



Foam Lines

Combat Support Products
Division Of Cottrell Associates, Inc.



NATIONAL FOAM
Factory Agents Since 1988

June 2019 / Ed. Feb 27 2020

AFFF (PFAS) Foam Replacements Are Here

perfluoroalkyl and polyfluoroalkyl substances

Good Day All:

Considering pending NY State legislation banning all foams containing PFAS (fluorine compounds) and similar sounds coming from New England, New Jersey, Pennsylvania, Colorado, Michigan, Wisconsin, Illinois, Maryland, and Washington; I'd like all NF dealers and significant customers to have some information (data sheet) on NF's new Fluorine Free (F3-AR) alcohol resistant foam.

Universal F³ Green AR, 3% foam is NF's recommended AR-AFFF replacement and is priced exactly as Universal Gold. It is intended to comply with NFPA 11, and UL 162 GFGV, the petrochemical industry foam fire protection standards.

Features & Benefits - NF's Universal Green AR-F3, 3% is the **ONLY** alcohol resistant, Fluorine Free foam with its range

of U.L. Type III listings, which are the backbone of fire department purchasing specifications. U.L. listings include alcohols and gasoline/ethanol blends at 3%. It is truly a sturdy replacement product for those using Universal Gold, Universal Plus, Centurion 3x3% or any other brand AR-AFFF for that matter.

One of its most exciting features is two hour quarter life. Where best in class Universal Gold is +/- 25 minutes in fresh water.

Universal F³ Green has a two hour quarter life, meaning a 120 min. blanket on a spill versus fifteen to thirty minutes for best AR-AFFFs. This means big concentrate, water and environmental savings at highway crashes where water and concentrate is scarce.

Should things get out of hand it's very capable in shutting down a fire, particularly on porous terrain.

F3 (fluorine free) = no intentionally added PFAS components.
perfluoroalkyl and polyfluoroalkyl substances

Airport Foam:

National Foam now have a FAA/ NFPA 403 AFFF replacement should it come to that in 2021. **Avio^{F3} Green** is specially formulated for aircraft crash firefighting where aviation turbine fuel (Jet A) and av-gas are at risk and will be available for sale through select NF dealers, yet to be determined.

NFPA 18 Wetting Agents do not comply with NFPA 11 (foam standard). Be ware of fluorine free claims of wetting agents. Such products are indeed fluorine free and are excellent class A fuel wetters. However, most do not foam and none are U.L. listed (tested) for use on gasoline/ethanol blends: E-10, E15, E85, E95, E98 or ethanol as is shipped in barge, rail or in highway tankers. Wetting agents are U.L fire tested at twice the application rate of **Universal^{F3} Green** and are only tested on one fuel, heptane, no alcohols.

Moreover, NFPA 18 does NOT comply with oil industry fire protection standards or state fire code requirements for fuel storage tank and loading rack fire systems.

Finally: Since the most popular wetting agents do not foam, fuel soaked into the earth cannot be safed, as their mechanisms of extinguishing requires mixing the agent (a powerful water detergent solution) with fuel.

If its a U.L. listed wetting agent they want use National Foam's Knockdown. It's U.L. (NFPA 18) tested on heptane at a lower proportioning rate than most: KnockDown's U.L. listing is among the lowest at 3/10 % and decidedly less expensive than most competitors.

Incidentally, Kool-Aid, the soft drink and KnockDown will put out a contained ethanol fire at a 5:1 dilute (: More tech support go to link below.

www.combatsupportproducts.com/combatsupportproducts/training-library.html

Notes: all AFFF and AR-AFFF's regardless of brand contain PFAS.

F3 (fluorine free) = no intentionally added PFAS components.

perfluoroalkyl and polyfluoroalkyl substances

Introducing Universal^{F3} Green...

Alcohol Resistant Fluorine Free Foam (F3)



Cottrell Associates Inc. Factory Reps.

No intentionally added PFAS components

The new state-of-the-art

Foam is the gold standard for fighting and suppressing high risk, flammable liquid fires and our Universal^{C6} Gold is the state-of-the-art in C6 foam technology. Today, environmental, health and safety concerns have given rise to a need for a Fluorine Free Foam, particularly for use where the foam cannot be contained to prevent ground or water infiltration. Introducing **Universal^{F3} Green™**, the new “green” standard in foam fire suppression.



