



AEROSOLS

● SOCIETAL IMPORTANCE

Nearly 95% of all aerosols do not use fluorocarbons. Flammability, pressure, safety, and efficacy make fluorocarbons uniquely suited for certain applications such as safety horns, lubricants, and technical aerosols. Many products that consumers depend on today can only be effectively delivered from an aerosol package.

Critical Application Considerations

Aerosol packaging is chosen for a variety of reasons. Most significant is safety since aerosols are sanitary and tamper resistant. Aerosol products are also efficient and easy to use. There is no evaporation, deterioration, or contamination of the contents. In addition, the ingredients do not need to be mixed separately before use, they are spill-proof,

and aerosols can be used to effectively target a specific area. Because of their unique delivery system, aerosols are efficient at using 100% of the contents of the can, leaving no waste. Some products are not available in any other form such as shaving foams, silicone sprays, expanding packaging foams, and surgical sutures.

Environmental Considerations

In the US today, the predominant propellants used in aerosols are hydrocarbons. These, paired with carbon dioxide and nitrogen, account for nearly 95% of all aerosol propellants. The preponderance of the remaining products use HFCs as propellants, which are chosen for their distinct and specialized performance properties. Specifically, HFCs used in consumer products are either non-flammable (HFC-134a), or are much less flammable than hydrocarbons (HFC-152a). Both are low in toxicity, and are not volatile organic compounds (VOCs). **All of the current aerosol propellants used in**

the US are non-ozone depleting, and were chosen as replacements for CFCs and HCFCs, which were phased out for use in the US under the Montreal Protocol. Total HFCs used as propellants account for less than 0.2% of US total global climate change emissions. HFC-152a has a very low global warming potential (GWP) and can be used safely in many consumer products, while HFC-134a, with a higher GWP, is used in a small percentage of technical aerosols where a completely non-flammable propellant is necessary, such as tire inflators, marine signal horns, and mold release sprays.

Technology Trends

Recently, HFC-134a had been the only non-flammable liquefied propellant available. However, the US EPA has approved a newly invented compound, HFO-1234ze, which can be used in many similar applications. **This**

new propellant has an extremely low GWP, is non-flammable, and is not a VOC. In addition, it has very low conversion costs, which may make it a viable replacement for HFC-134a in certain aerosol products.



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The Alliance is an industry coalition that was organized in 1980 to address the issue of stratospheric ozone depletion. It is presently composed of about 100 manufacturers and businesses which rely on HCFCs and HFCs.

Today, the Alliance is a leading industry voice that coordinates industry participation in the development of international and U.S. government policies regarding ozone protection and climate change.