

# MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT

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## INTEROFFICE COMMUNICATION

To: File for Cyclohexene (CAS No. 110-83-8)  
From: George Eurich  
Date: July 25, 2011  
Subject: Screening Level for Cyclohexene

The Initial Threshold Screening Level (ITSL) for Cyclohexene is 10,000 ug/m<sup>3</sup> based on an 8 hour averaging time.

The following references or databases were searched to identify data to determine the screening level: U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS), National Institute for Occupational Safety and Health (NIOSH) Registry for Toxic Effects of Chemical Substances (RTECS), American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), Michigan Department of Natural Resources and Environment (DNRE) library, International Agency for Research on Cancer (IARC) Monographs, Chemical Abstract Service (CAS) online (1968-October 2005), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report.

The available data on the toxicity of cyclohexene is described in the file copy of the 'Interim Chemical Evaluation' dated March 3, 2000. This evaluation noted a 10,200 ug/m<sup>3</sup> Interim ITSL had been established by the AQD in 1992. Updated literature reviews on this compound were performed by the AQD in 2005 and again in July 2011. No new or relevant information was identified based on the literature searches.

The EPA has not established a reference concentration (RfC) or a reference dose (RfD) for cyclohexene. ACGIH and NIOSH have each identified an Occupational Exposure Level of 300 ppm (1000 mg/m<sup>3</sup> – 1 significant figure).

As the basis for the ACGIH TLV determination, a chronic inhalation study (6 hours/day, 5 days/week for 6 months) in rats, guinea pigs, and rabbits at concentrations of 75, 150, 300, and 600 ppm showed that although significant increases in alkaline phosphatase occurred in all three rat groups, most of the hematologic parameters measured were within normal limits. Rats exposed to 600 ppm cyclohexene showed a significantly lower rate of increase in body weight than those exposed to 300 ppm or control rats. No significant changes were observed in the bone marrow of all animal species exposed. Only an abstract of the study (Laham et al, (1976)) was available for AQD review.

The screening level is based on the ACGIH TLV level of 300 ppm (1000 mg/m<sup>3</sup>) per Air Rule 336.1232(1)(c), which states: *ITSL = OEL divided by 100.*

TLV = 300 ppm (1000 mg/m<sup>3</sup>)

ITSL = 1000 mg/m<sup>3</sup>/100 (1000 ug/m<sup>3</sup>)

**ITSL = 10,000 ug/m<sup>3</sup> based on an 8 hr averaging time.**

References:

ACGIH. 2010. TLVs and BEIs based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices. ACGIH. Cincinnati, OH.

Laham, S. 1976. Inhalation Toxicity of Cyclohexene (Abstract). Abstract of Papers for the Fifteenth Annual Meeting of the Society of Toxicology, Atlanta, Georgia, March 14-18, 1976. Tox. Appl. Pharmacol. 37:155.