MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

June 24, 1998

TO: File for Diamylamine (CAS No. 2050-92-2)

FROM: Marco Bianchi, Toxics Unit, Air Quality Division

SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for diamylamine is 9 µg/m³ based on an annual averaging time. The critical effect of diamylamine exposure appears to be strong dermal and mucous membrane irritation.

The following references or databases were searched to identify data to determine the ITSL: IRES, HEAST, NTP Management Status Report. RTECS, EPB-CCD, EPB library, CAS-online, NLM-onlinc, IARC, NIOSH Pocket Guide, and ACGIH Guide.

A complete reference check was conducted for diamylamine, but only two studies were available for review. The first study was an acute oral range-finding toxicity study by Smyth et al. (1962). Groups of five male or female rats were given a single dose of diamylamine (mixed isomers) in alogarithmic series by gastric intubation. The animals were observed for 14 days, and the LD50 value was estimated by the method of Thompson. The LD50 for diamylamine was determined to be 0.27 ml/kg (210.6 mg/kg). The second study was an independent investigation entitled, Final Report on a Study to Establish an LC Concentration of diamylamine in adult Sprague Dawley Rats of both sexes conducted by Temple University (Philadelphia, PA). This study was submitted by Elf Atochem North America, Inc. as a Toxic Substance Control Act (TSCA) Section 8(e) Submittal. In this study, groups of five male and five female rats were exposed to vapors of diamylamine at concentrations of 43, 52, 60, 67, 75 or 82 ppm for four hours, and then observed over a subsequent 14-day period. Tremors, convulsions and ataxia were observed in test animals at 52 ppm or above. The LC50 value and 95% confidence limits computed for 14-day survivors of 4-hour exposure of diamylamine gas were estimated by the method of Litchfield and Wilcoxin. The LC50 was calculated to be 66 ppm.

The ITSL was derived as follows:
LC50= 66 ppm

Conversion of ppm to mg/m³
mg/m³ = ppm x Molecular Weight/24.45mg/m³
mg/m³ = (66ppm x 157.34)/24.45LC50 = 425 mg/m³

ITSL = 425 mg/m³/(500 x 100) = 0.0085 mg/m³
ITSL = 0.0085 mg/m³ x 1000µg/mg = 8.5 µg/m³

The ITSL for diamylamine = 9 µg/m³ based on annual averaging.

References:

Smyth, Hf. el. al., 1962. Range-Finding Toxicity Data: List VI. American Industrial Hygiene Association Journal. 23:95-107.

TSCA 8(e) submittal. 1992. 88-920010795. [Tansy, M. 1982. Final Report on a Study toEstablish an LC50 Concentration of Diamylamine in Adult Sprague Dawley Rats of Both Sexes. TempleI Univcrsity, School of Dentistry. Philadelphia, PA].MB:SLB