MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

October 13, 2003

TO: m-Trifluoromethylphenol file (CAS # 98-17-9)

FROM: Gary Butterfield

SUBJECT: Screening level for m-trifluoromethylphenol

m-Trifluoromethylphenol is a yellowish liquid with a molecular weight of 162.11 g/mol. m-Trifluoromethylphenol is also commonly known as alpha,alpha,alpha-trifluoro-m-cresol, m-hydroxybenzotrifluoride, or HYT. The melting point is -1.8 degrees Celsius. The boiling point is 178 degrees Celsius.

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. There were very few hits found during the literature searches for this chemical. One acute oral rat study from EPA's ToSCA library was obtained. This study was submitted to EPA by Dow Chem. In this unpublished acute oral study, a single dose of 50 mg/kg was administered to three F344 rats. This is not an LD50 study. Two of the three rats died, which indicates that the LD50 may be close to 50 mg/kg.

Dow Chemical also provided summaries of some acute studies directly to DEQ Air Quality (Dow/Brooks and DeWildt (2000)). Some of this data may be included in the Dow submittal to EPA's ToSCA library described above. In the acute oral study, groups of 3 male F344 rats, weighing 204 to 276 grams, were administered a single gavage dose of 25, 50 or 2000 mg/kg. All of the rats given 2000 mg/kg died within an hour of dosing. Two of the rats given 50 mg/kg died on day 2 of the study. One of the rats given 25 mg/kg died on test day 3. The one rat from 50 mg/kg and 2 rats from 25 mg/kg survived the remaining 14 days of the observation period.

An actual LD50 was not determined from this study. However, for the purpose of determining a screening level, the 25 mg/kg will be used as a surrogate for a LD50 in the equation from R232(1)(h) as follows.

$$\text{ITSL} = \frac{25\ \text{mg/kg}}{500 \times 40 \times 100 \times 0.167} \times \frac{1\ \text{kg}}{0.9\ \text{m3}} = 0.08\ \text{ug/m3 annual average}$$

The rat default inhalation rate of 0.9 m3/kg was used in the above calculation.

References:

Dow/Brooks and DeWildt. 2000. 3-hydroxybenzotrifluoride (HYT): acute toxicological properties. CHEC file # DR-0029-8577-001. Summary submitted by Dow Chemical to DEQ Air Quality Div.

Dow Chem. ????. An acute oral toxicity study of phenol, 3-(trifluoromethyl)- in 3 rats. EPA/OTS NTIS/OTS0559967