MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

February 13, 2001

TO: 2-Methyl-1-butanol File (CAS #137-32-6)

FROM: Gary Butterfield, Toxics Unit, Air Quality Division

SUBJECT: Screening Level for 2-Methyl-1-butanol

The initial threshold screening level (ITSL) for 2-methyl-1-butanol is being set at 13 µg/m^3 with annual averaging.

2-Methyl-1-butanol is a volatile liquid with a vapor pressure of 3.8 mmHg, a molecular weight of 88.15, and a boiling point of 129 degrees C.

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 (1967- September 2000), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

A September 27, 2000 NLM and CAS on-line search and review of standard secondary toxicity references (RTECS, NTP, IARC, IRIS, etc.) did not find any long-term toxicity data that could be used to calculate a screening level. Very little toxicity information was located on this chemical. There were no reproductive/developmental studies located in the literature searches. It appears that the toxicity testing database for this chemical is far from complete.

There is no available information indicating that there are route specific potential differences in the toxicity observed. Therefore, it is considered to be appropriate to use oral studies to set the inhalation screening level.

The best information upon which the screening level can be based is a rat oral LD50 reported by Smyth et al (1962). The LD50 is reported to be 4.92 ml/kg, which converts to 4.03 g/kg based on a specific gravity of 0.82 g/ml. The screening level can be determined from the LD50 by R232(h) as follows.

$$\text{ITSL} = \frac{(4.03\times10^6\ \mu g/kg)\ \times\ (1\ kg)}{500\times40\times100\times0.167\quad(0.9\ m^3)} = 13\ \mu g/m^3 \text{ annual average}$$

Where 0.9 m^3/kg is the default inhalation rate for rats.

References:

Smyth et al. 1962. Range finding toxicity data: list VI. Am Ind Hyg Assoc J 23:95-107.

GB:DB
cc: Cathy Simon, AQD
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