Call for Public Comments on Proposed ERPGs for Lithium Hydride

The AIHA Guideline Foundation (AGF) Emergency Response Planning (ERP) Committee develops Emergency Response Planning Guidelines (ERPGs) for responding to potential releases of airborne substances for use in community emergency planning. ERPGs are air concentration guidelines for single exposures to agents and are intended for use as tools to assess the adequacy of accident prevention and emergency response plans, including transportation emergency planning, community emergency response plans and incident prevention and mitigation.

The ERP Committee has proposed the following values for ERPGs for Lithium Hydride. In addition to providing comments, the committee also welcomes any additional references or resources that could be provided to them for consideration. The public comment period ends on February 24, 2016. Comments should be sent to the AGF addressed to Laurie Mutdosch (lmutdosch@aiha.org) or:

AIHA Guideline Foundation
3141 Fairview Park Drive, Suite 777
Falls Church, VA 22042

RECOMMENDED ERPGS FOR LITHIUM HYDRIDE AND RATIONALES

A. ERPG-3: 3.0 mg/m³

3.0 mg/m³ of lithium hydride is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing life-threatening health effects. This level is based on a nonlethal level of 17 mg/m³ in a 5.5 hr exposure to rats. The 4 hour LC₅₀ in rats was 960 mg/m³ for LiOH. Concentrations of LiOH in the range of 0.1 to 5.0 mg/m³ became intolerable to human workers in 8 hour exposures. While the animal data might suggest a higher level for ERPG-3, exposures above 3.0 mg/m³ may produce severe, possible life threatening health effects, such as pulmonary edema, in a heterogeneous human population.

B. ERPG-2: 0.1 mg/m³

0.1 mg/m³ of lithium hydride is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious adverse health effects or symptoms that could impair an individual’s ability to take protective action. This recommendation is based on findings that severe nose irritation, some eye irritation, coughing, and sneezing were noted in workers exposed to LiH above this level. In the workplace, concentrations in the range of 0.1 to 5.0 mg/m³ became intolerable in 8 hour exposures to workers and the authors recommended an 8 hour occupational exposure level of 0.05 mg/m³. Intolerable at 8 hr for workers for 0.1 – 0.5 mg/m³ might suggest a higher level for a one hour exposure, but LiOH is severely irritating and levels above 0.1 mg/m³ could impair escape in sensitive individuals in the general population.

C. ERPG-1: 0.025 mg/m³

0.025 mg/m³ of lithium hydride is the maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing effects other than mild transient health effects or without perceiving a clearly defined objectionable odor.
This concentration is at the low end of the range of concentrations (0.025-0.1 mg/m³) tolerated by acclimated workers in the laboratory; however, those workers did experience some irritation (nasal tickling sensation and nasal discharge) in 8 hour exposures. Although this degree of irritation is not great, higher concentrations are not recommended for this ERPG-1 because it is stated to be odorless and therefore would not provide a warning of exposure.

HISTORY OF LITHIUM HYDRIDE

- First published in 1996—ERPG-1 0.025 mg/m³; ERPG-2 0.1 mg/m³; ERPG-3 0.5 mg/m³
- Updated and republished in 2006—No change in ERPG values
- Updated and republished in 2015—ERPG-1 0.025 mg/m³; ERPG-2 0.1 mg/m³; ERPG-3 3.0 mg/m³

REFERENCES


[German.]


