Call for Public Comment: Butyl Isocyanate Proposed ERPG

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 Butyl Isocyanate. 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 Friday, April 22, 2022, at 11:59 p.m. Eastern (10:59 p.m. Central / 9:59 p.m. Mountain / 8:59 p.m. Pacific).

To provide comments and/or additional references or resources, please complete the online form via https://www.surveymonkey.com/r/Q8ZGF9X or via mail as follows:

AIHA Guideline Foundation
Attention: Michele Twilley, CIH
3141 Fairview Park Drive, Suite 777
Falls Church, VA 22042

BUTYL ISOCYANATE PROPOSED ERPG AND RATIONALE

ERPG-3: 2 ppm (8.1 mg/m3)

2 ppm of butyl isocyanate (BIC) is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing or developing life threatening health effects. This is based on acute inhalation experiments that showed BIC to be highly toxic in rats with one hour LC₅₀ₐ of 98 ppm in males (Pauluhn 2015) and 105 ppm in combined male – female exposures (Bayer Chemical Corporation, 1976). A one-hour LC₀₁ was calculated to be 64 ppm (Pauluhn 2015).
ERPG-2: 0.2 ppm (0.81 mg/m3)

0.2 ppm of BIC is the maximum airborne concentration below which nearly all individuals could be exposed for up to one 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 value is well below the 10 ppm RD50 concentration for rats exposed to BIC for 45 minutes (Pauluhn and Eben, 1992). Rats exposed for 6 hours a day for 5 days to 1.5 ppm of BIC showed minor reversible lung effects, while rats similarly exposed to 0.27 ppm showed no effects. Although 0.2 ppm of BIC could cause mild transient eye and upper respiratory tract irritation, industrial hygiene data in workers indicate that this level is not expected to impede escape (DuPont 1994) (DuPont 2008).

ERPG-1: 0.05 ppm (0.20 mg/m3)

0.05 ppm of BIC is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing or developing effects other than mild transient health effects or without perceiving a clearly defined objectionable odor. Eye irritation or other effects did not occur in most workers in a plant at concentrations up to 0.04 or 0.05 ppm for several hours (DuPont 1994) (DuPont 2008).

Reference List


DuPont Company. 1994. Personal communication to the AIHA ERP Committee. (Unpublished Data). Newark, DE.

