

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

JUNE 30, 1994

TO: File for 1,1,2,4-tetramethyl-1-sila-2-aza-cyclopentane  
(X2-8189)  
(CAS# 18387-19-4)

FROM: Marco Bianchi

SUBJECT: Initial Threshold Screening Level

The initial threshold screening level (ITSL) for X2-8189 is  $0.7 \mu\text{g}/\text{m}^3$  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 X2-8189, but only limited information was available. A Dow Corning oral rat  $\text{LD}_{50}$  study was obtained that could be used to derive an ITSL for this compound. This study involved single oral dosing to 2 Sprague-Dawley rats/group with undiluted X2-8189. Doses ranged from 0.158 to 15.0 g/kg for the eight different dose groups. All animals died from 630 to 15.0 mg/kg, whereas only 1 animal died in each of the two lowest dose groups of 158 and 316 mg/kg. Details of clinical signs were not reported other than death during a 2 week observation period. A  $\text{LD}_{50}$  value was calculated at 200 mg/kg using the probit method of analysis.

An ITSL was derived as follows:

$\text{LD}_{50} = 200 \text{ mg/kg}$

$W_A = \text{Body weight of experimental animal in kilograms (kg)}$ .

$I_A = \text{Daily inhalation rate of experimental animal in cubic meters/day}$ .

Since body weights but not daily inhalation rates were available, assume a default value of  $0.883 \text{ m}^3/\text{kg}$ .

$$\text{ITSL} = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{\text{LD}_{50} \text{ mg/kg} \times W_A}{0.167 \times I_A}$$

$$\text{ITSL} = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{200 \text{ mg/kg}}{0.167 \times 0.883} = 0.00067 \text{ mg}/\text{m}^3$$

$$0.00067 \text{ mg}/\text{m}^3 \times 1000 = 0.67 \text{ or } 0.7 \mu\text{g}/\text{m}^3$$

The ITSL for X2-8189 =  $0.7 \mu\text{g}/\text{m}^3$  based on annual averaging.