

NEW JERSEY DEPARTMENT OF COMMUNITY AFFAIRS
DIVISION OF FIRE SAFETY
OFFICE OF THE STATE FIRE MARSHAL



SAFETY ALERT

PO Box 809, Trenton, NJ 08625-0809 (609) 633-6070

SAFETY ALERT # 19-1



UPDATE ON "FIT-5" FIRE EXTINGUISHING DEVICES



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As was previously reported, a Fire Chief was injured on 7/4/19 while trying to deploy a "FIT-5" portable / throwable fire extinguishing device. He suffered burn injuries to his hand when the unit activated almost immediately after he pulled the arming mechanism. As such, the Division of Fire Safety (DFS) has conducted further research into these "FIT-5" (and similar) devices. Our findings are outlined below.

The FIT-5 device (Fire Interruption Technology) was first marketed in late-2007, and it was made by ARA Safety. It was a device that was meant to be actuated and deployed into a fire within a confined atmosphere, where the device would then expel a pressurized chemical extinguishing agent to suppress the fire and cool the atmosphere. It was designed for rapid deployment by police or firefighters to provide an initial knock-down of the fire and improve the interior conditions for any victims and/or firefighting crews. Many departments within NJ purchased these devices. While there were multiple reports of successful deployments of these devices, there were also some noted failures outside of NJ which resulted in injuries to fire service personnel. Many of these injuries occurred when the unit discharged while still in the hands of the thrower. It was noted that these devices had at least 3 different variations, apparently due to different "generations" of production and/or manufacturer. While all devices had the same overall shape, size, and color, they varied on their outer labeling and may be labeled as "FIT", "PRO", "DSPA", or other similar outer markings. Additionally, their types of "arming" mechanisms may vary greatly, including: a pin & lever assembly, like a hand grenade; a coiled pull-string within a plastic cap (top left photo on this letter); or an aluminum spring-loaded striker cap (top right photo on this letter).

Original manufacturers information for FIT-5 devices stated the extinguishing agent was potassium bicarbonate, which would be expelled in a pressurized aerosol within 10 seconds of actuation. Although there was the main, manual "arming" mechanism, they were also designed to self-deploy if exposed to temperatures above 500°F. Additionally, they were stated to have a 5-year "shelf-life", and the manufacturer would replace any units that were deployed or outdated. Marketing info also showed them being deployed by personnel without any protective equipment. ARA Safety appears to have gone out of business a number of years ago, as additional company or product information was difficult to locate after 2012.

DFS worked to compile multiple devices, which were donated by fire departments around the State, as examples for further examination and testing purposes. These devices had varying outer markings and arming devices as noted above. However, we found that upon opening their plastic

carrying cases, some of these devices were in poor overall condition with chipped paint, rust, and severe corrosion of the metal components and arming mechanisms.

Upon actuation of the arming mechanisms, an internal fuse would begin to burn, which would then ignite the main internal components to expel the extinguishing agent. However, we found that these different types of arming mechanisms also reacted quite differently in our testing. The “pin & lever” and “pull-string” assemblies would emit an audible “pop” to indicate that the fuse was lit, and these would discharge at nearly 10 seconds later. However, the “spring-loaded striker cap” repeatedly gave us problems during testing, and failed to emit any audible sound of the fuse being successfully lit. As such, this required repeated attempts to arm the device, and once armed, this type of device discharged within 4 seconds! In all cases, regardless of device type, the discharge of the extinguishing agent resulted in violent flames shooting from the perimeter of the device while the extinguishing agent was expelled. Thus, creating a pressurized, thick fog of extinguishing agent that lasted over 20 seconds.

We also confirmed that unarmed devices will self-deploy when directly exposed to fire conditions, as we placed an unarmed device on top of a device we then actuated. Once the bottom device deployed, the resulting flames and heat then caused the other device to self-deploy.

Given the results of this testing, compiled with original documentation as researched, the DFS is recommending that departments that still possess these devices DO NOT USE them for the following reasons:

- There is a history of device failures and/or injuries resulting from deploying these devices.
- These devices were sold without any formal literature, support documentation, or training.
- All devices have surpassed their designed 5-year shelf-life and may be in various conditions of degradation and/or corrosion.
- Further degradation, corrosion, or instability may be present after years of vibrations and temperature changes from being stored in vehicles or apparatus.
- The arming mechanisms greatly differ in operation and fuse-burn time. Varying from as many as 10 seconds to LESS THAN 4 SECONDS.
- Devices with the “spring-loaded cap” arming mechanism provide the user with no audible / positive indication of activation.
- Devices may not reliably activate, may fail to activate, or may prematurely activate; all of which expose the user to additional hazards.

Recommended disposal of these units would include contacting your county Haz-Mat personnel for proper procedures or performing a controlled, self-deployment of these devices at an approved live-burn facility. Full PPE and fire suppression equipment should be utilized, and the units can then be disposed along with normal trash once they are discharged and have been adequately cooled off. Please contact the DFS or your County Fire Marshal for additional guidance.

Thank you for your cooperation in this matter.

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