

Storing Foam A & B Foam Concentrates

Contrary to popular belief, foam concentrate has no shelf life. The date on the foam pail, drum or tote is its birth date. If stored in sealed, original packaging, foam concentrates will easily last thirty years or more. Foam concentrate storage success is more about preventing concentrate evaporation and contamination than air contact. Class A and B foam concentrate containers should be kept sealed. In short, store it as if it were latex paint.



Metal container 1976 - Still sealed
9/15/15

Mobile Foam Storage Tanks

AFFF foam tanks that are not gasket sealed, and fitted with pressure-vacuum vents will eventually be the cause for concentrate evaporation. Two-inches of foam concentrate sealer (mineral oil) floated on AR-AFFF will prevent evaporation, and is often recommended for level, stationary tanks fitted with regular atmospheric vents. Do not use in a fire boat, foam trailer or engine's concentrate tank. Not for fluorine free, AFFF replacements.

CAUTION: Do not put mineral oil on **fluorine free** or Class A foam concentrate - they will mix.

Fire apparatus, marine units and foam trailer tanks are subject to sloshing when the tank is not full. Alcohol resistant foam concentrates are gel-like to start with and regardless of brand will not tolerate sloshing. A foot of open air space in a foam tank will cause a whipped cream- like concentrate/air froth in the free space which can stay this way for weeks. This is the main reason for keeping mobile AR-Foam tanks topped off. Not much of a problem with Class A or regular AFFF concentrates.

Keep Class A foam concentrate away from AR-Foam concentrate. Class A concentrate is mostly a solvent (alcohol) and water mixture with a touch of Mr. Bubble. A cup of AR-Foam in a class A tank

is usually system fatal. The AR-Foam will do what its supposed to do in your tank, rather than on the fire, leaving pizza-like dough at the bottom of your foam tank - and system supply lines connected there to.

Freeze/Thaw Cycles

Freezing alcohol resistant foam concentrate may cause compound component separation, and will hinder firefighting performance, particularly foamability. Consult your foam manufacturer for advice when using thawed AR-AFFF. Freeze-thaw cycles should not be a problem with regular AFFF or class A concentrates; although Class A concentrates often have other problems in cold climates. **NF products are freeze-thaw stable.**

Test Freeze Your AR Foam

Freeze a 1/4 cup sample in a clear container. A clean peanut butter jar with an inch or two of head space will do nicely. Normal AR-Foam concentrate will present as a gel. As a rule, the more AR chemical (polymer) it contains the more gelatinous it will be. If it lifts with a turkey baster or eye-dropper it's good to go. Compound separation looks like thin liquid under the thick stuff. If it separates you may need to reconstitute it by shaking or stirring. Shaking a foam tank or drum may not be an option, especially if you don't know if it's been frozen.



Cold Class A Foam Concentrate

Class A foam concentrates are formulated using various wetting and detergent foaming components. Most alcohol based Class A foams are sensitive to low temperature storage. Once concentrate gets in the 40 degree range (4 to 5c), it's a good bet that foamability and wetting will suffer. Moreover, viscosity becomes quite variable when class A foam concentrate approaches 40 degrees (5 c). Normal free-flowing class A foam may thicken and become syrup-like when it gets too cold.

Since Class A foam concentrates are often proportioned using onboard systems with supply-side plumbing strainers, one can expect the cold, syrup-like material to proportion lean, if at all.

To determine how fit your class A foam concentrate is for cold weather, put a quarter cup sample in a clear container; set it in an salt/ice bath or freezer with

a thermometer in it. As the concentrate temperature drops it may start to cloud - colder yet, and you may see dust-like bits



suspended in the liquid. Finally, it may turn to slush. At its cloud point, foam concentrate will be pretty much useless in terms of its wetting and foaming mission, as its wetting solvent and its Mr. Bubble components begin to separate. Use a turkey baster or medication syringe to see if the liquid lifts. If it struggles, chances are it will proportion lean. If it is cloudy, it may not foam very well either.

All Is Not Lost

Depending on the type of wetting chemistry used in your particular brand of Class A concentrate, you will find variable cold temperature results. As the concentrate warms, it will coalesce and again be fit for use. Some are good to go at low temps, some not so good.

Putting frozen or cold class A concentrate in a seventy degree space (20c) for twelve hours or so should put you back in business.

Combustible Liquid Warning:

Do not store alcohol-based, class A foam near the firehouse furnace. There are class A foam products that qualify under NFPA 30 as combustible liquids. I know of one brand that has a flash point of 104F (40C) - See MSDS. Alcohol based wetting agents are not a safety problem when used for firefighting at normal use concentrations, i.e., half percent or less.

Degreaser Warning:

Class A foams, and particularly wetting agents are good at cleaning the factory

lubricants out of your nozzles, as the lube disappears you will notice bale (shut-off) and bumper (stream shaper) get harder and harder to cycle. This condition is usually fixable by applying something like CLP-Break-Free® to moving parts - Shake well before each squirt.



