

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

April 29, 1993

TO: File for Trimethylamine (CAS No. 75-50-3)

FROM: Cathy Simon

SUBJECT: Development of Screening Level

The initial threshold screening level (ITSL) for trimethylamine is 120 ug/m³ based on an eight hour averaging time. This value was determined from the ACGIH Threshold Limit Value (TLV) of 12 mg/m³ as follows:

$$\text{ITSL} = \frac{12 \text{ mg/m}^3}{100} = 0.12 \text{ mg/m}^3 = 120 \text{ } \mu\text{g/m}^3$$

No reference concentration (RfC) or reference dose (RfD) was available for trimethylamine. The ACGIH TLV is poorly documented, utilizing the same TLV as for dimethylamine, with the justification given as chemical similarity to dimethylamine (ACGIH, 1986). The only toxicity data cited by ACGIH is an intravenous LD50 of 90 mg/kg in mice.

A search of CAS Online (1967 - March 30, 1993), the EPB Library, NTP Management Status Report, and RTECS, did not produce adequate data to develop an RfC or RfD. The most relevant study found was a 2 week inhalation study in which groups of 10 male rats were exposed to 0, 75, 250, or 750 ppm trimethylamine for 6 hours/day, 5 days/week (Kinney et al, 1990). Adverse effects in the nose, trachea, and lungs were observed in the test animals. The abstract of this study report that degenerative changes in the nose were reversible at 75 ppm, but not at 250 or 750 ppm. Additionally, mild emphysematous alveoli were seen in the lungs of rats exposed to 750 ppm. This effect disappeared after a recovery period. A NOAEL could not be determined from this study.

References

- American Conference of Governmental Industrial Hygienists (ACGIH). 1986. Documentation of Threshold Limit Values and Biological Exposure Indices. Fifth Edition.
- Kinney, L.A. et al. 1990. Inhalation toxicology of trimethylamine. Inhalation Toxicol., 2(1), 41-51. As cited in Chemical Abstract 112(23):212100p.

CAS:ma