

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for 1,1,2,2-Tetrachloroethane (CAS # 79-34-5)
FROM: Robert Sills, AQD Toxics Unit Supervisor
SUBJECT: 1,1,2,2-Tetrachloroethane IRSL Justification
DATE: December 23, 2015

The IRSL and SRSL for 1,1,2,2-tetrachloroethane are 0.02 and 0.2 ug/m³, respectively, as established on 9/30/2010. The averaging time is annual.

EPA (2010) determined that the weight of evidence for carcinogenicity for 1,1,2,2-tetrachloroethane was, "likely to be carcinogenic to humans", based on data from an oral cancer bioassay in male and female rats and mice. EPA (2010) derived an oral slope factor of 0.2 per mg/kg-day based on statistically significant dose-related increases in hepatocellular carcinomas in male and female mice. EPA (2010) did not derive an inhalation unit risk estimate. In 2010, AQD derived an inhalation unit risk estimate, an IRSL, and a SRSL from the EPA (2010) oral slope factor as follows:

$$\text{Inhalation unit risk estimate} = 0.2 \text{ (mg/kg-d)}^{-1} \times \frac{20 \text{ m}^3/\text{d}}{70 \text{ kg}} \times \frac{1 \text{ mg}}{1000 \text{ ug}} = 5.7\text{E-}5 \text{ (ug/m}^3\text{)}^{-1}$$

$$\text{IRSL} = \frac{1\text{E-}6}{5.7\text{E-}5 \text{ (ug/m}^3\text{)}^{-1}} = 0.0175 \text{ ug/m}^3 \sim 0.02 \text{ ug/m}^3$$

$$\text{IRSL} = \frac{1\text{E-}5}{5.7\text{E-}5 \text{ (ug/m}^3\text{)}^{-1}} = 0.175 \text{ ug/m}^3 \sim 0.2 \text{ ug/m}^3$$

References:

EPA. 2010. Integrated Risk Information System (IRIS database). Chemical file for 1,1,2,2-tetrachloroethane. Carcinogenicity assessment last revised 9/30/2010. Still current as of 12/23/15.