

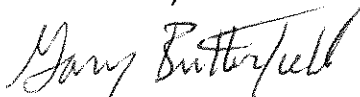
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

April 15, 2004

TO: 1-Heptene file (CAS # 592-76-7)

FROM: Gary Butterfield



SUBJECT: Screening level for 1-heptene

1-Heptene is a colorless liquid with a vapor pressure of 59 mmHg at 25C. The melting point is -119C. The boiling point is 93C. The molecular weight is 98.19 g/mol.

The following references or databases were searched to identify data to determine the screening level: U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS), National Institute for Occupational Safety and Health (NIOSH) Registry for Toxic Effects of Chemical Substances (RTECS), American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), Michigan Department of Environmental Quality (DEQ) library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1968 - Feb 2004), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

The CAS and NLM on-line literature searches were conducted on January 26, 2004. There were no toxicity studies available that would be suitable for calculating an ITSL for 1-heptene.

However, the metabolism study reported by Eide et al (1995), exposed male Sprague-Dawley rats weighing 180 to 225 g. to atmosphere of 296 ppm or 1190 mg/m<sup>3</sup> 1-heptene for 12 hours a day for three consecutive days. The authors in this study only looked for metabolite concentrations and adduct concentrations in the exposed rats. There were no deaths reported during the exposures. Therefore, the LC50 would be greater than 1190 mg/m<sup>3</sup>.

Although the Eide et al study is not an LC50 study, it is thought that the concentration used in this study and the R232(1)(f) 4-hour LC50 equation would provide a more acceptable screening level, rather than setting the ITSL at the default level of 0.1 ug/m<sup>3</sup> due to a lack of available toxicity data.

The ITSL can be calculated as follows.

$$\text{ITSL} = \frac{1190 \text{ mg/m}^3}{500 \times 100} = 24 \text{ ug/m}^3 \text{ with annual averaging}$$

References:

Eide et al. 1995. Uptake, distribution and formation of hemoglobin and DNA adducts after inhalation of C2 - C8 1-alkenes (olefins) in the rat. Carcinogenesis 16:1603-9.

GB:LH