Universal^{F3} Green™

Alcohol Resistant Fluorine Free Foam

High performance with minimal environmental impact

Universal^{F3} Green is a unique, patented foam with no added fluorine, fluorosurfactants, fluoropolymers, organohalogen, PFAS, PFOA and PFOS. When environmental impact is a primary concern, Universal^{F3} Green is ideal. It is biodegradable and is especially suited for emergency incidents where the containment of fire water runoff cannot be guaranteed.



Effective and efficient

Universal^{F3} Green provides a two hour vapor suppressing foam blanket on unignited hydrocarbon spills and polar solvents. It produces a vapor sealing blanket of foam that rapidly spreads over the surface of the fuel to efficiently control and extinguish the blaze.

It is intended for use at 3% using standard foam proportioning equipment, and should be used with air aspirating discharge devices such as low expansion nozzles.



Ideal for high risk situations

Universal^{F3} Green is ideal for use wherever oil, gasoline, diesel fuel, or aviation fuel are stored, processed, transported or used. It can also be used on polar solvents such as alcohol, ketones, esters and ethers. Universal^{F3} Green can also be used for combating Class A fires.

All systems proportioning - low viscosity, 1700 cP.

U.L. 162 gasoline/ethanol 15% to 85% Type III 0.22 gpm / sq. ft.

U.L. 162 neat ethanol Type II 0.10 gpm / sq. ft.

Very long quarter life. 120 min.



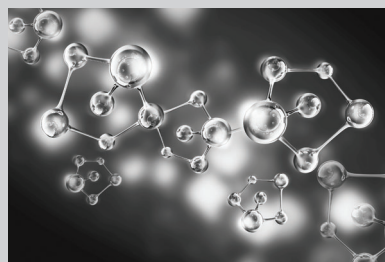


Universal^{®F3} Green 3%-3%

Alcohol Resistant Synthetic
NFC510



- ✔ Superior fluorine free Alcohol Resistant Synthetic formulation to extinguish both hydrocarbon and polar solvent fires.
- ✔ GreenScreen certified.
- ✔ Formulated without added (PFAS), (PFOA), fluorosurfactants, fluoropolymers or organohalogenes.
- ✔ Lower viscosity than some fluorine free foams to ensure easy induction.
- ✔ Fluorine free to minimize environmental persistence.
- ✔ 3% induction on both hydrocarbon and polar solvent risks.
- ✔ Specifically designed for POG and chemical manufacturing facilities.
- ✔ 100% Biodegradable.



Universal^{®F3} Green 3%-3% is a superior quality 3% synthetic fluorine free (FF) foam concentrate, designed for extinguishing and securing all types of flammable liquid fires and Class A incidents. Universal^{®F3} Green 3%-3% has been designed specifically for general emergency responders who are faced with a variety of risks in a range of situations.

Universal^{®F3} Green 3%-3% is a patented combination of surfactants and other ingredients to produce a vapor sealing blanket of foam that rapidly spreads over the surface of the fuel to provide rapid control and extinguishment.

- Unique patented formulation only available from National Foam.
- Fluorine free – can be used where traditional fluorinated products cannot be used.

Standards and Approvals

- ✔ Underwriters Laboratories, Inc.
- ✔ Underwriters Laboratories of Canada.
- ✔ LASTFIRE - Good/Good/ Good in both fresh and seawater.
- ✔ Meets EN1568 Parts 3 and 4 on all fuels and all water types.
- ✔ NFPA 11
- ✔ NFPA 16

Applications

Universal^{®F3} Green 3%-3% is used in high risk situations where hydrocarbons (such as oils, gasoline, diesel fuel, and aviation kerosene) are stored, processed, or transported and/or polar solvents (such as alcohols, ketones, esters, and ethers) are stored, processed, or transported.

Universal^{®F3} Green 3%-3% provides a vapor suppressing foam blanket on unignited hydrocarbon spills.

Universal^{®F3} Green 3%-3% can also be used as a wetting agent in combating fires in Class A materials such as wood, paper, and tires.

Typical Physical Properties

Appearance.....Pale Yellow Color
 Specific Gravity at 68°F(20°C).....1.02-1.04
 pH @ 68°F(20°C)7.0-8.0
 Viscosity@ 68°F(20°C) 1,700 cP*
 Expansion Ratio 5 - 11**
 25% Drainage Time90 - 300 minutes**
 Lowest Use Temperature35°F(2°C)
 Max Continuous Storage Temperature..... 120°F(49°C)

*Brookfield #4 Spindle @ 60 rpm. Viscosity measured under different shear conditions will vary because of pseudoplastic rheology of this non-Newtonian product.

