MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for Methyl iodide (CAS # 74-88-4)

FROM: Robert Sills, AQD Toxics Unit Supervisor

SUBJECT: Screening levels for Methyl iodide

DATE: August 19, 2015

The initial threshold screening level (ITSL) for methyl iodide (a.k.a., iodomethane) is 120 µg/m^3 with an 8 hour averaging time (AT).

Methyl iodide is on EPA's HAPs list, however, EPA (2015a; Table 1) does not provide any chronic inhalation dose-response values. EPA (2015a; Table 2) provides only the following acute dose-response values: ERPG-1 = 150 mg/m^3; ERPG-2 = 290 mg/m^3; IDLH/10 = 58 mg/m^3. EPA (1992; IRIS) states that the inhalation RfC assessment status is "no data", with the RfC "under review" since 9/1/92. ATSDR (2015a, 2015b) does not have a toxicological profile or Minimal Risk Levels (MRLs) for methyl iodide. EPA (2015b) does not have a PPRTV for iodomethane since it is currently registered as a pesticide. Cal OEHHA (2015) does not have RELs for methyl iodide. EPA HEAST (1997) does not provide an RfC. Texas CEQ (2015) does not have a Development Support Document for methyl iodide.

NIOSH (2015) does not provide an REL, however, ACGIH (2001) has a TLV-TWA = 2 ppm (12 mg/m^3; 12000 ug/m^3) for methyl iodide. The TLV is intended to miinimize the potential for eye irritation observed in exposed rats at 30 and 60 ppm for 14 weeks (a NOAEL was at 10 ppm) without clinical or microscopic pathologic changes. The TLV is also intended to provide a wide margin of protection against central nervous system effects reported in humans exposed to high concentrations of methyl iodide at their worksites (ACGIH, 2001). ACGIH (2001) also notes that methyl iodide is an alkylating agent and a direct-acting mutagen in mouse lymphoma cells, but has not been shown to be carcinogenic.

The ITSL is derived from the ACGIH (2001) TLV as follows, per Rule 232(1)(c):

$$\text{ITSL} = \frac{\text{OEL (TLV)}}{100} = \frac{12{,}000\ \mu g/m^3}{100} = 120\ \mu g/m^3 \text{ (8 hour AT)}$$

References

ACGIH. 2001. Documentation of the TLVs and BEIs. 7th Edition.

ATSDR. 2015a. Substance Index for ToxProfiles.
http://www.atsdr.cdc.gov/toxprofiles/index.asp#

ATSDR. 2015b. Air comparison values in ug/m^3 from ATSDR's Sequoia database. 3/25/2015.

Cal OEHHA. 2015. Air Toxicology and Epidemiology. http://www.oehha.ca.gov/air/allrels.html

EPA. 2015a. EPA OAQPS dose-response assessment tables for HAPs. http://www2.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants

EPA. 2015b. Provisional peer reviewed toxicity values for Superfund (PPRTV). http://hhpprtv.ornl.gov/quickview/pprtv.php

EPA. 1997 HEAST. http://rais.ornl.gov/epa/heast/table1.htm

EPA. 1992. IRIS database. Chemical entry for methyl iodide. Inhalation RfC assessment. Last revised 9/1/92. Still current as of 8/19/15.

NIOSH. 2015. http://www.cdc.gov/niosh/az/i.html

Texas CEQ. 2015. http://www.tceq.texas.gov/toxicology/dsd/final.html

RS:lh