

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

December 17, 1996

TO: File for Dowanol TMH-DEG Borate Ester (CAS# 170557-43-4)
FROM: Michael Depa, Toxics Unit, Air Quality Division
SUBJECT: Screening Level Determination

The initial threshold screening level (ITSL) for dowanol TMH-DEG borate ester is $32 \mu\text{g}/\text{m}^3$ (annual).

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 1, 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 dowanol TMH-DEG borate ester. The ACGIH or NIOSH have not established occupational exposure limits (OELs). Dave Haslam of Dow Chemical faxed the AQD an acute oral toxicological study. On December 16, 1996, Mr. Haslam verified that the chemical used in the toxicity study (summarized below) is the chemical named dowanol TMH-DEG borate (also called triethylene glycol methyl ether borate ester with diethylene glycol).

Groups of 5 male rats (strain unspecified) were administered by gavage a single dose of 5000 or 10,000 mg/kg triethylene glycol methyl ether borate ester with diethylene glycol (FAX from Dow). No mention of control animals was reported. The rats survived and gained weight over a 13-day observation period. Since there were no deaths observed in the rats dosed with 10,000 mg/kg this dose was determined to be a surrogate LD50. Dave Haslam verified that the chemical in this toxicity study was "dowanol TMH-DEG borate ester" (CAS No. 170557-43-4). This dose was used to develop an ITSL according to Rule 232(1)(h).

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

Where W_a and I_a are the default weight and inhalation rate of the rat (EPA, 1988).

$$\text{ITSL} = 1/(2,000,000) \times (10,000 \text{ mg/kg})/(0.167) \times (0.395 \text{ kg})/(0.373 \text{ m}^3)$$

$$\text{ITSL} = 3.17 \times 10^{-2} \text{ mg}/\text{m}^3$$

$$\text{ITSL} = 32 \mu\text{g}/\text{m}^3 \text{ (based on an annual averaging time)}$$

The ITSL for dowanol TMH-DEG borate is $32 \mu\text{g}/\text{m}^3$ (annual averaging time).

REFERENCES

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