MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: t-Butyl benzene file (CAS # 98-06-6)

FROM: Gary Butterfield

SUBJECT: Screening level for t-Butyl benzene

DATE: January 6, 2009

t-Butyl benzene is a liquid with a melting point of -58C, and a boiling point of 169C. The vapor pressure is 2.2 mmHg at 25C. The molecular weight is 134.2 g/mol. The molecular formula is $C_{10}H_{14}$.

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 - Nov 2008), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

The CAS and NLM on-line literature searches were conducted on November 6, 2008. There was one unpublished acute oral LD50 study located at the EPA's TSCA library.

The available copy of report by Hazleton (1982) did not include a complete set of all pages. However, enough details on the available pages were included to indicate that this was an adequately conducted study. Groups of 5 male and 5 female rats (strain not identified) were administered doses from 1000 to 5000 mg/kg at 1000 increments. The LD50 value for the male rats was reported to be 3045 mg/kg with 95% confidence interval of 2542 to 3647, and female rats 4079 mg/kg with 95% CI 3536 to 4705.

The only available data for setting the ITSL is the unpublished rat oral LD50 reported by Hazleton (1982). The male rat LD50 of 3045 mg/kg, which is from the more sensitive gender, value will be used to derive the ITSL. The screening level can be calculated from this LD50 value using R232(1)(h) as follows.

$$\text{ITSL} = \frac{3045\ \text{mg/kg}}{500 \times 40 \times 100 \times .167} \times \frac{1\ \text{kg}}{0.9\ \text{m}^3} = 10\ \text{ug/m}^3\ \text{annual average}$$

References:

Hazleton Labs. 1982. Acute oral toxicity study in rats, t- butyl benzene – final report. EPA OTS #0571879.

GB:lh