

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for polyoxyethylene lauryl ether (9002-92-0)
FROM: Marco Bianchi
SUBJECT: Initial Threshold Screening Level
DATE: April 12, 2004

The initial threshold screening level (ITSL) for polyoxyethylene lauryl ether is 12 µg/m³ based on an annual averaging time.

The following references or databases were searched to identify data to determine the ITSL: IRIS online, HEAST, NTP Management Status Report online, RTECS, EPBCCD, EPB library, CAS-online, NLM-online, IARC online, NIOSH Pocket Guide, and ACGIH Guide.

A complete reference check was conducted for polyoxyethylene lauryl ether, but only one study was available for review. This oral acute rat study was submitted by Proctor and Gamble to the EPA as a Toxic Substance Control Act (TSCA) Section 8(e) submittal (1992). The investigation was conducted by International Research and Development Corporation. In this study, groups of twenty male and twenty female rats were singly dosed with undiluted test material at concentrations of 1991, 2789, 3467, 3905, and 4480 mg/kg, and then observed over a subsequent 14-day period. Lung congestion and edema, hemorrhagic thymus, and stomach congestion were observed in test animals. The LD₅₀ value and 95% confidence limits for polyoxyethylene lauryl ether were estimated by the method of BLISS 17 (a statistical computer program written by D.J. Finney, Univ. of Edinburgh, Scotland). The LD₅₀ was calculated to be 3743 mg/kg.

Based on Air Quality Division Rule 232 (h), the ITSL was derived as follows:

$$\text{ITSL} = \frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{3743}{0.167 \times 0.945} = 0.0118 \text{ mg/m}^3,$$

where 0.945 is the default value for the non gender-specific rat inhalation rate (EPA, 1988)

$$0.0118 \text{ mg/m}^3 \times 1000 = 11.8 \text{ µg/m}^3 \text{ based on annual averaging.}$$

The ITSL for polyoxyethylene lauryl ether = 12 µg/m³ based an annual averaging.

References:

Toxic Substance Control Act (TSCA) Section 8(e) submittal. 1992. Initial submission: S7041: acute toxicity study in rats with cover letter dated 08-10-92. EPA/OTS; Doc #88-920006784. OTS - S0543789.

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