

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

December 19, 1996

TO: File for n-methylpiperidine (CAS # 626-67-5)  
FROM: Marco Bianchi, Toxics Unit, Air Quality Division *Marco Bianchi*  
SUBJECT: Initial Threshold Screening Level - BASF Permit - Wayne County Department of Environment

The Initial Threshold Screening Level (ITSL) for n-methylpiperidine is  $8 \text{ ug/m}^3$  based on an annual averaging time.

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.

A complete reference check was conducted for n-methylpiperidine, but information was limited to an internal BASF Corporation, one-hour rat inhalation study provided by BASF-Germany. Key data elements were translated from German to English by BASF for AQD to derive an ITSL for this compound. In this study, three groups of *Wistar TNO 74* rats, 10/sex/group were exposed for 1-hour to 0, 13.8 or 15.4 mg/l of methylpiperidine. The methylpiperidine aerosol solution was 45 parts piperidine in 16.5 parts water by weight for the 13.8 mg/l experiment, and 45 parts piperidine in 13.6 parts water for the 15.4 mg/l experiment. The flowing aerosol entered the chamber at a rate of 10 l/min. All droplets in the aerosol were finer than 5 microns. All animals were observed for 14 days following the exposures. Adverse clinical effects were noticed in both dose groups. No males were effected in the 13.8 mg/l dose group, but three females had edematous lungs, and seven females had undescribed pathologic effects. In the 15.8 mg/l dose group, nine males and five females had edematous lungs, one male and two females had severe lung infections, and five females had undescribed pathologic effects. No  $LC_{50}$  was statistically determined from this study and is assumed to be greater than 15.4 mg/l. With a survival rate of greater than 50% at the 15.4 mg/l exposure level, this value will be used as a 1-hr  $LC_{50}$  for n-methylpiperidine.

The ITSL was determined as follows:

$$LC_{50} = 15.4 \text{ mg/l} \times \frac{1000 \text{ l}}{1 \text{ m}^3} = 15,400 \text{ mg/m}^3$$

$$ITSL = \frac{LC_{50}}{500 \times 100 \times 40}$$

$$ITSL = \frac{15,400 \text{ mg/m}^3}{500 \times 100 \times 40} = 0.0077 \text{ mg/m}^3$$

$$0.0077 \text{ mg/m}^3 \times 1000 \text{ ug} = 7.7 \text{ ug/m}^3$$

**The ITSL for methylpiperidine =  $8 \text{ ug/m}^3$  based on annual averaging.**

MB:slb