

SUPPRESSALL

AEROSOL FIRE PROTECTION

DEMONSTRATING THE SUPPRESSALL™ FS2.



SUPPRESSALL

AEROSOL FIRE PROTECTION

Table of contents

- 1. Introduction**
- 2. Use and application**
- 3. Safety summary**
 - a. General
 - b. Storage
 - c. Health Effects
 - d. Crew definitions
- 4. Specifications**
- 5. Demonstration setup**
 - a. Enclosure
 - b. Special attention points
- 6. Fire load**
 - a. Approx. energy
 - b. Pre-Burn time
 - c. Lighting the fire
 - d. Deployment of the SUPPRERSSALL FS2
- 7. Measurements**
 - a. General setup
 - b. Using a T.I.C

SUPPRESSALL

AEROSOL FIRE PROTECTION

INTRODUCTION

The SUPPRESSALL™ FS2 is a portable unit that contains potassium based chemical components. It is designed to be a first-use method to combat class A, B, C fires. When the device is deployed at the scene of a fire, the SUPPRESSALL™ FS2 releases a cloud of aerosol containing the potassium components, interrupting the chain reaction in the flame.

When utilized and deployed according to the instructions in this manual, it provides an effective method of fire suppression that minimizes the risks posed by more traditional methods of firefighting.

Please use this manual as the source of information for storing, using, and disposing of the SUPPRESSALL™ FS2.

USE AND APPLICATION

The SUPPRESSALL™ FS2 is a portable fire suppression device. It is not a fire extinguisher and not intended to replace any fire extinguishers that are required by NFPA 10. The unit consists of a steel housing containing chemical agents that form the aerosol, separated by an insulating barrier; a handle for ease of transportation and deployment, and 2 securing pins that are used to activate the SUPPRESSALL™ FS2.

The SUPPRESSALL™ FS2 is an active fire suppression system utilizing an environmentally safe condensed aerosol that, when deployed, has the appearance of smoke.

When the unit is deployed and its aerosol is released, the aerosol drastically reduces the heat of the room immediately, up to 1,000°F in less than 60 seconds. The aerosol interrupts the thermal activity from the chemical reaction taking place without removing oxygen from the enclosure.

The SUPPRESSALL™ FS2 is significantly different from CO₂, dry chemical, and water-based fire prevention systems. Its condensed aerosol works simultaneously on the fire tetrahedron (heat, fuel, and the fire's chemical reaction) without affecting oxygen levels. When used in accordance with these instructions, deployment of the SUPPRESSALL™ FS2 poses no risk to occupants and fire responders and will effectively minimize any of the fire's collateral and environmental damage.

The device inhibits the fire from obtaining the oxygen radical it needs to continue burning and spreading further. Once activated by the user, the potassium-based compounds inside the body of the FS2 are heated, turning the solid compounds into an aerosol that can spread rapidly throughout the area containing fire.

One SUPPRESSALL™ FS2 can effectively suppress a fire in a room that measures up to 5300 Cubic feet /150 cubic meters, if the room does not have any wide-open spaces. Once deployed, the device discharges the aerosol for approximately 35 seconds. The unit's aerosol can remain suspended for up to 45 minutes, depending on how enclosed the room is.

SUPPRESSALL

AEROSOL FIRE PROTECTION

You should see immediate results in the flames of the fire as the FS2 aerosol interrupts the chemical reaction of the fire, stopping completely or greatly slowing the rate at which the structure and/or contents burn. The use of the SUPPRESSALL™ FS2 will lower the temperature in the affected space by hundreds of degrees in less than 1 minute, making it safer and easier for trained firefighting personnel and first responders to control the spread of the fire in other areas of the structure.

SAFETY GUIDELINES

GENERAL

Only those personnel who are trained and are familiar with the operation of the SUPPRESSALL™ FS2 should use it. All operators should read and understand this manual prior to use.

INSPECTIONS

All SUPPRESSALL™ FS2 units should receive an inspection once per year and a replacement of batteries once every Ten years. This inspection and replacement should only be performed by the distributor or qualified trained personnel. Inspectors should make sure that the SUPPRESSALL™ FS2 is not damaged in any way and there is no evidence of use or deployment.

