MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

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INTEROFFICE COMMUNICATION

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September 9, 2003

TO: File for Methylvinyldichlorosilane (CAS# 124-70-9)

FROM: Michael Depa, Toxics Unit

SUBJECT: Screening Level Determination

The initial threshold screening level (ITSL) for methylvinyldichlorosilane is 6 µg/m³ (based on an annual averaging time).

The following references or databases were searched to identify data to determine the screening level: Environmental Protection Agency's (EPA's) Integrated Risk Information System (IRIS), the Registry of Toxic Effects of Chemical Substances (RTECS), the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), National Institute of Occupational Safety and Health (NIOSH) Pocket Guide to Hazardous Chemicals, Environmental Protection Bureau Library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online (1967- August 11, 2003), National Library of Medicine (NLM), Health Effects Assessment Summary Tables (HEAST), and National Toxicology Program (NTP) Status Report. The EPA has not established a reference concentration (RfC) or reference dose (RfD). There are no published occupational exposure limits for methylvinyldichlorosilane. The molecular weight is 141.07g and the boiling point is 92°C. The vapor pressure is 49.05 mmHg at 22°C.

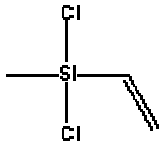

Figure 1. Molecular Formula of Methylvinyldichlorosilane

Four groups of ten Fischer 344 rats (5 males and 5 females) were exposed by whole-body vapor inhalation to methylvinyldichlorosilane vapor for 1-hr followed by a 14-day observation period (Dow, 2000). The exposure levels, as defined by nominal chamber concentrations, were 1597, 2005, 2119 and 2242 ppm. Gross necropsies were perform on all animals. The mortality observed following exposure to these concentrations was 1 male at 1597 ppm, 5 (3 males and 2 females) at 2005 ppm, 6 (3 males and 3 females) at 2119 ppm and 7 (4 males and 3 females) at 2242 ppm. All animals survived the 1-hr exposure period. Deaths occurred 3-9 days after the exposure period. Clinical signs of toxicity were indicative of respiratory (rales, gasping), and ocular (cornial opacities, lacrimation) effects. Lung injury (consolidation, congestion and/or hemorrhage) and obstructed nostrils were predominate features observed during macroscopic tissue examination of animals that died prior to the scheduled necropsy date. Corneal opacities were noted for many of the animals that survived to the

scheduled necropsy. Macroscopic tissue abnormalities and clinical signs varied in type and frequency between groups and between members within groups. The 1-hr LC50 (probit analysis) for whole-body exposure was calculated to be 2021 ppm (11,654 mg/m^3) with a 95% confidence interval of 1806 ppm and 2257 ppm.

The ITSL was determined according to Rule 232(g) as follows:

ITSL = LC50/(500 x 100 x 40)

ITSL = 2021 ppm/2,000,000

ITSL = 0.0010105 ppm

mg/m^3 = (ppm x MW)/24.45

mg/m^3 = (0.0010105 x 141.05)/24.45

mg/m^3 = 0.005829

ITSL = 5.829 µg/m^3

ITSL = 6 µg/m^3 (based on annual averaging time).

Reference

Dow, 2000. An acute whole-body inhalation toxicity study of methylvinyldichlorosilane in Fischer 344 rats. Dow Corning Corporation, Health and Environmental Sciences 2200 W Salzburg Rd, Midland, Michigan 48686-0994. Report Number: 2000-I0000-49526. December 18, 2000.