

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

September 14, 1993

TO: File for Triacetin (CAS# 102-76-1)  
FROM: Michael Depa, Toxics Unit  
SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for Triacetin is 20 ug/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- July 24, 1993), and NTP Management Status Report.

No RfC, RfD, or occupational exposure limits were available for Triacetin. There was no data available which met the minimum requirements for calculation of a RfC or RfD. There was no inhalation data available for Triacetin. An oral LD50 in mice was available. The LD50 was determined applying the method of Weil using 6 dose levels, 2 animals per dose level and a 7 day observation period (Lawrence, 1974). Although the few number of animals used per dose level makes the LD50 from this study of marginal adequacy, this is the best available study reporting details. Other studies report LD50's of 1.8 g/kg in male adult Swiss mice, and 1.1 g/kg in femal adult Swiss mice (Gast, 1963). The ITSL was determined as follows:

$$\begin{aligned} \text{ITSL} &= 1/500 \times 1/40 \times 1/100 \times \text{LD50}(\text{mg/kg}) / 0.167 \times W_a / I_a \\ \text{ITSL} &= 0.02 \text{ mg/m}^3 = 20 \text{ ug/m}^3 \end{aligned}$$

Where  $I_a$  = Inhalation rate of the animal ( $I = 0.0345(0.03/0.025)^{2/3}$ ),  
default value equals 0.039 m<sup>3</sup>/day,  
 $W_a$  = Weight of the animal, default value equals 0.03 kg, and  
LD50 = 9300 mg/kg in male ddy mice (determined from the LD50 reported as 8 ml/kg by multiplying by the density for triacetin of 1.162 g/ml)

Lawrence, W.H., Malik, M., and Autan, J. 1974. Development of a toxicity evaluation program for dental materials and products, II screening for systemic toxicity. *Journal of Biomedical Materials Research*. 8(1):11-34.

Gast, J. 1963. Some toxicity studies with triacetin (Abstract). *Federation Proceedings, Federation of American Societies for Experimental Biology*. 21:63.