

# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

## INTEROFFICE COMMUNICATION

September 26, 1996

TO: File for Piperdinocyclohexene (CAS# 2981-10-4)  
FROM: Michael Depa, Toxics Unit, Air Quality Division  
SUBJECT: Screening Level Determination

The initial threshold screening level (ITSL) for piperdinocyclohexene is 2 µg/m<sup>3</sup> based on an annual averaging time.

The following references or databases were searched to identify data to determine the ITSL: IRIS, RTECS, ACGIH Threshold Limit Values, NIOSH Pocket Guide to Hazardous Chemicals, Environmental Protection Bureau Library, IARC Monographs, CAS Online (1967 - May 8, 1996), National Library of Medicine, Health Effects Assessment Summary Tables, and NTP Status Report. Review of these sources found that EPA has not established an RfD or RfC for piperdinocyclohexene. There are no occupational exposure limits available. A thorough search of the literature revealed an LD50 study. This study is described below.

The LD50 was reported as 1272.7 mg/kg (95% CL = 1065.6 - 1456.5) (Bailey et al., 1976). Groups of 10 male Swiss-Webster mice (26-36 g body weight) were dosed orally with piperdinocyclohexene in order to determine the "24 hour oral median lethal dose (LD50)". The LD50 was determined by logic analysis and the 95% confidence limits (CL) were calculated. The doses used were not specified in the report. It was assumed that the observation period was 24 hours long. There was no other procedural data presented in the report.

The LD50 study by Bailey et al (1976) is the only toxicological study available. An ITSL was developed using this study.

$$\text{ITSL} = (1/500) \times (1/40) \times (1/100) \times (\text{LD50} \times \text{Wa}) / (0.167 \times \text{Ia})$$

Where, Wa is the mid point of the weight range reported by Bailey et al (1976) and Ia is the inhalation rate of the mouse based on the equation presented by EPA (1988).

$$\begin{aligned}\text{ITSL} &= (1/500) \times (1/40) \times (1/100) \times (1273 \text{ mg/kg} \times 0.031 \text{ kg}) / (0.167 \times 0.052 \text{ m}^3) \\ \text{ITSL} &= 2.3 \times 10^{-3} \text{ mg/m}^3 \\ \text{ITSL} &= 2 \text{ } \mu\text{g/m}^3 \text{ (based on annual averaging time)}\end{aligned}$$

The ITSL for piperdinocyclohexene is 2 µg/m<sup>3</sup> based on an annual averaging time.

**REFERENCES**

Bailey K, Chow A, Dowme R, Pike R. 1976. 1-piperdinocyclohexanecarbonitrile, a toxic precursor of phencyclidine. *Journal of Pharmacy and Pharmacology, Communications*. 28: 713 -714.

EPA. 1988. Recommendations for and documentation of biological values for use in risk assessment. PB 88-179874.

MD:slb