

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

March 4, 1999

TO: File for Oleic Acid (CAS #112-80-1)  
FROM: Marco Bianchi, Toxics Unit, Air Quality Division  
SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for oleic acid is 242  $\mu\text{g}/\text{m}^3$  based on an annual averaging time.

The following references or databases were searched to identify data to determine the ITSL: 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 oleic acid but only one data element was available for review. An oral rat  $\text{LD}_{50}$  of 74 g/kg was found in RTECS, but the data was listed as having come from a Union Carbide data sheet. As a follow-up, Mr. Roy Myers of Union Carbide Company was contacted to obtain additional information on this compound. According to Mr. Myers, back in the 1950's, compounds like this one were concurrently tested with other chemicals using one testing protocol. The results were recorded for each of the compounds, but testing methodologies for each of them were not. Consequently, Mr. Myers could only provide limited information from historical records on Union Carbide's  $\text{LD}_{50}$  testing methodologies. However, this information fulfilled AQD guidelines for minimal data reporting for acute toxicity summaries. Mr. Myers stated that, typically, 5 rats/sex/group were orally dosed with the test compound, in this case, undiluted oleic acid. The animals would have then been observed for 14 days, with the  $\text{LD}_{50}$  value estimated by the moving average method. In this case, the  $\text{LD}_{50}$  for oleic acid was determined to be 74 g/kg for males and 81.6 g/kg for females. The lower  $\text{LD}_{50}$  of 74 g/kg will be used to derive an ITSL.

The ITSL was derived as follows:

$$\text{LD}_{50} = 74 \text{ g/kg}$$

$$\text{ITSL} = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{74000}{0.167 \times 0.916} = 0.2418 \text{ mg/m}^3$$

$$0.242 \text{ mg/m}^3 \times 1000 = 242 \text{ ug/m}^3 \text{ based on annual averaging.}$$

**The ITSL for oleic acid = 242  $\text{ug}/\text{m}^3$  based on annual averaging.**

**References:**

1. Personal communication: Union Carbide; Roy Myers 2/5/99 telephone;
2. Personal communication: Union Carbide; Roy Myers 10/6/98 email

MB:SLB

cc: Mary Lee Hultin, AQD