information System (IRIS) U.S. Environmental Protection Agency, Chemical Assessment Summary, National Center for Environmental Assessment, 1,3-Dichloropropene (DCP); CASRN 542-75-6. http://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0224_summary.pdf

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

June 7, 2000

TO: 1,3-Dichloropropene file (CAS# 542-75-6)
FROM: Gary Butterfield, Toxics Unit, Air Quality Division
SUBJECT: Screening levels for 1,3-Dichloropropene

On May 25, 2000, the Integrated Risk Information System (IRIS) values for 1,3-dichloropropene were updated by the U.S. Environmental Protection Agency (EPA). The Inhalation Reference Concentration (RfC) value was recalculated to the same 20 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) value from 1991. However, the 2000 RfC recalculation used benchmark dose methods.

This new IRIS document also calculated a cancer inhalation slope factor (of $4\text{E}-6$ ($\mu\text{g}/\text{m}^3$)⁻¹) for 1,3-dichloropropene. Quantitative evaluation of 1,3-dichloropropene cancer potency was something that was missing from the early 1990's IRIS document. The slope factor calculated by the EPA in this document is fairly close to the factor that was calculated by Air Quality Division/Scientific Advisory Panel in 1995. The new slope factor results in an Initial Risk Screening Level and Secondary Risk Screening Level of $0.2 \mu\text{g}/\text{m}^3$ and $2 \mu\text{g}/\text{m}^3$, respectively, with annual averaging.

See the May 2000 IRIS document for further details on the RfC and slope factor.

GB:SLB
cc: Cathy Simon, AQD
Mary Lee Hultin, AQD