

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for 2-ethoxyethanol (CAS # 110-80-5)
FROM: Robert Sills, AQD Toxics Unit Supervisor
SUBJECT: 2-ethoxyethanol ITSL change in the averaging time from 24 hrs to annual
DATE: February 7, 2017

The current ITSL for 2-ethoxyethanol is 200 ug/m^3 , with annual averaging time (AT).

Previously, the ITSL was established on December 19, 1990 at 200 ug/m^3 with 24 hr averaging time. The basis for the ITSL was the EPA (1991) Reference Concentration (RfC) = 200 ug/m^3 , which was based on a subchronic white rabbit inhalation bioassay and the critical effects of decreased testis weight, slight focal degeneration of the seminiferous tubules, and decreased hemoglobin, hematocrit, and erythrocyte count. The NOAEL = 380 mg/m^3 , NOAEL (ADJ) = NOAEL (HEC) = 68 mg/m^3 (EPA, 1991). EPA (1991) applied a total uncertainty factor (UF_T) = 300, consisting of $UF = 10$ for each intraspecies extrapolation and subchronic-to-chronic conversion (the exposure duration was 13 weeks), and $UF = 3$ for interspecies extrapolation.

The averaging time (AT) assigned to the ITSL in 1990 was 24 hours, as per the default methodology at that time (Rule 232(2)(b)). However, the current file review concludes that the AT for the ITSL may appropriately be set at annual, based on the nature and duration of the key study and the ITSL value derivation, as allowed under Rule 229(2)(b).

The ITSL and RfC is calculated as follows:

$$POD = \text{NOAEL(HEC)} = 68000 \text{ ug/m}^3$$

$$\text{ITSL} = \frac{68000 \text{ ug/m}^3}{UF_T = 300} = 227 \text{ ug/m}^3 \sim 200 \text{ ug/m}^3 \text{ (annual AT)}$$

Reference:

EPA. 1991. Integrated Risk Information System (IRIS database). Chemical file for 2-ethoxyethanol. Last revised 5/1/91. Retrieved 2/7/17.