MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

November 26, 2001

TO: Phenyldiethanolamine file (CAS # 120-07-0)

FROM: Gary Butterfield, Toxics Unit

SUBJECT: Screening Level for Phenyldiethanolamine

The initial threshold screening level (ITSL) for phenyldiethanolamine is being set at 3 $\mu g/m^3$ with annual averaging.

Phenyldiethanolamine is a solid material at normal ambient temperatures. The melting point is 56 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- October 2001), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

On-line literature searches were conducted on October 29, 2001 of the CAS and NLM databases. The only toxicity data for phenyldiethanolamine that was located which could be used to calculate a screening level for phenyldiethanolamine is the rat oral LD-50 reported by Smyth et al 1941. Young male Wistar rats were administered a single dose of commercial grade phenyldiethanolamine. The rats were observed for an observation period of 14 days. The LD-50 and 95% confidence interval were calculated by the probit method described by Bliss (1935). The LD-50 was reported to be 980 mg/kg with the 95% CI of 910 to 1050.

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

$$\text{ITSL} = \frac{(980\ \text{mg/kg}) \times}{500 \times 40 \times 100 \times 0.167} \quad \frac{1\ \text{kg}}{0.9\ \text{m}^3} = 3\ \mu g/m^3 \text{ annual avg.}$$

Where the default rat inhalation rate of 0.9 m^3/kg (EPA 1988) was used in calculation of this screening level.

References:

EPA. 1988. Recommendations for and documentation of biological values for use in risk assessment. EPA-600/6-87-008.

Smyth et al. 1941. The single dose toxicity of some glycols and derivatives. J Indust Hyg Toxicol 23:259-268.

GB:DB
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