



March 6, 2020

The Honorable John Barrasso
Chairman, Senate Environment and Public Works Committee

The Honorable Thomas R. Carper
Ranking Member, Senate Environment and Public Works Committee

The Honorable Lisa Murkowski
Chairman, Senate Committee on Energy & Natural Resources

The Honorable Joe Manchin
Ranking Member, Senate Committee on Energy & Natural Resources

RE: American Innovation and Manufacturing Act of 2019

Dear Senators:

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.

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.

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 Nance". The signature is fluid and cursive, with a long horizontal stroke at the end.

Robert Nance
V.P. of Operations