Call for Public Comments on Proposed ERPGs for Thionyl Chloride

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 Thionyl Chloride. 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 March 17, 2017. Comments should be sent to the AGF addressed to Laurie Mutdosch (lmutdosch@aiha.org) or

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RECOMMENDED ERPGS FOR THIONYL CHLORIDE AND RATIONALES

A. ERPG-3: 20 ppm (97.4 mg/m^3)

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 is 20 ppm. Based on the 1-hour non-lethal concentration of LC_{01} and LC_{50} values were 684 and 1,957 ppm, respectively (Pauluhn, 1987; 1986), a higher value appears to be scientifically defensible but may not necessarily be protective for the products of hydrolysis.

B. ERPG-2: 2.5 ppm (12.2 mg/m^3)

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 health effects or symptoms that could impair an individual's ability to take protective action is 2.5 ppm. Concentrations higher than the ERPG-2 value might produce acute irritant and long-lasting airway injury and associated effects in susceptible individuals, and thereby potentially impair the ability to egress an exposure area. While 13 ppm x 4h nose-only exposed rats showed slight and rapidly reversible hyperemia of the nose/nostrils, those exposed to 83 ppm x 4h displayed reversible signs suggestive of upper respiratory tract sensory irritation in the absence of early (1^{st} post-exposure day) or late (about 2 weeks post-exposure) obstructive changes. Changes in lung function suggestive of lung injury occurred at a markedly higher exposure concentration (329 ppm x 4h).

C. ERPG-1: 0.25 ppm (1.2 mg/m^3)

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 is believed to be 0.25 ppm. The first onset of transient upper respiratory tract irritation was observed in 2 out of 10 rats after exposure at 13 ppm x 4h. This sensation-related finding occurs typically C- rather than Cxt-dependently.

HISTORY OF THIONYL CHLORIDE ERPG

First published in 2002: ERPG-1: 0.2 ppm; ERPG-2: 2 ppm, ERPG-3: 10 ppm.

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