

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for bis (2-methoxy-1-methylethyl) maleate (CAS # 102054-10-4)

FROM: Keisha Williams, Air Quality Division, Toxics Unit

DATE: June 23, 2015

SUBJECT: Screening Level Review for bis (2-methoxy-1-methylethyl) maleate

The initial threshold screening level (ITSL) for bis (2-methoxy-1-methylethyl) maleate is 6 $\mu\text{g}/\text{m}^3$, annual averaging time.

The following references or databases were searched to identify data to determine the screening level: United States 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, MDEQ Library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) Online, National Library of Medicine (NLM), Health Effects Assessment Summary Tables (HEAST), National Toxicology Program (NTP) Status Report, EPA Aggregated Computational Toxicology Resource (ACToR) Database, EPA TSCATS database, EPA Superfund Provisional Peer Reviewed Toxicity Values, EPA Acute Exposure Guideline Levels for Airborne Chemicals, EPA High Production Volume Database, United States Department of Labor Occupational Safety and Health Administration Permissible Exposure Limits, Spacecraft Maximum Allowable Concentrations, California Office of Environmental Health Hazard Assessments Reference Exposure Levels, Chemical Safety Program Protective Action Criteria, Texas Commission on Environmental Quality Effects Screening Levels, and European Chemicals Agency Registered Substances Dossiers.

The ITSL was established in 1992 (see attachment of MDNR, 1992), and based on an unpublished rat oral LD50 study, where an LD50 of 2120 mg/kg was observed in female rats (Franklin et al., 1985). In accordance with the Air Quality Division Rule 336.1232 (1) (h), the ITSL was calculated to be 6 $\mu\text{g}/\text{m}^3$.

The literature search performed alongside this screening level review has not revealed new information. As a result, the ITSL will remain 6 $\mu\text{g}/\text{m}^3$, annual averaging time.

References

MDNR. 1992. Memo from Mary Lee Hultin to File for bis (2-methoxy-1-methylethyl) maleate. October 9, 1992. Michigan Department of Natural Resources, Air Quality Division.

Franklin, B.H., E. Stanton, W.H. Siddiqui. 1985. Acute oral toxicity study of Dow Corning® X2-7391 in rats. Dow Corning Corporation. Reference No. 6470-68.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

October 9, 1992

TO: FILE

FROM: Mary Lee Hultin

SUBJECT: ITSL for bis(2-methoxy-1-methylethyl) maleate (Cas #102054-10-4)

Dow Corning provided two studies for review, a rat oral LD50 and a subchronic 28 day oral study in rats. The oral subchronic study did not establish a clear no-effect level in male rats, as kidney weight increases were seen at all doses. The no-effect level in females was 50 mg/kg/day. Due to the lack of a NOAEL in the males at the 50 mg/kg dose, the study will not be used for calculation of a screening level.

The LD50 study appears to be well designed. The LD50 in female rats was 2120 mg/kg and was 3150 mg/kg for males. Since the LD50 for females is significantly lower, it will be used for screening level derivation.

ITSL for bis (2-methoxy-1-methylethyl) maleate:

$$\frac{1}{500} \times \frac{1}{40} \times \frac{1}{100} \times \frac{2120 \frac{mg}{kg} \times 0.250 \text{ kg}}{0.167 \times 0.256 * } = 0.006 \frac{mg}{m^3} \text{ or } 6.0 \frac{\mu g}{m^3}$$

*Inhalation rate derived from the allometric equation in Table 3 of the document, "Default Biological Values for Use in Risk Assessment, Hazard Assessment and Dose Conversion," MDNR, 10-14-91.

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