

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

January 15, 2002

TO: Butyldiethanolamine File (CAS + ACM-102-79-4)
FROM: Gary Butterfield, Toxics Unit, Air Quality Division
SUBJECT: Screening Level for Butyldiethanolamine

Butyldiethanolamine is also known as n-butyldiethanolamine or N-butyl-2,2'-iminodiethanol. It is a liquid at normal temperatures, with a molecular weight of 161.24. The melting point is -70 degrees Celsius. The boiling point is 273 degrees Celsius.

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-literature searches were conducted to find published toxicity information on December 13, 2001. Very little toxicity information was located during literature searches.

The only toxicity data available is an LD-50 value for this material listed in Smyth et al (1954). The LD-50 was determined for Carworth-Wistar rats, 5 females 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 4.25 g/kg with the +/- 1.96 standard deviation confidence interval being 3.60 to 5.00.

The ITSL can be calculated from this LD-50 using the equation in R232(1)(h) as follows:

$$\text{ITSL} = \frac{4250 \text{ (mg/kg)}}{500 \times 40 \times 100 \times 0.167} \times \frac{1 \text{ kg}}{0.9 \text{ m}^3} = 14 \text{ } \mu\text{g/m}^3 \text{ annual avg.}$$

Where 0.9 m³/kg is the default inhalation rate for rats.

References:

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

GB:DB

cc: Cathy Simon, AQD
Mary Lee Hultin, AQD
Sheila Blais, AQD