

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

January 18, 2002

TO: 2-Butylaminoethanol File (CAS #111-75-1)
FROM: Gary Butterfield, Toxics Unit, Air Quality Division
SUBJECT: Screening Level for 2-Butylaminoethanol

2-Butylaminoethanol is also known as N-butylethanolamine among other names. 2-Butylaminoethanol has a molecular weight of 117.19. This material is a liquid with a boiling point of 192 degrees Celsius, and melting point of -2 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-line literature searches were conducted on December 13, 2001, in order to locate relevant toxicity information.

The literature searches only found 2 acute toxicity studies that could provide the basis of the screening level. One of these studies is Hartung and Cornish (1968), which reported the rat LD-50 of neutralized butylaminoethanol to be 7.27 g/kg. In the other study, Smyth et al (1954) reported the rat LD-50 to be 1.15 g/kg. There is quite a large difference between these 2 LD-50's. This difference is probably due to the use of neutralized butylaminoethanol in the Hartung and Cornish study. It is considered most appropriate to use the Smyth et al study data for calculation of the screening level. They used industrial chemicals that were not neutralized to a pH near 7. This is probably closer to the state of the chemicals used by industrial sources. Thus the ITSL will be calculated using the LD-50 of 1.15 g/kg and the equation from R232(1)(h) as follows:

$$\text{ITSL} = \frac{1150 \text{ mg/kg}}{500 \times 40 \times 100 \times 0.167} \times \frac{1 \text{ kg}}{0.9 \text{ m}^3} = 4 \text{ } \mu\text{g/m}^3 \text{ annual avg}$$

Where the default rat inhalation rate of 0.9 m³/kg was used.

References:

Hartung and Cornish. 1968. Cholinesterase inhibition in the acute toxicity of alkyl-substituted 2-aminoethanols. Toxicol Appl Pharmacol 12:486-494.

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

GB:DB

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