**Expansion ratio and 25% drainage time are typical values and are affected by accuracy of the foam proportioning device, the type of foam-making device, operating parameters, water quality and type, and atmospheric conditions.

Universal^{®F3} Green 3%-3%

Alcohol Resistant Synthetic

Equipment

Universal^{®F3} Green 3%-3% is intended for use at 3% (3 parts concentrate to 97 parts of water) on hydrocarbons and polar solvents. Universal^{®F3} Green 3%-3% is readily proportioned using conventional foam proportioning equipment such as portable and fixed (in-line) foam venturi proportioners, handline nozzles with pick-up tubes, balanced pressure variable flow proportioners, balanced pressure bladder tank proportioners, and around-the-pump proportioners.

Universal^{®F3} Green 3%-3% should be used with air aspirating discharge devices. Devices include low expansion nozzles, monitors and fixed foam discharge devices.

Compatibility

Universal^{®F3} Green 3%-3% is suitable for use in combination with:

- Soft or hard, fresh, brackish or sea water.
- Expanded protein-based or synthetic foams for application to a fire in sequence or simultaneously.

Environmental

Universal^{®F3} Green 3%-3% is PFAS free. Universal^{®F3} Green 3%-3% is 100% biodegradable and is manufactured without any intentionally added fluorinated surfactants or fluorinated polymers.

Universal^{®F3} Green 3%-3% is biodegradable, however, as with any substance, care should be taken to prevent discharge from entering groundwater, surface water, or storm drains. Disposal of Universal^{®F3} Green 3%-3% should be made in accordance with federal, state, and local regulations.

Storage

Universal^{®F3} Green 3%-3% is ideally stored in its original shipping container or in tanks or other containers which have been designed for such foam storage. Recommended construction materials are stainless steel (Type 304L or 316), high density cross-linked polyethylene, or reinforced fiberglass polyester (isophthalic polyester resin) with a vinyl ester resin internal layer coating (50 -100 mils).

Foam concentrates are subject to evaporation which accelerates when the product is exposed to air. Storage tanks should be sealed and fitted with a pressure vacuum vent to prevent free exchange of air. The recommended storage environment is within the temperature range of 35°F to 120°F (2°C to 49°C). Shade balls (hollow plastic spheres), floated on top of atmospheric tanks, can be used to slow evaporation.

Shelf Life, Inspection, and Testing

The shelf life of any foam concentrate is maximized by proper storage conditions and maintenance. Factors affecting shelf life are wide temperature changes, extreme high or low temperatures, evaporation, dilution, and contamination by foreign materials. Properly stored National Foam foam concentrates have been tested and shown no significant loss of firefighting performance, even after 10 years.

Annual testing of all firefighting foam is recommended by the National Fire Protection Association (NFPA). National Foam provides a Technical Service Program to conduct such tests. Refer to National Foam product data sheet NFC960 for further details on Technical Service program.

Ordering Information

Container	Shipping Weight	Shipping Dimensions	Part Number
5-Gallon Pails (19 liters)	44.1 lb. (20.0 kg)	1.13 cu. ft. ³ (0.032 cu. m)	2190-3340-0
55-Gallon Drums (208 liters)	492 lb. (223.0 kg)	11.1 cu. ft. ³ (0.314 cu. m)	2190-3481-0
275-Gallon IBC Reusable Tote Tank (1041 liters)	2494 lb. (1131.0 kg)	48.2 cu. ft. ³ (1.365 cu. m)	2190-3725-0
330-Gallon IBC Reusable Tote Tank (1249 liters)	2990 lb. (1356.3 kg)	55.8 cu. ft. ³ (1.580 cu. m)	2190-3733-0

24hr **RED ALERT**[®] : 610-363-1400 • Fax: 610-431-7084

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National Foam operates a continuous programme of product development. The right is therefore reserved to modify any specification without prior notice and National Foam should be contacted to ensure that the current issues of all technical data sheets are used.

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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 - EPA health advisories:

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

EPAPFAS Action Plan:

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

FFFC best practice guide:

[https://docs.wixstatic.com/ugd/](https://docs.wixstatic.com/ugd/331cad_188bf72c523c46adac082278ac019a7b.pdf)

[331cad_188bf72c523c46adac082278ac019a7b.pdf](https://docs.wixstatic.com/ugd/331cad_188bf72c523c46adac082278ac019a7b.pdf)

NFPA:

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



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