HUMAN HEALTH AND ENVIRONMENTAL TOXICITY ISSUES FOR EVALUATION OF HALON REPLACEMENTS

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ABSTRACT

The Clean Air Act Amendments of 1990 require the U.S. Environmental Protection Agency (EPA) to phase out production and use of ozone-depleting chemicals -- among them, the fire-suppressants, Halons. As part of its rulemaking efforts EPA must evaluate the potential hazards to human health and the environment that could result from exposure to compounds that may substitute for Halons.

EPA bases health hazard assessment on data obtained in studies involving short term and long term exposures. The former are used to evaluate potential risks of acute or delayed effects potentially resulting from short exposures at high concentrations, such as might be experienced in episodic emissions in the workplace. Studies with long term exposure are used to assess potential adverse effects from continued exposure to low ambient concentrations. In addition, reproductive and developmental hazards are evaluated in several animal species.

About ten chlorinated-, brominated-, and/or fluorinated hydrogen-containing hydrocarbons, to be used alone or in combination, have been proposed as Halon substitutes. Sufficient data to enable EPA to perform health hazard and risk assessment has been submitted for about five of these.

This presentation will discuss current EPA/OAR thinking on a decision-tree approach for testing the toxicity of Halon substitutes under the Significant New Alternatives Policy (SNAP) program.

EPA uses short and long term exposures to assess environmental effects of chemicals. These include laboratory studies of longevity and reproduction in representative terrestrial and aquatic species. Very few data are available for potential Halon substitutes.