

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

February 3, 1993

TO: File for Dimethyl sulfide (CAS# 75-18-3)
FROM: Mary Lee Hultin, Toxics Unit
SUBJECT: ITSL for Dimethyl sulfide

The following references were searched for toxicity data for derivation of a methyl sulfide screening level:

CAS Online database
IRIS database
DNR EPB database
DNR Nutshell library
ACGIH TLV and NIOSH REL references
RTECS

The only data sufficient for use in derivation of a screening level were a subchronic oral toxicity study in rats and an inhalation LC50. In accordance with Rule 232, the subchronic data is preferred over the acute data.

Butterworth, et al., (1975), administered 0, 2.5, 25 or 250 mg/kg/day via intubation to groups of 15 male and 15 female Wistar rats, 7 days/week for 14 weeks. The authors termed the 250 mg/kg/day dose a "no-untoward effect level". However, thyroid gland weight changes were seen at the 250 mg/kg dose as follows: High dose female rats exhibited lower thyroid gland weight than controls, statistically significant ($p < 0.01$) for both absolute and relative weights. High dose male rats had heavier thyroid glands, statistically significant for relative organ weight. Therefore, to be adequately protective, a NOAEL of 25 mg/kg/day will be used for screening level derivation.

ITSL = $(\text{NOAEL} / 35 \times 100) \times (\text{Wa}/\text{Ia}) \times \text{b/a}$
Wa = body weight of the animal Average Wa = 234 grams or .234 kg
Ia = inhalation rate " " " Estimated Ia = .24 m³/day
b/a = absorption efficiency oral/inhalation Default = 1

ITSL = $(25 \text{ mg/kg/day} / 35 \times 100) \times (0.234 / 0.24) \times 1 = 0.007 \text{ mg/m}^3$
or 7 ug/m³ with annual averaging

Reference:

Butterworth, F., et al., 1975, "Short-term toxicity of dimethyl sulphide in the rat", Fd.Cosmet.Toxicol., v.13, p15-22.