MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

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INTEROFFICE COMMUNICATION

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November 24, 1999

To: File for Dimethyloxazolidine (CAS# 51200-87-4)

From: Michael Depa, Toxics Unit

Subject: Screening Level Determination

The initial threshold screening level (ITSL) for dimethyloxazolidine is 1 µg/m³ (based on an annual averaging time).

The following references or databases were searched to identify data to determine the screening level: Environmental Protection Agency's (EPA's) Integrated Risk Information System (IRIS), the Registry of Toxic Effects of Chemical Substances (RTECS), the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), National Institute of Occupational Safety and Health (NIOSH) Pocket Guide to Hazardous Chemicals, Environmental Protection Bureau Library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1967- July 17, 1999), National Library of Medicine (NLM), Health Effects Assessment Summary Tables (HEAST), and National Toxicology Program (NTP) Status Report. The EPA has not established an reference concentration (RfC) or reference dose (RfD). There are no occupational exposure limits for dimethyloxazolidine. The molecular weight is 101.47 g.

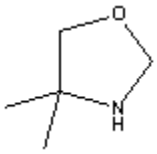

Figure 1. Molecular Structure of dimethyloxazolidine

Dimethyloxazolidine is used in cosmetic and toiletry formulations as a preservative and antimicrobial (Demers, 1981). It was reported (Demers, 1981) that rats were subjected in inhalation mists, and that the LC50 was found to be 11.7 mg/L (11,700 mg/m³). In the same report it was stated that the oral LD50 was determined to be 950 mg/kg in male rats. No details of the studies were provided and they were not referenced.

In an acute LC50 study, groups of five male and female Sprague-Dawley rats were exposed to 1.53, 2.81 or 4.48 mg/L for 4 hours and observed for 14 days (Troy Corporation, 1999). The LC50 was calculated to be 2.48 mg/L (95% CI = 1.90 - 3.07). The ITSL was derived pursuant to Rule 232(1)(f) as follows:

ITSL = LC50/(500 x 100 x 40)

ITSL = (4.48 mg/L)/(500 x 100 x 40)

ITSL -= 0.00000124 mg/L

ITSL = 0.00000124 mg/L x 1000 L/m³ x 1000 µg/mg

ITSL = 1.24 µg/m³

The ITSL for dimethyloxazolidine is 1 µg/m³ based on annual averaging time.

References

Demers E. 1981. Oxadine-A – the new alternative. Cosmetics and Toiletries. Volume 96. pages 79-81.

Troy Corporation. 1999. Personal communication with Donald Nye (973-443-0257, ext. 2255). Fax of "Troysan 192, Acute inhalation toxicity study in rats" IRI Project No. 641996, Report No. 7152. TC-0196. Data requirements: US EPA Pesticide Assessment Guidelines Subdivision F, 82-1. Laboratory: Inveresk Research International, Tranent, EH33 2NE, Scotland