

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

July 13, 1998

TO: File for Isopropylamine (CAS #75-31-0)
FROM: Marco Bianchi, Toxics Unit, Air Quality Division
SUBJECT: Initial Threshold Screening Level

The Initial Risk Screening Level (IRSL) for isopropylamine is 120 $\mu\text{g}/\text{m}^3$ based on an 8 hr. averaging time. This compound was initially evaluated by AQD staff in 1994 using interim procedures and approved on a permit-to-permit basis with the same Initial Threshold Screening Level (ITSL) of 120 $\mu\text{g}/\text{m}^3$ (8 hr. averaging time). In an effort to finalize this interim chemical, a complete chemical review was conducted to set a final ITSL/(IRSL). The following references or databases were searched to identify data to determine the ITSL/IRSL: IRIS, HEAST, NTP Management Status Report, RTECS, EPB-CCD, EPB library, CAS-online, NLM-online, IARC, NIOSH Pocket Guide, and ACGIH Guide.

Other than a 4-hr inhalation study by Smyth et al. (1951), the only information available to derive a screening level was from ACGIH Documentation. According to ACGIH, isopropylamine is a highly volatile liquid having an ammonia-like odor, with an odor threshold of 1.2 ppm. Inhalation studies have shown that isopropylamine exposure caused respiratory tract irritation in rats with subsequent development of pulmonary edema. In the Smyth et al. study, rats survived a 4-hour inhalation to 4000 ppm of isopropylamine, but died after exposure to 8000 ppm.

Human exposures to isopropylamine have caused nose and throat irritation between 10 to 20 ppm. Additionally, workers complained of transient visual disturbances after exposure to this compound for 8 hours. This condition soon cleared 3 to 4 hours later. No mention was made at what concentration this occurred.

Based upon limited data, the ACGIH recommended a threshold limit value (TLV) of 5 ppm (12 mg/m^3) to minimize the potential for ocular and respiratory irritation associated with isopropylamine in the workplace air. The ITSL is based on an ACGIH TLV of 12 mg/m^3 (5 ppm) for isopropylamine.

The ITSL was determined as follows:

$$\text{ACGIH TLV} = 12 \text{ mg/m}^3$$

$$12 \text{ mg/m}^3 \div 100 = 0.12 \text{ mg/m}^3$$

$$0.12 \text{ mg/m}^3 \times \frac{1000 \text{ ug/m}^3}{1 \text{ mg/m}^3} = 120 \text{ ug/m}^3$$

The ITSL for isopropylamine = 120 $\mu\text{g/m}^3$ based on 8 hr. averaging.

References:

1. Documentation of Threshold Limit Values and Biological Exposure Indices. 1991. Isopropylamine. American Conference of Governmental Industrial Hygienists (ACGIH), 6th Edition.
2. Smyth Jr., HF et al., 1951. Range finding toxicity data: list IV. Arch. Ind. Hyg. Occup. Med. 4:119- 122.

MB:SLB

cc: Mary Lee Hultin, AQD