



March 11, 2020

American Innovation and Manufacturing Act of 2019 Senate Testimony

Security Equipment Corporation uses Hydrofluorocarbons (HFC) in several of our SABRE Law Enforcement red pepper sprays and our FRONTIERSMAN bear attack deterrent. These products are used by law enforcement agencies and consumers who hike, camp and hunt in the great outdoors. Our products are used widely throughout the United States. HFC 134a is the non-flammable aerosol propellant in these products. It provides safety to law enforcement officers and consumers.

The purpose of the American Innovation and Manufacturing Act of 2019 is to reduce the use of HFC's and eventually ban them. We depend on HFC's to provide safe products which in turn provide safety to law enforcement officers and consumers.

The recommended replacement for HFC-134a is HFO 1234ze. HFO 1234ze is being pushed by Honeywell to phase out HFC's. Honeywell advertises HFO 1234ze as a drop-in replacement for HFC 134a. Through the course of testing HFO 1234ze compared to the HFC 134a, we have found three significant areas where HFO 1234ze is inferior to HFC 134a. These issues will cause the potential for great harm to law enforcement and consumers relying on our products for protection.

We have been petitioned previously about the ban of HFC's. The EPA issued it's SNAP Ruling in 2015. We began testing alternative propellants and formulas that time. The SNAP Ruling was overturned, however, we continued to test alternative formulas in order to comply with the eventual ban of HFCs. To date we have worked with Honeywell technical resources to develop a HFO 1234ze formula that is comparable to the current state. After several years of trying, we are no closer to success. We do not believe that regulations allowing more time to test will yield actual results. Buying more time will not solve the problem.

We have also been petitioned about the Colorado's Regulation 22: Colorado Greenhouse Gas Reporting and Emission Reduction Requirements (HFC Rule). We gave feedback to that regulation. Regulation 22 contains an exemption that includes Bear Spray and Law Enforcement Pepper Spray.

We were recently petitions about the state of Washington's HFC emergency rule. We have publicly commented our concerns with HFC 134a replacements and we are awaiting an exemption for pepper sprays and bear sprays.

Finally, we were granted an exemption from the Canadian law that bans HFC 134a in bear deterrents. These use exemptions are a 3 year period which Canada will reevaluate at the end of the period.

The major deficiencies of HFO 1234ze include 3 areas:

Issue #1: Vapor Pressure.

The Vapor pressure of HFC 134a is 71 psia @ 20 C.

The Vapor Pressure of HFO 1234ze is 56 psia @ 20 C.



At all temperatures, the vapor pressure of HFO-1234ze is substantially lower than that of HFC-134a. For aerosol products, this lower vapor pressure manifests as reduced product deployment distance. Our testing has shown on average a 35% reduction in deployment distance when formulated with HFO-1234ze versus of HFC-134a. The reduced distance constitutes much less protection to law enforcement and consumers. This is a huge safety concern. Law Enforcement will need to stand closer to a violent subject in order to use the red pepper spray products. Consumers using the bear deterrent will need to be closer to an attacking bear for the spray to reach the bear.

The greatest issue to human health is the limited range of law enforcement red pepper spray and bear spray containing HFO 1234ze. By reducing the distance of the spray, law enforcement officers are put at a greater risk for injury or death due to a combative subject. Consumers using our bear deterrent will have to be much closer to bears which could likely cause great bodily harm or death.

Issue #2: Boiling Point.

The Boiling Point of HFC 134a is -26.5 C.

The Boiling Point of HFO 1234ze is -19 C.

The boiling point is the temperature at which the liquid turns into a gas and pushes the liquid formula out of the canister. HFC 134a boils at -26.5 C. this is 7.5 degrees lower than 1234ze. HFC 134a is able to fire law enforcement red pepper and bear spray at colder temperatures than HFO 1234ze. This means law enforcement and consumers are able to have a product that works at a greater range of temperatures and provides a greater level of safety.

Issue #3: Flammability

HFO 1234ze is categorized as non-flammable. It is non-flammable when sprayed through a candle to test for aerosol flammability. However, when it is mixed in formulation and sprayed through a candle, there is significant flame extension. HFC 134a is also non-flammable. It does not project a flame when sprayed through a candle during an aerosol flammability test. It suppresses the flame and does not allow the inert ingredients, all of which are categorized as non-flammable, to ignite.

Flammability is a great concern to law enforcement. Law enforcement officers cannot use a flammable red pepper spray with a Taser. The Taser will ignite the red pepper spray and the subject who has been sprayed. This is a great risk to cause injury to a subject and a law enforcement officer.

Flammability is a great concern to bear spray users who work on oil and gas pipelines. It was the main concern we heard from users when we developed our non-flammable bear spray products. HFO 1234ze would create a significant flammability risk for consumers using bear spray who work on oil and gas pipelines.

It is our belief that other states will continue to present legislation dealing with the eventual ban of HFCs. We are asking for a federal Regulation that would stand as a pre-emption of any state law. Working with each state independently would require an excessive amount of time and great expense in producing products which were specifically designed for each state. The number of products needed to comply with individual state rules would grow significantly, preventing any economies of scale which would lead to economic loss.



We are concerned that there has been little public discussion on the reducing and ban on HFCs. The rules implemented in this bill will make current protective products dangerous. These facts must be brought to our lawmakers' attention. Additionally, rules concerning HFC's and the environment should be made at a federal level. Allowing individual states to place their own restrictions on usage, places a huge burden on manufacturing to meet the requirements of each state.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert A.", written over a white background.

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