MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

OCTOBER 12, 1994

TO: File for 3-amino-5-mercapto-1,2,4-triazole (CAS# 16691-43-3)

FROM: Michael Depa, Toxics Unit

SUBJECT: Screening Level Determination

The initial threshold screening level (ITSL) for 3-amino-5-mercapto-1,2,4-triazole is 7 $\mu g/m^3$ 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-August 20, 1994), National Library of Medicine, Health Effects Assessment Summary Tables, and NTP Status Report. Review of these sources found that EPA has not established an RfC or RfD for 3-amino-5-mercapto-1,2,4-triazole. Occupational exposure limits were not available. There were two published LD50 studies available, however, they were performed in birds. It was deemed inappropriate to use birds to extrapolate potential health effects in humans. A surrogate mammalian LD50 was made available from the Dow Chemical Company (Dow, 1994) and was used to derive the ITSL.

Five male and 5 female Sprague-Dawley rats were administered 2000 mg/kg of 3-amino-5-mercapto-1,2,4-triazole (99.6% pure, suspended in 0.5% sodium carboxymethylcellulose, 1.0 ml/100 g body weight) by gastric intubation. There were no abnormal clinical signs and no mortality observed during the 14 day observation period. The body weight of all animals increased normally. Gross necropsy examination revealed no abnormalities. This surrogate LD50 was used to calculate the ITSL pursuant of Rule 232 (1)(h) as follows:

$$ITSL = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{LD50\ (mg/kg) \times W_a}{0.167 \times I_a}$$

$$ITSL = \frac{1}{500 \times 40 \times 100} \times \frac{2000\ mg/kg \times 0.475\ kg}{0.167 \times 0.435\ m^3}$$

$$ITSL = 6.5 \times 10^{-3}\ mg/m^3$$

$$ITSL = 7\ \mu g/m^3$$

Where: W_a is the default weight of the animal (EPA, 1988) and
I_a is the default inhalation rate of the animal (EPA, 1988).

The ITSL for 3-amino-5-mercapto-1,2,4-triazole is 7 $\mu g/m^3$ based on an annual averaging time.

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

Dow. 1994. Personal Communication with K.D. Nitschke from the Dow Chemical Company, Midland Michigan. Taken from a Japanese report entitled, Acute Oral Toxicity Study of 3-Amino-5-mercapto-1,2,4-triazole in Rats, finalized September 10, 1992. This report was conducted by the Mitsubishi-Kasei Institute of Toxicological and Environmental Sciences in Japan.