



3141 Fairview Park Drive  
Falls Church, VA 22042

## Call for Public Comment: Monoethanolamide 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 Monoethanolamide. 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/CLGPD66>** or via mail as follows:

AIHA Guideline Foundation  
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Falls Church, VA 22042

### **MONOETHANOLAMINE PROPOSED ERPG AND RATIONALE**

#### **ERPG-3: 60 ppm (150 mg/m<sup>3</sup>)**

60 ppm of monoethanolamine (MEA) is the maximum airborne concentration below which nearly all individuals could be exposed for up to one hour without experiencing life-threatening effects or mortality. Exposure to 500 mg/m<sup>3</sup> (200 ppm) MEA for 6 hours per day for 5 consecutive days was tolerated and without mortality in rats (ECHA 2016). Therefore, 60 ppm is both a conservative estimate of the 1-hour LC01 in rats and matches those LC01 values reported by (Price et al. 1979) and (Treon et al. 1957).

## ERPG-2: 20 ppm (50 mg/m<sup>3</sup>)

20 ppm of MEA 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 effects or symptoms that could impair an individual's ability to take protective action. When using 4-week, 5-times/week, 6 hr/day exposure results from (MAK, 2016), minimal histopathological evidence of respiratory tract irritation was found at 150 mg/m<sup>3</sup> (60 ppm). The nature of the findings, especially in the proximal airways, appeared to be relatively aerosol-specific. Likewise, the squamous metaplasia in the ventral aspects of the larynx seem to be related to rat-specific compensatory responses to irritant aerosol. Thus, when accounting for the different exposure regimen, 50 mg/m<sup>3</sup> (20 ppm) can be taken as a POD and NOAEL and supports application of the default approach of identifying the ERPG-2 as 1/3 of the ERPG-3.

## ERPG-1: 4 ppm (10 mg/m<sup>3</sup>)

4 ppm of MEA 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. Lethargy was observed in dogs exposed to 12 ppm MEA for 2-3 weeks of exposure (Weeks et al., 1960). No effects were observed in rats exposed to 8 ppm of MEA for 6 hours per day for 5 days (ECHA, 2016). Human subjects detected MEA odor at concentrations ranging from 2.1 to 4.3 ppm, with irritation at 5.3 ppm (Ruth, 1986). Although people may detect MEA odor at 4 ppm, it is likely to be mild and unlikely to be objectionable.

## Reference List

European Chemicals Agency (ECHA). 2016. CoRAP-Substance Evaluation Report, 2-Aminoethanol." CAS 141-43-5. <https://echa.europa.eu/information-on-chemicals/evaluation/community-rolling-action-plan/corap-table/-/dislist/details/0b0236e18070c23b>. See also Registration dossier for 2-aminoethanol, ED number 205-483-3. <https://echa.europa.eu/registration-dossier/-/registered-dossier/15808/7/3/3/?documentUUID=b4348d26-16c1-440f-b664-aca520a9048e>

MAK Commission. (MAK). 2016. The MAK Collection for Occupational Health and Safety 2016, Vol 1, No 1, *WILEY-VCH Verlag GmbH & Co. KGaA, 2-Aminoethanol* [141-43-5]. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/3527600418.mb14143e6018>

Price N.H., W.G. Yates, S.D. Allen, and S.W. Waters. 1979. "Toxicity Evaluation of establishing IDLH values (Final Report)" TR 1518-005. University of Utah Research Center, Salt Lake City, UT.

Ruth J.H. 1986. "Odor thresholds and irritation levels of several chemical substances: A review." *AIHA J* 47:A142.

Treon, J.F., F.P. Cleveland, K.L. Stemmer, E.D. Cappel, E.D. Larson, and F. Shaffer. 1957. "The response of animals to airborne monoethanolamine". The Kettering Laboratory, College of Medicine, University of Cincinnati, Ohio 54219. Presented in part at the 1958 Industrial Health Conference, Atlantic City, NJ.

Weeks, M.H., T.O. Downing, N.P. Musselman, T.R. Carson, and W.A. Groff. 1960. "The effect of continuous exposure of animals to ethanolamine vapour." *Am. Ind. Hyg. Ass. J.* 21, 374-381.