

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**

**INTEROFFICE COMMUNICATION**

TO: File for n-Hexane (CAS# 110-54-3)

FROM: Doreen Lehner, Toxics Unit, Air Quality Division

DATE: January 30, 2017

SUBJECT: n-Hexane (CAS# 110-54-3) change in the averaging time from 24 hours to annual

The initial threshold screening level (ITSL) for n-hexane is  $700 \mu\text{g}/\text{m}^3$  based on an annual averaging time. The ITSL was originally established on 1/4/2006 and is based on an EPA (2005) RfC of  $7 \times 10^{-1} \text{mg}/\text{m}^3$ . The EPA derived the RfC from a 16-week inhalation study on male rats by Huang et al, (1989). Male Wistar rats (8/group) were exposed to 0, 500, 1200, or 3000 ppm (0, 1762, 4230, or 10574  $\text{mg}/\text{m}^3$ ) n-hexane for 12 hours/day, 7 days/week for 16 weeks, which found the critical effect of peripheral neuropathy measured by decreased motor nerve conduction velocity (MCV) at 12 weeks of exposure. EPA calculated the RfC  $7 \times 10^{-1} \text{mg}/\text{m}^3$  using benchmark dose statistical software. When the screening level was derived in 2006 the averaging time was set at 24 hours. As the basis of the screening level is based on a 16-week inhalation study, the averaging time may appropriately be set at annual. Therefore, the averaging time is being changed from 24 hours to annual.

**References:**

Act 451 of 1994, Natural Resources and Environmental Protection Act and Air Pollution Control Rules, Michigan Department of Environmental Quality.

EPA. 2005. Integrated Risk Information System. N-Hexane (CASRN 110-54-3). Available online at: [https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance\\_nmbr=486](https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=486)

Huang J, Kato K, Shibata E, Sugimura K, Hisanaga N, Ono Y, Takeuchi Y. 1989. Effects of chronic n-hexane exposure on nervous system-specific and muscle-specific proteins. Arch Toxicol 63:381-385.

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TO: n-Hexane file (CAS # 110-54-3)

FROM: Gary Butterfield

SUBJECT: Screening level for n-Hexane

DATE: January 4, 2006

The EPA updated the IRIS entry for n-hexane at the end of December with a revised RfC. The new RfC is based on rat motor nerve conduction velocity changes in rats following 16 weeks of exposure, as reported by Huang et al (1989). The new RfC was set at 700 ug/m<sup>3</sup>, compared to the old RfC at 200 ug/m<sup>3</sup>. The new RfC is based on BMD calculations. For further details, see the current IRIS n-hexane printout, or the Toxicological Review of n-hexane.

EPA. 2006. IRIS documents are available at [www.epa.gov/IRIS](http://www.epa.gov/IRIS)