

# Niagara 3-3

High Fluidity AR-FFFP 3-3

Niagara is a superior quality Alcohol Resistant Film-Forming FluoroProtein (AR-FFP) fire fighting foam concentrate at 3% induction rate for extinguishing and securing both flammable hydrocarbon and polar solvent liquid fires.



## Benefits

- Easy pouring and induction, even at -18°C (0°F)
- Film-forming foam with fast knockdown
- Extremely low environmental impact
- Highly versatile - eliminates need to stock a variety of foam types
- Detergent-free for high resistance to fuel pick-up
- Foam blanket re-seals when disrupted by personnel or equipment
- Reduced stocks, low cost storage, long shelf life and low usage levels provide maximum value for money.

## Special Surfactants

Cutting-edge chemistry enables special fluorocarbon surfactants to be combined with a protein base to produce fast control and extinguishment on hydrocarbons with a vapour-sealing aqueous film equivalent to that of a top quality synthetic AFFF. These surfactants "seal" the bubble against attack from polar solvents, providing a highly effective floating foam layer on a wide range of solvent chemicals. The protein base material provides a tough cohesive foam blanket with high heat resistance and excellent post-fire security, protecting for longer against re-ignition when compared to detergent based AR type foams.

## Easy pouring and induction

Niagara does not contain any

polymers that cause conventional AR type concentrates to be viscous. It is therefore easy to pour from the drum when used with portable foam equipment or when filling bulk storage tanks for fixed systems. High fluidity means that proportioning is quick, easy and accurate with both portable inductors and fixed balanced pressure proportioners.

## Environment

Niagara is biodegradable and virtually non-toxic to aquatic organisms. It is based on a natural protein foaming agent and contains no harmful synthetic detergents, glycol ethers, alkyl phenol ethoxylates (APEs), tolyltriazoles, or complexing agents

## Applications

Ideal for use in high-risk applications where polar solvents (such as alcohols, ketones, and ethers) and/or hydrocarbons (such as crude oil, gasoline, diesel fuel, aviation kerosene) are stored, processed or transported. Typical applications include municipal fire departments, hydrocarbon and polar solvent bulk storage tank protection, process areas, warehousing, road/rail loading racks, power stations, marine terminals and offshore platform protection.

## Performance and approvals

Independently tested and certified to EN1568:2008 Parts 3 & 4.

Unique "triple listing" by UL as a FluoroProtein, AFFF and Alcohol Resistant foam for use at -18°C (0°F). UL Listed for use at 3% on polar solvents & hydrocarbons. Tested to ICAO Level B performance.

## Equipment

Intended for multipurpose use at 3% (3 parts concentrate to 97 parts water) on hydrocarbons & polar solvents.

## Proportioning

Readily proportioned at 3% using conventional foam proportioning equipment such as portable and fixed (in-line) foam venturi proportioners, handline nozzles/branchpipes with pick-up tubes, balanced pressure variable flow proportioners, balanced pressure bladder tank proportioners and around the pump proportioners. Newtonian fluid characteristics for easy pouring from drums over a wide range of temperatures. Simple to pump using centrifugal pumps (most AR type foams are highly viscous and require costly positive displacement pumps).

## Non-aspirated

Non-aspirated application is not recommended as the primary method of attack for major fires where a stable foam cover is essential. However, Niagara can be used with non-aspirating discharge devices such as spray nozzles, monitors, and conventional sprinklers for use on shallow spill fires.

### Low expansion

Air aspirating discharge devices such as low expansion branchpipes, monitors, top pourer sets, rimseal foam pourers, MEX Bund Pourers and foam/water sprinklers are all suitable for use with Niagara, which is best applied gently onto the burning liquid surface, but its exceptional resistance to fuel contamination enables it to withstand vigorous mixing with hydrocarbon fuels. This makes it suitable for forceful application onto large hydrocarbon storage tank fires from ground-based mobile monitors or via sub-surface injection systems.

### Medium expansion

Produces top quality medium expansion (MEX) foam when proportioned at 3% and applied through MEX branchpipes and bund pourers.

### Compatibility

Suitable for use in combination with:

- Soft, hard, brackish and saline water.
- Dry powder extinguishing agents either separately or in twin agent systems.
- Expanded foams (either protein or synthetic based) for application simultaneously or sequentially to a fire.

Niagara is produced to rigorous quality control standards which ensure consistent fire performance and excellent product reliability. Angus Fire operates a quality management system which complies with the requirements of BS EN ISO 9001:2008

### Storage/disposal

Niagara is exceptionally stable in long-term storage, and has a shelf life in excess of 10 years when stored in sealed drums. It has no polymers so cannot suffer phase separation and does not deteriorate prematurely like ordinary AR-AFFFs. Niagara can be successfully treated in biological wastewater treatment systems.

### Low Temperature

Remains fluid and can be proportioned easily down to -18°C (0°F). Consequently there is no need for expensive lagging or trace heating of bulk storage tanks during winter conditions.

#### Typical Physico-Chemical Properties

Appearance		Dark brown free-flowing liquid
Specific gravity @ 20°C (68°F)		1.15 - 1.17
pH @ 20°C (68°F)		7.1 ± 0.5
Viscosity @ 20°C (68°F)	CS	18
Viscosity @ 0°C (32°F)	CS	47
Viscosity @ -10°C (14°F)	CS	105
Maximum continuous storage temperature	°C (°F)	49 (120)
Maximum intermittent storage temperature	°C (°F)	60 (140)
Effect of freeze/thaw		No performance loss
Lowest use temperature	°C (°F)	-18 (0)
Sediment as shipped	% v/v	< 0.1
Sediment after ageing	% v/v	< 0.5

#### Typical Foam Properties:

These vary depending on the performance characteristics of the foam. When tested in accordance with UK Defence Specification 42-41 it gives the following typical properties	
Induction rate %	3
Expansion ratio	> 7:1
25% drainage time	> 4 mins

Packing Specification	Plastic Square		Plastic Cylindrical		Ecobulk MX
Capacity	25 litres	5 US gallons	200 litres	55 US gallons	1000 litres
Empty weight (kg)	1.2	0.8	9.0	9.0	70
Filled weight (kg)	30	23	241	250	1230
Dimensions (mm)	286 L x 286 W x 448 H	293 L x 240 W x 402 H	580 D x 922 H	580 D x 922 H	1200 L x 1000 W x 1160 H

**For emergency supplies of Niagara phone +44 (0) 15242 61166**

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