

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: File for 2-Nitropropane (CAS # 79-46-9)

FROM: Robert Sills, AQD Toxics Unit Supervisor

SUBJECT: 2-Nitropropane ITSL change in the averaging time from 24 hrs to annual

DATE: December 23, 2015

The current ITSL for 2-Nitropropane (20 ug/m^3) is 20 ug/m^3 as derived on September 3, 1991 based on the EPA (1991) RfC of the same value. The averaging time (AT) assigned to the ITSL at that time was 24 hours, as per the default methodology at that time (Rule 232(2)(b)). The current file review concludes that the AT 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). Therefore, the AT is being changed from 24 hours to annual at this time.

The EPA (1991) RfC of 20 ug/m^3 was based on a critical effect of liver vacuolization and nodules in rat chronic inhalation studies. The LOAEL was determined to be 78 mg/m^3 (25 ppm); the LOAEL (ADJ) = 16 mg/m^3 ; and, the LOAEL (HEC) = 16 mg/m^3 . EPA (1991) applied a total UF = 1000, consisting of: 10 for protection of sensitive human subpopulations; 10 to account for the use of a LOAEL for a mild effect and for interspecies extrapolation; and 10 due to lack of adequate developmental and reproductive studies and concern about the quality of the principal studies.

$$\text{ITSL} = \text{RfC} = \frac{16 \text{ mg/m}^3}{1000} \times 1000 \text{ ug/m}^3 = 16 \text{ ug/m}^3 \sim 20 \text{ ug/m}^3$$

References:

EPA. 1991. Integrated Risk Information System (IRIS database). Chemical file for 2-Nitropropane. Last revised 3/1/91. Still current as of 12/23/2015.