MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

December 1, 1995

TO: File for Oleoyl Diethanolamine (CAS# 93-83-4)

FROM: Michael Depa, Toxics Unit

SUBJECT: Screening Level Determination

The initial threshold screening level (ITSL) for oleoyl diethanolamine is 3 $\mu g/m^3$, based on 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-October 7, 1995), National Library of Medicine, Health Effects Assessment Summary Tables, and NTP Status Report. Review of these sources found that EPA has not established a RfC or RfD for oleoyl diethanolamine. Occupational exposure limits were not available for oleoyl diethanolamine. There was no data meeting the minimum criteria for establishing a RfC or RfD. There was no inhalation data available for oleoyl diethanolamine. An LD50 study was obtained from the EPA Office of Technical Support (DOC# 86-920000270S) was available and is described below.

Groups of 5 male or 5 female Sprague-Dawley rats (200-250g; approximately 5 to 8 weeks of age) were dosed by gavage with 625, 1250, 2500, or 5000 mg/kg/bw oleoyl diethanolamine (dissolved in corn oil). The rats were fasted 18 hours before dosing. The rats were observed twice daily for 14 days. Weights were recorded at day of dosing, day 7 and day 14. All rats were necropsied after death of sacrifice. LD50's were calculated by the Moving Average Method (Thompson, W. R. 1947. Bacteriological Rev. 11:115-145.). Laboratory procedures were in compliance with EPA 1984 Health Effects Test Guideline (560/6-84-002). The LD50 for male rats was 1050 mg/kg. The LD50 for female rats was 1340 mg/kg.

ITSLs were calculated according to Rule 232(1)(h) as follows:

$$ITSL = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{LD50 \times W_a}{0.167 \times I_a}$$

Where, W_a and I_a are weight and inhalation rate of the animal respectively. The data for W_a was provided by the study. The inhalation rate was calculated according to EPA, 1988.

The ITSL for the male rate is:

$$ITSL = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{1050 \text{ mg/kg} \times 0.225 \text{ kg}}{0.167 \times 0.235 \text{ m}^3}$$

$$ITSL = 0.004 \text{ mg/m}^3 = 3 \text{ } \mu g/m^3$$

The ITSL for the female rat is:

$$ITSL = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{1340 \text{ mg/kg} \times 0.225 \text{ kg}}{0.167 \times 0.235 \text{ m}^3}$$

$$ITSL = 0.004 \text{ mg/m}^3 = 4 \text{ } \mu g/m^3$$

The lowest of the two screening levels was chosen for the final ITSL. The ITSL for oleoyl diethanolamine is 3 $\mu g/m^3$ based on annual averaging time.

References

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

MD:ma