

Propellants

by Chemours

Toxicity Overview

Technical Information

Before using any propellants from Chemours, review the Safety Data Sheets (SDS). They can be obtained from the Customer Service Center or your representative from Chemours.

Inhalation Toxicity

The occupational exposure limit set by Chemours is referred to as the acceptable exposure limit (AEL), which is the atmospheric concentration of an air-borne chemical to which nearly all workers may be exposed repeatedly, day after day, during an 8-hr day, or 40-hr week, without adverse effect. The Chemours AEL for all of our propellants is 1000 ppm, 8-hr and 12-hr time weighted average (TWA), which is the highest occupational exposure limit established by Chemours. However, even though our propellants exhibit low toxicity, it is good industrial hygiene practice to avoid unnecessary exposure to their vapors.

Because propellant vapors are heavier than air, they can accumulate in enclosed spaces, e.g., a gassing room or in spaces situated near or below floor level, e.g., a stairwell or trench. This situation could expose personnel to high concentrations of propellant vapors accidentally. A major hazard of these materials is suffocation, because of the displacement of air from confined spaces or those below floor level.

Inhaling high concentrations of propellant vapor will affect the central nervous system and produce an anesthetic-like effect.

Symptoms may include dizziness, a feeling of intoxication, and loss of coordination. Continued breathing of high concentrations of propellant vapors may produce cardiac sensitization in some individuals or may result in unconsciousness. Inhalation of very high concentrations can cause suffocation and death.

Personnel who experience any of the initial symptoms should move to fresh air and seek medical attention immediately. Recovery occurs quickly, usually with very little aftereffect.

Cardiac Sensitization

Cardiac sensitization is an increased "sensitivity" of the heart to the body's own adrenaline brought about by exposure to high concentrations of many hydrocarbons and halocarbons. This could cause cardiac irregularities and possibly cardiac arrest. The likelihood of such heart problems increases when under physical or emotional stress. If a person experiences breathing difficulty, medical treatment must be given immediately. Administer oxygen. If breathing has stopped, give artificial respiration. Do not treat overexposure to propellants from Chemours with epinephrine (adrenaline) or similar catecholamines, because they increase the risk of cardiac arrhythmias and arrest.

Skin and Eye Contact

In low concentrations, propellant vapors have little or no effect on the skin or eyes and it is unlikely they would be ingested. However, if liquid propellants from Chemours contact either skin or eyes; serious frostbite can occur. Wear protective clothing when there is a risk of exposure to liquid propellants from Chemours. When splashing is possible, always wear eye protection and a face shield.

Should liquid propellant contact the skin, treat the affected area with lukewarm water (not cold or hot water), and get medical treatment immediately.

If a splash occurs and liquid propellant get into the eyes, flush them with water and get medical treatment immediately. Contact lens should not be worn in situations in which liquid propellants could enter or splash into the eyes.

Spills and Leaks

In the event of a large spill or leak, evacuate all personnel to minimize exposure to high concentrations of vapor.

Personnel should wear a self-contained breathing apparatus, if they must enter an area in which a spill or leak occurred. Ventilate the area using blowers or fans at floor level to circulate the air. Caution: Do not use ordinary electric fans to ventilate areas containing flammable propellant vapors. They may produce sparks that could ignite the vapors. Always wear a self-contained breathing apparatus when entering tanks or other confined areas where high concentrations of propellant vapors might exist. Use the buddy system and a lifeline.

Propellants from Chemours have a slightly sweet, ethereal odor that can be difficult to detect. The best way to monitor the concentration of propellant vapors in air is with infrared monitoring devices. Hot wire systems may not be compatible with HP 152a and Freon™ 134a.

Decomposition

Freon™ 134a propellant vapors can be decomposed by hot surfaces or open flames. The same is true of HP 152a and HP DME vapors, when they are present in air at concentrations below their lower explosive limit (LEL). Freon™ 134a and HP 152a when decomposed produce toxic and irritating hydrogen fluoride vapor. The latter is hazardous, and the area should be evacuated and ventilated to prevent exposure of personnel to it. However, the irritating nature of the fumes will generally force people to leave the area well before hazardous effects can occur.

The decomposition products of HP DME may be hazardous, depending on the conditions under which it decomposes. Accordingly, HP DME should not be exposed to temperatures exceeding those normally encountered during safe handling and use as an aerosol propellant.

Anyone suffering ill effects from exposure to decomposition products should be taken to fresh air and given medical treatment immediately.

Toxicity Summaries

The following toxicity summaries for each of our propellants are available from Chemours.

- Toxicity summary for dimethyl ether (HP DME)
- Toxicity summary for HP 152a
- Toxicity summary for HFC-134a (Freon™ 134a)

For more information about propellants from Chemours, visit Chemours.com/Propellants

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Replaces: H-57665
C-10773 (3/16)