MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

January 15, 2002

TO: Diisopropylaminoethanol File (CAS +ACM- 96-80-0)

FROM: Gary Butterfield, Toxics Unit, Air Quality Division

SUBJECT: Screening Level for Diisopropylaminoethanol

Diisopropylaminoethanol is also known as N,N-diisopropylethanolamine. Diisopropylaminoethanol has a molecular weight of 145.24. Diisopropylaminoethanol is a liquid at ambient temperatures. The melting point is -39 degrees Celsius, and the boiling point is 191 degrees. The vapor pressure is fairly low and reported to be 0.08 mmHg at 20C.

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- Dec 2001), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

The CAS and NLM on-line literature searches were conducted on December 13, 2001 in order to locate relevant toxicity information. Only a limited number of toxicity studies were located during the search.

The only toxicity information on this chemical that was located during the searches was acute studies. The LD-50 study by Smyth et al (1954) was the only published study that was available. The on-line literature searching found an unpublished reference (Kimmel et. al. 1990) that also had LD-50 and LC-50 values. However, the Kimmel study does not provide any details of the how those acute studies were conducted, but only lists in a table the acute values with a reference to another unavailable, unpublished article by Kinkead et. al. (1987).

Thus, the only toxicity data that can be used to calculate a screening level is the LD-50 reported by Smyth et. al. The LD-50 from Smyth et al was determined for Carworth-Wistar rats, 5 males per dose level, weighing 90 to 120 g. The LD-50 was determined by the method described by Thompson using the tables of Weil. The rats were gavaged with commercially available chemicals. The LD-50 was reported to be 1.07 g/kg with the +/- 1.96 standard deviation confidence interval being 0.77 to 1.50.

The ITSL can be calculated from the LD50 using the equation in R232(1)(h) as follows:

$$\text{ITSL} = \frac{070\ (\text{mg/kg})}{500 \times 40 \times 100 \times 0.167} \times \frac{1\ \text{kg}}{0.9\ \text{m}^3} = 4\ \mu\text{g/m}^3 \text{ annual avg.}$$

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

References

Kimmel et al. 1990. Acute Inhalation Toxicity of O, O'- Diethylmethylphosphonite Spontaneous Hydrolysis Products; O-Ethylmethylphosphinate and Ethanol. NTIS # AD-A221 859/2

Smyth et al. 1954. Range finding toxicity data: List V. Archives Indust Hyg Occup Med 10:61-68.

GB:DB
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