Never take apart the SUPPRESSALL™ FS2. **ALWAYS** leave the R-Pin (Number 1 tag) in place until it has been determined the device is required to fight a fire. If the device has been damaged in any way, it should not be deployed. Should the Igniter pin and ring become detached accidentally from the unit, immediately throw the unit away from yourself and any person in the vicinity. At this point, the 8 second countdown until ignition has begun and CANNOT be reset. The unit will deploy its aerosol after the 8 second countdown.

STORAGE

Keep the SUPPRESSALL™ FS2 in its original case whenever possible and store it in a place that is not exposed to extreme heat or humidity. Avoid contact with heat, spares, flames, and other heat sources. Do not drill, solder, or cut the unit. Keep it away from oxidizing agents and strong acids. The SUPPRESSALL™ FS2 will normally be safe for its intended use for a period of 15 years when stored properly. Once every five years the unit's battery must be replaced.

HEALTH EFFECTS

The SUPPRESSALL™ FS2 aerosol is nontoxic and environmentally friendly. ODP=ZERO, GWP=ZERO. The SUPPRESSALL™ FS2 compound has been approved by the EPA (Environmental Protection Agency USA) and holds a SNAP approval.

After a fire, the unknown and potentially harmful by-products of an actual fire pose the biggest risk to human health. Because unknown products from the fire itself may be present or because of

SUPPRESSALL

AEROSOL FIRE PROTECTION

unwanted environmental conditions, it is always recommended that the area is thoroughly inspected to ensure that no unwanted products are present.

During discharge, any dirt within the enclosure will be blown around and then deposited as unwanted residue throughout the area.

PERSONNEL REQUIRED

Before doing setting up a demonstration, you must make sure that you have full access to the following:

- Trained and certified Firefighting crew of at least two firefighters, fully geared up, including SCBA breathing apparatus;
- Fire engine with pump, water tank, hoses, and nozzles.
- Access to enough water, depending on location one can use a high-pressure water hose coming from the fire engine or a low-pressure water hose.

SPECIFICATIONS SUPPRESSALL™ FS2

Total weight	13.8lbs.
Volume coverage	≤ 5300 Cu. Ft. ³
Discharge time	Approx., 35 seconds (+/- 2 seconds)
Activation method	Electrical manual activation
Operation conditions	-65°F- + 160°F
Dimensions	13" x 9" x 4.75"

SUPPRESS**ALL**

AEROSOL FIRE PROTECTION

CLASS A FIRE DEMONSTRATION SET-UP

1. Enclosure

Start with a standard, 40-foot container with the following dimensions: **L:12.05m (39' 6 ½")** **W:2.34m (7' 8")** **H:2.38m (7' 9½")** or a standard burn room which normally will be used for firefighting training purposes with equal dimensions to the 40" container.

Containers may not be used before the demonstration for other fire training purposes.

40' Flashover Chamber



40' Burn Room



Remember....

Please ensure that prior to the **LIVE demonstration** there are no significant openings, which include: open doors, windows, roof slots that would not mimic a real-life firefighter deployment. Openings located at extreme low levels will allow the fire to suck in cool air pushing the heated aerosol upwards to mingle with the fire gases. Prevention of low-level openings during your demonstration will allow the aerosol to act naturally and surround the entire room quickly and efficiently. This will ensure much quicker suppression as well as stopping the fires propagation for a much longer period.

A single demonstration inside a 40' conex container will allow the container's metal skin to heat up quite a bit. Wait to do a second demonstration until the container has had a chance to cool down a bit and the moisture that was introduced in the first fire has had a chance to evaporate .

DO NOT demonstrate an FS2 if the burn chamber was in use consistently for hours and has not had a chance to properly cool down or dry out.

SUPPRESS**ALL**

AEROSOL FIRE PROTECTION

Fire load / contents for a successful Class A demonstration

The fire load should at least consist out of the following materials:

- 5 standard pallets (48" x42"x 4")
- Straw (1 to 2 bundles)
- Paper (as much as required, if needed.) Paper is not required but can be used.



Heat Release

Total energy expressed in KW of this fire load is approx. 950 – 1000 KW. By using these advised materials, you will have no environmental issues.

Pre-Burn Time

The Pre-burn time of the above-mentioned material should be at least 5 minutes or a pre-set temperature above 500 degrees Celsius (932 degrees Fahrenheit).

