

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

January 10, 2002

TO: 3,5-Dimethylphenol File (CAS #108-68-9)
FROM: Gary Butterfield, Toxics Unit, Air Quality Division
SUBJECT: Screening Level for 3,5-Dimethylphenol

The initial threshold screening level for 3,5-dimethylphenol is being set at 0.8 µg/m³ with annual averaging.

3,5-Dimethylphenol is also commonly known as 3,5-xylenol or 3,5-DMP. Dimethylphenol is a crystalline solid with a molecular weight of 122.18.

The following references or databases were searched to identify data to determine the screening level: U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS), National Institute for Occupational Safety and Health (NIOSH) Registry for Toxic Effects of Chemical Substances (RTECS), American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), Michigan Department of Environmental Quality (DEQ) library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1967- July 2000), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

On-line literature searches were conducted on May 22, 2001 of the CAS and on May 21, 2001 of NLM. Very little toxicity information on 3,5-DMP was located by the literature searches.

The EPA 1980 document reports many details about a Russian acute oral study in rats, mice, and rabbits conducted by Maazik (1968). The LD-50s were determined after a 15-day observation period, via the probit method. The oral LD-50 for 3,5-DMP in white mice was reported to be 477 mg/kg, in albino rats the LD-50 was 608 mg/kg, and in rabbits the LD-50 was 1313 mg/kg.

It is considered better to base the ITSL on an LD-50 study rather than to rely on the default value of 0.1 µg/m³ which generally is utilized when no toxicity data are available. The Maazik mouse LD-50 study can be used to set an ITSL. The ITSL can be calculated from the LD-50 equation in R232(h) using the above LD-50 for mice because it is the lowest of the available LD-50 values, as follows.

$$\text{ITSL} = \frac{(477 \text{ mg/kg})}{500 \times 40 \times 100 \times 0.167} \times \frac{1}{1.7} = 0.8 \text{ } \mu\text{g/m}^3 \text{ annual avg.}$$

Where 1.7 m³/kg is the default inhalation rate for mice.

References:

EPA. 1980. Ambient water quality criteria for 2,4-dimethylphenol.

Maazik. 1968. Dimethylphenol (xylenol) isomers and their standard contents in water bodies. Gig. Sanit. 33(9): 18-22. As cited in EPA (1980).

GB:DB

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