

MICHIGAN DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT

INTEROFFICE COMMUNICATION

TO: File for Lithium Hydroxide (CAS #1310-66-3)

FROM: Mary Lee Hultin, Toxics Unit

DATE: June 10, 2010

SUBJECT: Screening Level for Lithium Hydroxide (CAS #1310-66-3)

The screening level for lithium hydroxide is 0.25 ug/m³ based on 8-hour averaging.

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 - Feb 2008), National Library of Medicine (NLM) - Toxline, and National Toxicology Program (NTP) Status Report. The CAS and NLM searches were performed in March 2010.

There are no EPA RfC or RfD values for lithium hydroxide, nor are there published toxicity data sufficient to derive an RfC or RfD. Although there are no current occupational standards for lithium hydroxide in the published literature, there is an ACGIH TLV for lithium hydride (LiH). The basis for the lithium hydride TLV is to prevent ocular, dermal and respiratory irritation from the corrosive effects of lithium hydride hydrolysis products. Lagerkvist and Lindell¹ reviewed the key study used by ACGIH in the derivation of the TLV for lithium hydride. They report that the corrosive effects, inflammation and irritation in the study animals resulted from the alkalinity of the hydrolysis product lithium hydroxide. Lithium hydroxide has been reported to be irritating at approximately the same air levels as LiH. The pH of lithium hydroxide is 14.

Lithium compounds are used in pharmaceutical applications via oral route of administration. Excess exposures have resulted in neurotoxicity. Oral lithium has been associated with reproductive and developmental effects. However, in the case of lithium hydroxide, effects from inhalation exposure would be anticipated to stem from the alkalinity of the compound on the initial impact to the respiratory tract at exposures far lower than those doses associated with reported reproductive/developmental effects or neurotoxicity. Lithium compounds have not been determined to cause mutagenicity in a variety of assays.

¹ Lagerkvist, B.J. and B. Lindell, 2002, The Nordic Expert Group for Criteria Documentation of Health Risks from Chemicals, No. 131., Lithium and lithium compounds, Nordic Council of Ministers, <http://www.niwl.se/>

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