Environmental Engineering ▪ Air Pollution and Control

Health Effects of Hexachloroethane (HC) Smoke

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Abstract: Grenades, smoke pots , and artillery shells are used to produce HC smoke. Soldier exposure to HC smoke and worker exposure to the volatile components of HC smoke munitions are reviewed. HC smoke is produced by the combustion of a mixture of hexachloroethane (HCE), zinc **oxide** and **aluminum**. The major component of the smoke is zinc chloride. There are also several chlorinated organic compound in the smoke, some of which are documented potential human carcinogens. Exposure of unprotected soldiers to high concentrations of HC smoke for even a few minutes has resulted in injuries and fatalities. Therefore, it must be emphasized that this smoke should never be employed in enclosed areas and that all personnel must be compelled to mask when HC smokes are employed. In addition, HCE, the organic component of the smoke mixture, while it is not a major component of the smoke, has been recognized as a possible human carcinogen and has been shown to accumulate in the blood of exposed workers. HCE thus constitutes an occupational hazard to the workers in Army ammunition plants where smoke munitions are assembled, loaded, and packed. Smoke, Hexachloroethane, Zinc chloride, Inhalation, Toxicity, Toxicology review.

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