

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

August 11, 1993

TO: File for 2,6-difluorobenzonitrile (CAS No. 1897-52-5)

FROM: Cathy Simon

SUBJECT: Screening Level for 2,6-Difluorobenzonitrile

The initial threshold screening level (ITSL) for 2,6-difluorobenzonitrile (DFBN) is 0.2 µg/m³ based on an annual averaging time.

No reference concentration (RfC), reference dose (RfD), or occupational exposure level was available for DFBN.

The following references or databases were reviewed to identify toxicological data for DFBN: IRIS, HEAST, RTECS, Environmental Protection Bureau Library and Chemical Criteria Database, NTP Management Status Report, and IARC Monographs. No toxicological data was available from these reference and databases.

Dow Chemical Company provided a summary of an acute oral toxicity study conducted by the company. In this study, groups of 3 male rats (strain not specified) were given a single oral dose of 50, 500, or 2000 mg/kg. All rats given 2000 mg/kg and one given 500 mg/kg died by day 3. No mortality was observed in the 3 rats given 50 mg/kg. This study is inadequate for determining an LD50. Deficiencies include inadequate number of animals per dose group, inadequate number of dose groups, and no control animals. However, the lowest dose group in which no mortality was observed, can be used as a surrogate LD50. Use of this value is expected to provide a conservative estimate of the ITSL. Using a surrogate LD50 of 50 mg/kg, the ITSL is determined as follows according to Rule 232(1)(h):

$$\text{ITSL} = 1/500 \times 1/40 \times 1/100 \times (50 \text{ mg/kg} \times 0.510 \text{ kg}) / (0.167 \times 0.4606 \text{ m}^3/\text{day}) = 0.02 \text{ } \mu\text{g}/\text{m}^3$$

Since the weight and inhalation rate of the rats were not given in the summary of the study, and the strain was not specified, default values for these parameters were utilized.

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