MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: 2-Methoxy-1-propene file (CAS # 116-11-0)

FROM: Gary Butterfield

SUBJECT: Screening level for 2-Methoxypropene

DATE: March 13, 2008

2-Methoxypropene is a liquid. The molecular formula is C_4H_8O. The molecular weight is 72.1 g/mol. The boiling point is 35C. The vapor pressure is 517 mmHg at 25C.

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 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 Feb. 13, 2007. There was only one toxicity study found during the literature searches, the acute range-finding study by Smyth et al (1969).

Smyth et al (1969) reported the rat oral LD50 to be 1.87 ml/kg. The density of the liquid 2-methoxypropene was not able to be located. It was assumed to be 1 g/ml in the conversion of the LD50 to 1.87 g/kg. However, many hydrocarbon chemicals have a density that is less than 1 g/ml, which would make the LD50 greater than 1.87 g/kg. For the purpose of calculating a screening level the lower LD50 of 1.87 g/kg will be used. The screening level can be calculated using the equation from R232(1)(h) as follows.

$$ITSL = \frac{1.87 \text{ g/kg}}{500 \times 40 \times 100 \times .167} \times \frac{1 \text{ kg}}{.9 \text{ m}^3} = 6 \text{ ug/m}^3 \text{ annual average}$$

References:

Smyth et al. 1969. Range - finding toxicity data: list vii. Am. Ind. Hyg. Assoc. J 30(5):470-6.

GB:lh