DATA SHEET
#NFC420

UNIVERSAL® GOLD 1% / 3% AR-AFFF

Environmentally Responsible Foam Concentrate

Description

Environmentally responsible Universal Gold is the next generation in Alcohol-Resistant Aqueous Film Forming Foams (AR-AFFFs). This proven formulation demonstrates National Foam's commitment to superior flexibility, firefighting performance, and environmental responsibility.

Universal Gold is used at 1% or 3% to extinguish hydrocarbon fires, and 3% for polar-solvent (water-miscible) fires and oxygenated fuel blends. It is suitable for use with foam compatible dry powder extinguishing agents. Fuel type, proportioning accuracy and incident dynamics should be considered when selecting percentage use concentration.

Universal Gold is an AR-AFFF concentrate with a special biosynthesized polymer. This polymer is designed to fulfill two functions. The first is to form a protective membrane between the fuel and the foam as it contacts the water-miscible fuel, making extinguishment possible. The second function is to make the foam more stable and heat-resistant, resulting in better burnback resistance and sealability compared to conventional AFFFs. The unique state-of-the-art Universal Gold concentrate formulation is recognized by United States Patents 4,999,119 and 5,207,932.

Applications

Universal Gold is used in fire suppression systems and manual applications to fight the broadest range of Class B fires. Its versatility simplifies the extinguishment of unknown Class B fuels. Typical applications include storage tanks, loading racks, docks, process areas, warehouses, spills, etc. Universal Gold can also be used as a wetting agent in combating Class A fires.

Typical Physical Properties

Appearance	Amber-Colored Viscous Liquid
Specific Gravity @ 77°F (25°C)	1.025
pH	8.0
Viscosity	2500 cps*
Minimum Usable Temperature	35°F (2°C)
Maximum Usable Temperature	120°F (49°C)
Freeze Point	26°F (-3°C)
Effects of Freeze/Thaw	No performance loss

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

Approvals and Listings

- Underwriters Laboratories Inc. (UL)
- Underwriters' Laboratories of Canada (ULC)
- Factory Mutual System
- United States Coast Guard (USCG)
- Last Fire - Level 1 Pass

Universal Gold has successfully passed UL-162 7th Edition test criteria for use at 1% or 3% concentration on hydrocarbons and 3% on polar solvents using both fresh and sea water. Universal Gold is the first 1%/3% AR-AFFF listed by UL. Universal Gold also has a full complement of listings on oxygenated and reformulated gasoline fuel blends, including MTBE/gasoline blends with both Type II and Type III discharge devices and ethanol/gasoline blends. Universal Gold also has listings with biodiesel (methyl ester from lipid sources). Universal Gold is listed with every polar solvent category recognized by Underwriters Laboratories.

The UL listings include application through a variety of proportioning and foam making devices. See UL Fire Protection Equipment Directory or consult National Foam for details on compatible equipment listings.

Storage and Handling

Universal Gold 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). Refer to National Foam Technical Bulletin NFTB100 for further information.

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 UL-listed temperature range of 35°F to 120°F (2°C to 49°C).

It is recommended that Universal Gold not be mixed with any other type of foam concentrate in long-term storage. Such mixing could lead to chemical changes in the product and a possible reduction in or loss of its firefighting capability. Most expanded foams are compatible for side-by-side application during an incident.

Underwriters Laboratories-Listed Application Rates for Universal Gold 1%/3%

Type III Application Rates

Fuel Group	Proportioning %	UL-Listed Rate gpm/ft² (lpm/m²)
Hydrocarbons	1%	0.16 (6.5)
Hydrocarbons	3%	0.16 (6.5)
MTBE/Gasoline Blends (up to 30% MTBE)	3%	0.15 (6.1)
Ethanol/Gasoline Blends (up to 15.6% ethanol)	3%	0.15 (6.1)
Biodiesel (methyl ester from lipid sources)	3%	0.10 (4.1)

Type II Application Rates

Fuel Group	Proportioning %	UL-Listed Rate gpm/ft² (lpm/m²)
Alcohols	3%	0.13 (5.3)
Ethanol	3%	0.10 (4.1)
Methanol	3%	0.10 (4.1)
Aldehydes	3%	0.24 (9.8)
Amines	3%	0.15 (6.1)
Carboxylic Acids	3%	0.15 (6.1)
Esters	3%	0.10 (4.1)
Ethers	3%	0.15 (6.1)
ETBE	3%	0.14 (5.7)
MTBE	3%	0.13 (5.3)
TAME	3%	0.13 (5.3)
Hydrocarbons	3%	0.10 (4.1)
Ketones	3%	0.16 (6.5)
Methyl Ethyl Ketone	3%	0.12 (4.9)
MTBE/Gasoline Blends (up to 17.5% MTBE)	3%	0.10 (4.1)
Biodiesel (ME) Methyl Ester from Lipid Sources	3%	0.10 (4.1)

Application rates for U.S. Coast Guard Approved Cargo Deck Protection Systems may differ. The product should be reviewed by National Foam to confirm required rate in accordance with National Foam USCG Certificate of Approval No. 162.033/38/0.

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 AR-AFFF foam concentrates have been tested and shown no significant loss of firefighting performance, even after 25 years. Annual testing of all firefighting foams is recommended by the National Fire Protection Association (NFPA). National Foam provides a Technical Service Program to conduct such tests.

Environmental and Toxicological Information

Universal Gold contains no ingredients reportable under the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313 of 40 CFR-372 or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as of July 1, 1995. Universal Gold is biodegradable. However, as with any substance, care should be taken to prevent discharge from entering ground water, surface water, or storm drains. With advance notice, Universal Gold solution can be treated by local biological sewage treatment systems. Since facilities vary widely by location, disposal or discharge of Universal Gold concentrate or foam solution should be made in accordance with federal, state, and local regulations.

The Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) of Universal Gold concentrate are as follows:

BOD_5 91,500 mg/kg
COD 290,000 mg/kg

Results of tests for acute oral toxicity and primary skin irritation have proved negative. Repeated skin contact will remove oils from the skin and cause dryness. Universal Gold is a primary eye irritant, and contact with the eyes should be avoided. Users are advised to wear protective equipment.

If Universal Gold enters the eyes, flush them well with water and seek immediate medical attention. For further details, see the Universal Gold Material Safety Data Sheet.

Ordering Information

CONTAINER	SHIPPING WEIGHT	PART NUMBER
5-Gallon Pails		
(19 litres)	46 lb. (20.9 kg)	2130-7340-6
55-Gallon Drums		
(208 litres)	494 lb. (225.0 kg)	2130-7481-6
275-Gallon IBC Reusable Tote Tank		
(1041 litres)	2512 lb. (1141.8 kg)	2130-7725-6
Bulk	8.59 lb./gal.(1.03 kg/l)	2130-7001-6

Palletizing of pails and drums is available upon request.

SHIPPING CUBE

5-Gallon Pail ..... 1.13 cu. ft. (0.032 cu. m)
55-Gallon Drum ..... 11.51 cu. ft. (0.326 cu. m)
275-Gallon IBC Tote Tank ... 51.11 cu. ft. (1.1061 cu. m)

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