

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

FEBRUARY 24, 1995

TO: File for Tributylamine (CAS# 102-82-9)

FROM: Michael Depa, Toxics Unit

SUBJECT: Screening Level Determination

The initial threshold screening level (ITSL) for tributylamine is $7 \mu\text{g}/\text{m}^3$ based on an annual averaging time.

The following references or databases were searched to identify data to determine the ITSL: IRIS, RTECS, ACGIH Threshold Limit Values, NIOSH Pocket Guide to Hazardous Chemicals, Environmental Protection Bureau Library, IARC Monographs, CAS Online (1967-July 23, 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 tributylamine. Occupational exposure limits were not available. An inhalation study was identified and reviewed in order to determine the ITSL. This study is described below.

Groups of 4 male and 4 female Alderley Park rats were exposed to 29, 62 or 120 ppm tributylamine for 6 hours/day, 5 days/week for a total of 19 days of exposure (Gage, 1970). After gross examination of the organs, the following organs were examined microscopically: lungs, liver, kidneys, spleen, and adrenals. There was no weight gain at any dose level and all organs were normal. Clinical signs of toxicity included restlessness, initial tremors and incoordination at the 120 ppm dose level, and lethargy at the 62 and 29 ppm dose levels. A LOAEL was identified from this study as 29 ppm. This corresponds to $220 \text{ mg}/\text{m}^3$. The ITSL was developed using a modification of the 7-day study equation outlined in Rule 232 (1)(d). The 35 fold uncertainty factor was decreased to 30 to account for the longer duration of the study described above. The ITSL was calculated as follows:

$$\text{ITSL} = \frac{\text{LOAEL}(\text{mg} / \text{m}^3)}{30 \times 100 \times 10}$$

Where the factor of 30 is used instead of 35 as mentioned above, and a factor of 10, was used to account for the conversion of a LOAEL to a NOAEL.

Using the LOAEL of 220 mg/m³ the ITSL was determined as follows:

$$\text{ITSL} = \frac{220 \text{ mg} / \text{m}^3}{30 \times 100 \times 10}$$

$$\text{ITSL} = 7.3 \times 10^{-3} \text{ mg} / \text{m}^3$$

$$\text{ITSL} = 7 \mu\text{g} / \text{m}^3$$

The ITSL for tributylamine is 7 μg/m³ based on an annual averaging time.

REFERENCES

Gage, J. 1970. The subacute inhalation toxicity of 109 industrial chemicals. British Journal of Industrial Medicine. 27:1-18.