There are two main reasons for this setup, first to demonstrate something close to a real fire and secondly to show the significant temperature drop when using a SUPPRESSALL™ FS2.

If requested by professional firefighters, you can extend the pre-burn time, however, do not extend it beyond flashover point as the fire will have less energy and the temperatures will come down again.

***SUPPRESS*ALL**

AEROSOL FIRE PROTECTION

Deploying the SUPPRESSALL™ FS2

After the fire is lit and only when the flames are touching the ceiling and all material is burning well, should the doors be closed (flashover container). The fire should be allowed to get to a minimum temperature of 500 degrees Celsius (932 degrees Fahrenheit). When this temperature has been reached, a trained first responder may deploy the SUPPRESSALL™ FS2.

SUPPRESSALL

AEROSOL FIRE PROTECTION

Evaluate the scene and decide the safest place to deploy the SUPPRESSALL™ FS2 that is nearest to the seat of the fire, towards the back of the container.

1. Firmly grasp the R-Pin and pull it straight out of the unit. By removing the R-Pin it unlocks the Igniter pin so that it can be used to deploy the FS2.



2. After removing the R-Pin, firmly grasp the Igniter Pin and pull it straight out of the unit. Once the Igniter pin has been pulled the 8 second countdown until deployment will start and the LED on the handlebar will be blinking. Once the pin is pulled the activation cannot be stopped. You must deploy the unit immediately after pulling the pin.



3. Immediately throw the FS2 into the structure near the seat of the fire.
4. After deploying the SUPPRESSALL™ FS2 make sure all efforts are maintained to ensure a closed fire room to contain the aerosol. Do not ventilate at this point. Allow the FS2 time to do its job.

After the ignitor pin has been pulled, the LED on the handlebar will be activated (blinking). The blinking red LED light is demonstrating that the FST is now active and will be deploying its aerosol agent in 8 seconds.

SUPPRESSALL

AEROSOL FIRE PROTECTION

DO NOT ATTEMPT to prevent the activation of the device. Never attempt to retrieve a device that has been activated or to re-install the yellow security pin.

Make sure the first responder deploying the device can accurately throw the unit toward the intended target location. It is best to stand or kneel when throwing the device, aiming for level ground.

AFTER YOU HAVE DEPLOYED THE SUPPRESSALL™ FS2

The SUPPRESSALL™ FS2 aerosol will continue discharging for approximately 35 seconds.

At this point make sure all efforts are maintained to ensure a closed fire room to contain the aerosol. Do not ventilate at this point. Allow the SUPPRESSALL™ FS2 time to do its job.

Do not open the doors for a minimum of 4 minutes. After 4 minutes, show the viewers the effect of the SUPPRESSALL™ FS2 by opening the door a little bit and point the Thermal imager to the seat of the fire.

Once the flames have been knocked down significantly and the heat has been reduced to approximately 500°F, open the doors.

Once the doors have been opened, fresh air will be introduced to the fire and the aerosol will be vented and pushed outside of the container or burning room. At a certain point, the aerosol will reach a concentration that supports its minimal suppression capabilities. At this point, the Class A fire may re-ignite if it has been smoldering.

OPTION A: For the Viewers

If the viewers want to see how long the aerosol holds the fire until reignition, you must keep the doors closed and monitor the temperature. As soon as the temperature starts to rise, the fire has re-ignited.

OPTION B: More like a real fire scenario

Open the doors after 8 – 10 minutes and overhaul all hotspots, these are remarkably similar to normal firefighting operations, the firefighters will wait until the aerosol has knocked down the flames and reduced the temperature, only then they will enter the compartment and overhaul the hotspots.

SUPPRESSALL

AEROSOL FIRE PROTECTION

VIDEO AND CAMERA USE

General

At least one video camera should be positioned outside of the container filming the demonstration from the front of the container.

For flashover training and demonstration, use a GoPro camera fixed on the firefighter's helmet.

T.I.C.

A Thermal imaging camera or TIC can show significant temperature drops that the SUPPRESSALL™ FS2 creates. It is a tool that enhances your demonstration and should be used with every demo.



Normal conditions will show a temperature difference of 600-1,000° Fahrenheit in less than 60 seconds. By using a TIC, you will also be able to record your demonstration “LIVE” for future use. The aerosol created will not block the use of the TIC.