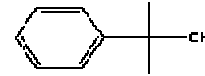


MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for 2-phenyl-2-propanol (phenyl isopropanol) [CAS# 617-94-7]
FROM: Margaret M Sadoff, Air Quality Division, Toxics Unit
DATE: March 16, 2006
SUBJECT: Derivation of Screening Level



The ITSL for phenyl isopropanol is 4 ug/m3, based on an annual average.

A search of the literature and the following databases was performed for health effects information regarding phenyl isopropanol: American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values, National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Hazardous Chemicals, Integrated Risk Information System (IRIS), Registry of Toxic Effects of Chemical Substances (RTECS), Environmental Protection Bureau Library, International Agency for Research on Cancer (IARC) Monographs, CAS Registry Online, Hazardous Substance Data Bank (HSDB), National Library of Medicine/Toxline, Health Effects Assessment Summary Tables (HEAST), National Toxicology Program (NTP) Study Database, Entrez PubMed, and CalEPA's Toxicity Values Database.

Phenyl isopropanol is an alcohol derivative of cumene and the primary metabolite of cumene excreted in urine of rats and humans. It is considered to be a primary irritant. If released to the atmosphere, phenyl isopropanol will exist solely in the vapor phase with a half-life of about 3 days. It is used as a chemical intermediate in solvent synthesis and as a flotation frother. Phenyl isopropanol is insoluble in water and soluble in ethanol, ether and benzene.

No repeated-dose studies were identified in the literature from which an ITSL could be derived. There are no U.S. occupational limits for 2-phenyl-2-propanol but RTECs lists a Russian STEL of 10 mg/m³ with a skin notation. RTECs also lists LOAELs from two 90-day, intermittent inhalation studies in rats. Both are foreign language studies with no study detail. The first LOAEL is 50 mg/m³ based on behavioral somnolence (depressed activity) and enzyme inhibition. The second LOAEL is 15 mg/m³ based on changes in white blood cell count. The lowest reported LD50 in rats is 1300 mg/kg (strain and gender not specified).

Since the exposure conditions are not given, an ITSL cannot be derived from either reported LOAEL. Therefore, an LD50-based ITSL as per Rule 232 (1) (h) is as follows:

$$\begin{aligned} \text{ITSL} &= 1/500 \times 1/40 \times 1/100 \times \frac{\text{LD50 (mg/kg)} \times \text{Weight (kg)}}{0.167 \times \text{Inhalation Rate (m}^3\text{/day)}} \\ &= 1/500 \times 1/40 \times 1/100 \times \frac{1300 \times 0.395^*}{0.167 \times 0.373^*} \end{aligned}$$

*EPA rat default parameters

$$= 0.0041 \text{ mg/m}^3 = \mathbf{4 \text{ ug/m}^3, \text{ annual average}}$$