

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

September 29, 2003

TO: 2-ethoxy-4,6-difluoropyrimidine file (CAS # 166524-65-8)

FROM: Gary Butterfield, Toxics Unit, Air Quality Evaluation Section  
Air Quality Division

SUBJECT: Screening level for 2-ethoxy-4,6-difluoropyrimidine

2-Ethoxy-4,6-difluoropyrimidine is also known as DFEP. It is a colorless liquid.

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 (1968 - May 2003), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

The CAS and NLM on-line literature searches were conducted on May 5, 2003. No toxicity data was located during the literature searches. Dow Chemical was able to provide summaries of internal acute studies, one oral and one inhalation study.

In the acute oral study, Dow/Gilbert (1994), groups of three male F344 rats were given gavage doses of 50, 100, 500, 1000 or 2000 mg/kg. There was a 14 day observation period. All rats died at dose levels of 500 and higher. One rat died at the 100 mg/kg dose level. All rats survived the 50 mg/kg dose level.

In the acute inhalation study, Dow/Beekman and Stebbins (1994), groups of 5 male and 5 female F344 rats were exposed to vapors for 4 hours to concentrations of 1620, 528, 287 or 127 ppm (or 10608, 3457, 1879 or 831 mg/m<sup>3</sup>). All rats exposed to 287 ppm or higher died during the observation period. There were no deaths observed at the 127 ppm dose level.

It is generally preferred to use an inhalation study as the basis, over an oral study, when setting a screening level. The acute inhalation study provides the best basis of the available two studies. The highest dose level where no deaths occurred, 831 mg/m<sup>3</sup>, can be used as a surrogate for a LC50 value in the equation from R232(1)(f) as follows:

$$\text{ITSL} = \frac{831 \text{ mg/m}^3}{500 \times 100} = 17 \text{ ug/m}^3 \quad \text{rounded to } 20 \text{ ug/m}^3 \text{ annual average}$$

References:

Dow/Beekman and Stebbins. 1994. 2-ethoxy-4,6-difluoropyrimidine: acute vapor inhalation toxicity study with Fischer 344 rats. Lab Report Code DR-0324-7152-003. Summary provided by Dow for DEQ Air Quality Division.

Dow/Gilbert. 1994. 2-ethoxy-4,6-difluoropyrimidine: acute toxicological properties. Lab Report Code DR-0324-7152-002. Summary provided by Dow for DEQ Air Quality Division.