

WHAT'S THE CONCERN WITH FOAM?

Hangar Foam Discharge Data

NATA commissioned the University of Maryland Fire Protection Engineering Department to review foam system activation data from its members, as well as insurance carriers.

FUEL FIRE RISK

0

Number of reportable fuel spills in aircraft hangars in 2019 (source: US Coast Guard).

0

Number of foam discharges related to a fuel spill fire over a 16-year period (2004-2019).



FOAM DISCHARGE RISK

174

Foam system activations over a 16-year period (2004-2019).

1

Inadvertent foam system discharges per month over a 16-year period (2004-2019).

1M

Approximate cost of damage per occurrence to building and aircraft.

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Foam fire suppression systems installed in US storage hangars.

Life Safety



All foam is dangerous if ingested or aspirated.

AFFF can be very slippery to walk on.

The foam delivery method can be dangerous due to high pressures.

High-ex foam can be extremely disorientating to humans. Fire department infrared cameras will not be able to locate a human thermal image.

Personnel can be forced to seek refuge in or on top of aircraft until safe to egress (could be hours).

Environment



Both AFFF and high-ex can be dangerous to aquatic life as they form a barrier between the liquid surface and air.

AFFF is more apt to flow to natural waterways as it flows similarly to water.

Both high-ex and AFFF can cause issues with wastewater treatment plants if the foam concentrate or solution enters a sanitary sewer.

AFFF can contain chemicals that do not biodegrade and can contaminate groundwater and drinking water (see PFAS/PFOS).

Aircraft



AFFF can be extremely damaging to aircraft and aircraft components.

Both AFFF and high-ex have essentially the same pH as their water source but can be extremely corrosive to hardware line circuit boards and similar as the foam tends to stay on the board rather than run off.

One major brake pad manufacturer will not warranty brake pads if they come in contact with any foam solution, either AFFF or high-ex.

Foam exposure warrants thorough aircraft inspection and possibly market devaluation.

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PFAS/PFOS

Recently, there has been a lot of news related to the environmental impacts of fire fighting foams, particularly related to PFAS and PFOS.

At least seven states have filed lawsuits against foam manufacturers and others related to PFAS/PFOS. Additional states are considering legal action.

The fluorine surfactant in AFFF (the chemical that helps create the film layer) is the point of concern.

DoD has recently "banned" the installation of new AFFF systems and has spent more than \$200 million in analysis & cleanup through 2016.

There is currently no requirement to change your foam, this is a business decision. Unfortunately, the process to change out your foam is a little more involved than simply emptying the tank and replacing the foam.

However, all AFFF with fluorine has PFAS.

Flushing the system will NOT get rid of PFAS in the piping or tank, no matter how many times you flush it.

Most importantly, your AFFF is still effective in suppressing a fuel fire. AFFF has a shelf life of approximately 20 years.

None of the above is applicable to high-expansion foam.

Causes of Unwanted Foam Discharge

Device Failure

- Age
- Corrosion

Poor Design

- Improper detector type
- Improper detector placement

Poor Installation

- Devices not protected from water
- Lack of warning signs

Improper Maintenance

- Unqualified personnel

Improper Testing

- Incorrect sequence of events
- Mislabeled devices

False Positive

- Welding
- BBQ in the hangar

Intentional Activation

- Disgruntled employee
- General public



INSURANCE

There are typically two different entities providing insurance at a storage hangar

Hangar keepsers insurance (property insurance) carried by the hangar owner

Covers the building, equipment and possessions within the building

Aircraft insurance carried by the aircraft owner/operator

Covers the aircraft itself from damage

Foam discharge events cause 10x-20x in losses compared to the value of the building

Where are we going from here?

NATA is proposing revisions to the next edition of NFPA 409.

1. In a Group II hangar, only require foam fire suppression where hazardous operations occur.
2. Increase the Group II hangar tail height limit to 35 ft to accommodate current and proposed general aviation aircraft.
3. Reinstate the "Cluster Hangar" exemption that was inadvertently removed during the previous edition.