Plumbing, Valves & Tank Materials

Stay away from galvanized pipe, steel pipe and aluminum components. Recommended construction materials are stainless steel (Type 304L or 316), brass, high density cross-linked polyethylene, or reinforced fiberglass polyester (isophthalic polyester resin) with a vinyl ester resin internal layer coating (50-100 mils). Flex hose can be EPDM, or poly. Suction rated hoses should be used on intake side of proportioning equipment. Gaskets and seals: Buna-n (nytrile) or Viton. Stay clear of 0.5" compression fitting, air-brake hose; "O" ring material may not be compatible with dispersing solvents contained in foam concentrates. Brass or stainless valves are recommended



Jim Cottrell, recently retired was National Foam and TFT's eastern regional factory agent and product development consultant since 1988. Jim Chairs the IFSTA Foam Technical Committee and is a member of the Underwriters Laboratories, Foam Standards Panel. Jim is an accomplished investigator, speaker and a nationally recognized instructor /lecturer. Jim's Combat Support Products Division manufactures specialty firefighting appliances and equipment.



www.combatsupportproducts.com

Disposing of PFAS products: AFFF / AR-AFFF should be done by incineration at 1000 deg C for 2 seconds.

12. ECOLOGICAL INFORMATION

Bioaccumulative Potential

No relevant studies identified.

Other adverse effects

No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

This product, as sold, is not a RCRA-listed waste or hazardous waste as characterized by 40 CFR 261. However, state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Therefore, applicable local and state regulatory agencies should be contacted regarding disposal of waste foam concentrate or foam/foam solution.

Concentrate

Prevent foam concentrate from entering ground water, surface water or storm drains. Small quantities of foam concentrate may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations. High temperature incineration is required at a minimum of 1000°C with a minimum residence time of 2 seconds.

Foam/Foam Solution

Prevent foam/foam solution from entering ground water, surface water or storm drains. Small quantities of foam solution may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations. High temperature incineration is required at a minimum of 1000°C with a minimum residence time of 2 seconds.

NOTE: Please consult National Foam for additional information regarding the disposal of foam concentrates and foam solutions or visit <http://nationalfoam.com/use-discharge-and-disposal-of-firefighting-foam-products/>

14. TRANSPORT INFORMATION

Shipping Information

Shipping Description
National Motor Freight Code

Fire Extinguisher Charges or Compounds N.O.I., Class 70
69160 Sub 0

This information is not intended to convey all transportation classifications that may apply to this product. Classifications may vary by container volume and by regional regulations. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules when transporting this material.

15. REGULATORY INFORMATION

United States TSCA Inventory

This product contains an ingredient that has restricted use under the EPA Toxic Substance Control Act. This product may only be used as a fire fighting foam. Any other use of this product is strictly prohibited. Disposal of this product must be done by incineration at a minimum of 1000°C with a minimum residence time of 2 seconds.

Canada DSL Inventory

This product contains an ingredient that is not listed on the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).



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USE, DISCHARGE, AND DISPOSAL OF FIREFIGHTING FOAM PRODUCTS

Fluorinated, or PFAS containing, firefighting foam concentrates such as AFFF, AR-AFFF, FFFP, AR-FFFP, FP, and AR-FP contain small amounts of fluorinated surfactants. Fluorinated surfactants are key raw materials within many foam concentrates that substantially reduce surface tension, enabling rapid extinguishment, low fuel pick-up as well as superior post fire security and protection. This Notice is issued as a reminder concerning the use, discharge, and disposal of firefighting foam products containing fluorinated surfactants.

As has been advised previously, these firefighting foam products may leave a fluorosurfactant chain, including certain per- and polyfluoroalkyl substances (PFAS), in the environment which can persist and potentially reach groundwater, including drinking water. In 2016, the US Environmental Protection Agency (US EPA) issued a Final Lifetime Health Advisory relating to the levels of certain PFAS, specifically PFOA and PFOS, which potentially may be found in drinking water, and various Countries, States and Territories have been setting their own levels, laws and regulations concerning PFAS. The regulatory landscape concerning PFAS and firefighting foam continues to evolve, with additional regulatory agencies reviewing the issues and some Countries, States and Territories or agencies setting or considering drinking water levels that are lower than the US EPA's levels. The EPA's health advisories containing its views relating to PFOA and PFOS may be found via the link below. PFAS are ubiquitous in the environment and may be found in many commonly used products, in addition to firefighting foam products. Certain PFAS also may break down in the environment to form other PFAS chemicals. The applicable Safety Data Sheets (SDS), Guidance Documents and Technical Bulletins, as well as EPA's health advisories and any laws, regulations,

and codes concerning PFAS or firefighting foam products applicable in your area, should continue to be consulted before usage, discharge, and disposal of these products.

As has been previously advised and following these regulatory developments, care should continue to be taken to avoid or minimize when possible the uncontrolled use, discharge or disposal of the product into the environment, including waterways. In addition, we remind our customers that for many years training foams not formulated with fluorinated surfactants have been available for use during training to simulate the usage of a variety of these products. These training foams should

continue to be strongly considered for use during training.

If any foam product is released into the environment, efforts should continue to be made to control, contain and collect the discharge for proper disposal, while following all applicable laws, regulations, and codes.

As a further resource concerning the use, discharge, and disposal of these products, we remind our customers also to consult the Fire Fighting Foam Coalition's (FFFC) Best Practice Guidance for Use of Class B Firefighting Foam and the National Fire Protection Association (NFPA) Code 11, including its Annex E, entitled, "Foam Environmental Issues".

External Resources (accuracy of external links cannot be guaranteed)

EPA health advisories:

<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>

EPA PFAS Action Plan:

www.epa.gov/pfas/epas-pfas-action-plan

FFFC best practice guide:

https://docs.wixstatic.com/ugd/331cad_188bf72c523c46adac082278ac019a7b.pdf

NFPA:

<https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Codes-and-Standards>



RED ALERT SERVICE

CALL 610-363-1400