



Universal^{®F3} Green 1%-3% AR-SFFF

Alcohol Resistant Synthetic
Fluorine Free Foam
NFC545

- ✔ GreenScreen Certified Silver[®]
- ✔ UL 162 listed for Type II and Type III applications with fresh and salt water
- ✔ LASTFIRE rated Good for fresh and salt water applications
- ✔ Superior fluorine free, alcohol resistant synthetic foam concentrate formulated to extinguish hydrocarbon fuel fires at 1% and polar solvent fuel fires at 3%
- ✔ Specifically designed for emergency firefighting response at high-hazard oil, gas, and chemical manufacturing facilities
- ✔ Compatible with dry chemical for dual-agent application
- ✔ 100% Biodegradable
- ✔ Formulated without siloxanes
- ✔ Formulated without the intentional addition of PFAS, PFOA, fluorosurfactants, fluoropolymers or organohalogens



Universal^{®F3} Green 1%-3% Alcohol Resistant Synthetic Fluorine Free Foam (AR-SFFF) concentrate produces an excellent quality firefighting foam specifically designed for high-hazard emergency incident response. The concentrate is formulated for use as a 1% solution on hydrocarbon fuel fires and 3% on polar solvent fuel fires, and may be applied with mobile and semi-fixed foam hardware.

Standards and Approvals

- ✔ GreenScreen Certified Silver[®]
- ✔ UL 162 Type II and Type III
- ✔ ULC S564 Type II and Type III
- ✔ LASTFIRE rated Good/Good/Good (both fresh and seawater)
- ✔ NFPA 11, NFPA 16

Applications

Universal^{®F3} Green 1%-3% AR-SFFF concentrate delivers superior firefighting performance to extinguish fire and suppress vapor on Class B hydrocarbon and polar solvent fuel-in-depth and fuel spill fires. It is intended for use at a 1% foam solution on hydrocarbon fuel fires (such as oils, gasoline, diesel fuel, etc.) and at a 3% solution on polar solvent fuels (such as alcohols, ketones, esters, and ethers). The concentrate may be used in fresh, brackish, or salt water solution.

Universal^{®F3} Green 1%-3% AR-SFFF is designed for use with response apparatus

and systems in applications where Class B hydrocarbon and polar solvent fuels are stored, processed, or transported.

Typical Physical Properties

Appearance.....	Pale Yellow Color
Specific Gravity at 68°F(20°C).....	1.07
pH @ 68°F(20°C)	7.0-8.0
Viscosity@ 68°F(20°C).....	2,500 cP*
Lowest Use Temperature	35°F(2°C)
Max Continuous Storage Temperature.....	120°F(49°C)
Expansion Ratio	5 - 10**
25% Drainage Time @ 1%.....	30 minutes**
@ 3%.....	60 minutes**

** 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 the foam proportioning device, the type of foam-making device, operating parameters, water quality and type, and atmospheric conditions.*

Equipment

Universal^{®F3} Green 1%-3% AR-SFFF concentrate is intended for use at 1% (1 part concentrate to 99 parts of water) solution on hydrocarbons and 3% (3 parts concentrate to 97 parts of water) solution on polar solvents.

It is readily proportioned using most standard, calibrated proportioning equipment including portable and fixed (in-line) foam venturi proportioners, handline nozzles with pick-up tubes, balanced pressure variable flow proportioners, and around-the-pump proportioners.

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Alcohol Resistant Synthetic Fluorine Free Foam

With appropriate mixing and application techniques, Universal^{®F3} Green 1%-3% foam solution may be applied with conventional (mobile and fixed) low-expansion discharge devices to produce an effective fire-suppressing foam blanket. Devices include low expansion nozzles, monitors and fixed foam discharge devices. Universal^{®F3} Green 1%-3% foam solution may be applied in combination with dry powder extinguishing agents either separately or as a twin agent system.

Compatibility

Per NFPA 11, Universal^{®F3} Green 1%-3% AR-SFFF concentrate should not be mixed with other foam concentrates. Such mixing could lead to chemical changes in the product and a reduction of firefighting capability.

Universal^{®F3} Green 1%-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.

Sustainability

Universal^{®F3} Green 1%-3% AR-SFFF concentrate is manufactured with no intentionally added PFAS, PFOA, fluorosurfactants, fluoropolymers, or

organohalogens. The product formula also contains no intentionally added siloxanes.

The concentrate is a 100% biodegradable. However, appropriate care should be taken to prevent concentrate spills or foam solution from entering groundwater, surface water, or storm drains. Disposal of foam concentrate or solution should be handled in accordance with federal, state, and local regulations.

Storage

Universal^{®F3} Green 1%-3% concentrate is ideally stored in its original shipping container. It may also be stored in tanks or in other containers which have been designed for such foam storage. Recommended construction materials for foam storage tanks and containers include 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). Refer to National Foam Technical Bulletin NFTB290 for further information.

Foam concentrate evaporation accelerates when the product is exposed to air. Storage tanks should be kept full, sealed and fitted with a pressure vacuum vent to prevent free exchange of air. The recommended storage temperature range for Universal^{®F3} Green 1%-3%

concentrate is between 35°F and 120°F (2°C to 49°C). Foam Seal Balls - hollow plastic spheres floated on top of atmospheric tanks in two layers - may be used to slow evaporation.

Refer to National Foam Technical Bulletin NFTB245 for further recommendation details regarding foam concentrate storage and preservation.

Shelf Life, Inspection, and Annual Testing

The shelf life of any foam concentrate is maximized by proper storage conditions and maintenance. Factors affecting shelf life are wide temperature changes, exposure to extreme high or low temperatures, product evaporation, dilution, and contamination by foreign materials. National Foam firefighting foam concentrates have been tested and have not shown significant loss of performance after 10 or more years, provided annual testing and proper storage recommendations are followed.

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 the annual testing 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)	2190-3340-1
55-Gallon Drums (208 liters)	492 lb. (223.0 kg)	11.1 cu. ft. ³ (0.314 cu. m)	2190-3481-1
275-Gallon IBC Reusable Tote Tank (1041 liters)	2494 lb. (1131.0 kg)	48.2 cu. ft. ³ (1.365 cu. m)	2190-3725-1
330-Gallon IBC Reusable Tote Tank (1249 liters)	2990 lb. (1356.3 kg)	55.8 cu. ft. ³ (1.580 cu. m)	2190-3733-1

National Foam

141 Junny Rd. Angier, NC 27501
 Email: info@nationalfoam.com
www.nationalfoam.com

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.