

## SKUM ARC 3X3 EG 3% $\times$ 3% AR-AFFF Concentrate

### Description

SKUM ARC 3X3 EG AR-AFFF (Alcohol Resistant Aqueous Film-Forming Foam) Concentrate combines fluoro-and hydro-carbon-surfactant technologies to provide superior fire and vapor suppression for Class B, polar solvent and hydrocarbon fuel fires. This synthetic foam concentrate is intended for forceful or gentle firefighting applications at 3% solution on hydrocarbon fuels and for gentle firefighting applications at 3% solution on polar solvent fuels in fresh, salt, or hard water. The dual 3% solution level for SKUM ARC 3X3 EG minimizes the product required to protect against hydrocarbon and polar solvent fuel fire hazards.

SKUM ARC 3X3 EG foam solution utilizes three suppression mechanisms intended for rapid fire knockdown and superior burnback resistance:

- The foam blanket blocks oxygen supply to the fuel.
- Liquid drains from the foam blanket and forms either:
  - An aqueous film on a hydrocarbon fire, or
  - A polymeric membrane on a polar solvent fire which suppresses the vapor and seals the fuel surface.
- The water content of the foam solution produces a cooling effect for additional fire suppression.

#### TYPICAL PHYSIOCHEMICAL PROPERTIES AT 20°C

Appearance	Viscous amber liquid
Density	1.05 ± 0.02 g/ml
pH	7.0 – 8.5
Refractive Index	1.3680 minimum
Viscosity*	2,300 ± 300 cPs
Sediment**	≤ 0.25%
Spreading Coefficient	3 dynes/cm minimum at 3% dilution
Pour Point	≤ -15 °C
Freeze Point	≤ -18 °C
Storage and Operating Range**	-13 °C – 60 °C

\*Brookfield viscometer, Spindle #4, Speed 60 rpm

\*\*EN 1568:2008 protocol

SKUM ARC 3X3 EG Concentrate is a non-Newtonian fluid that is both pseudoplastic and thixotropic; therefore, dynamic viscosity will decrease as shear increases.

The environmentally-mindful SKUM ARC 3X3 EG Concentrate formulation contains short-chain, C-6 fluorochemicals manufactured using a telomer-based process. The telomer process produces no PFOS, and these C-6 materials do not breakdown to yield PFOA. The fluorochemicals used in the concentrate meet the goals of the U.S. Environmental Protection Agency 2010/15 PFOA Stewardship Program and the current ECHA Directive (EU) 2017/1000.



### Approvals, Listings, and Standards

SKUM ARC 3X3 EG Concentrate is approved, listed, qualified under, or meets the requirements of the following specifications and standards:

- EN 1568:2008
  - Parts 1, 2, 3, 4
- ICAO
  - Level B
- IMO MSC. 1/Circ. 1312
- MED Modules B and D



### Application

SKUM ARC 3X3 EG Concentrate is intended for use on both types of Class B fires; hydrocarbon fuels with low water solubility, such as crude oils, gasolines, diesel fuels, and aviation fuels; and polar solvent fuels with appreciable water solubility, such as methyl and ethyl alcohol, acetone, and methyl ethyl ketone.

The concentrate has excellent wetting properties that can effectively combat Class A fires as well. It may also be used in conjunction with dry chemical agents to provide even greater fire suppression performance.

SKUM ARC 3X3 EG Concentrate can be ideal for fixed, semi-fixed, and emergency response firefighting applications such as:

- Docks, on-board marine, and helipad systems
- Fuel or chemical storage tanks
- Industrial chemical and petroleum processing facilities
- Truck/rail loading and unloading facilities
- Flammable liquid containment areas

## Foaming Properties

SKUM ARC 3X3 EG Concentrate may be effectively applied using most conventional foam discharge equipment at the correct dilution with fresh, salt, or hard water. For optimum performance, water hardness should not exceed 500 ppm expressed as calcium and magnesium.

SKUM ARC 3X3 EG Concentrate requires low energy to foam and the foam solution may be applied with aspirating and non-aspirating discharge devices. Non-aspirating devices, such as handline water fog/stream nozzles or standard sprinkler heads, typically produce expansion ratios from 2:1 to 4:1. Aspirating low-expansion discharge devices typically produce expansion ratios from 3.5:1 to 10:1, depending on the type of device and the flow rate. Medium-expansion discharge devices typically produce expansion ratios from 20:1 to 60:1.

### TYPICAL FOAM CHARACTERISTICS\*\* (Fresh and Salt Water)

Proportioning Rate	3%
Expansion Ratio	≥ 8.0
25% Drain Time (min:sec)	≥ 8:00
50% Drain Time (min:sec)	≥ 12:00

\*\*per EN 1568-3, 2008 protocol

## Proportioning

The recommended operational temperature range for SKUM ARC 3X3 EG Concentrate is -13 °C to 60 °C per EN 1568. However, the diluted solution will freeze at 0 °C. This foam concentrate can require special proportioning equipment. It can be correctly proportioned using most conventional, properly calibrated, in-line proportioning equipment such as:

- Balanced and in-line balanced pressure pump proportioners
- Balanced pressure bladder tanks and ratio flow controllers
- Around-the-pump type proportioners
- Fixed or portable in-line venturi type proportioners
- Handline nozzles with fixed eductor/pick-up tubes

For immediate use: The concentrate may be diluted with fresh or sea water to a 3% pre-mix solution.

For delayed use: Consult Technical Services for guidance regarding suitability of a stored pre-mix solution (fresh water only).

## Materials of Construction Compatibility

To help avoid corrosion, galvanized pipe and fittings should never be used in contact with undiluted SKUM ARC 3X3 EG Concentrate. Refer to Johnson Controls Technical Bulletin "Acceptable Materials of Construction" for recommendations and guidance regarding compatibility of foam concentrate with common materials of construction in the firefighting foam industry.

## Storage and Handling

SKUM ARC 3X3 EG Concentrate should be stored in the original supplied package (HDPE totes, drums, or pails) or in the recommended foam system equipment as outlined in Johnson Controls Technical Bulletin "Storage of Foam Concentrates". A thin layer up to 6 mm thick of appropriate-grade mineral oil may be applied to the surface of the foam concentrate stored in a fixed, atmospheric storage container to help minimize evaporation. Consult Johnson Controls for further guidance regarding the use of mineral oil to help seal the surface of AR-AFFF concentrates.

The concentrate should be maintained within the recommended operational temperature range. Freezing of the product should be avoided. If, however, the product freezes during transport or storage, it must be thawed and inspected for signs of separation. If separation has occurred, or is suspected, the SKUM ARC 3X3 EG Concentrate should be mechanically mixed until homogeneous, and additional testing may be required after mixing to verify product quality.

Factors affecting foam concentrate's long-term effectiveness include temperature exposure and cycling, storage container characteristics, air exposure, evaporation, dilution, and contamination. The effective life of SKUM ARC 3X3 EG Concentrate can be maximized through optimal storage conditions and proper handling. SKUM concentrates have demonstrated effective firefighting performance with contents stored in the original package under proper conditions for more than 10 years.

Mixing SKUM ARC 3X3 EG Concentrate with other foam concentrates for long-term storage is not recommended. Use in conjunction with comparable 3x3 AR-AFFF products for immediate incident response is appropriate.

## Inspection

SKUM ARC 3X3 EG Concentrate should be inspected periodically in accordance with NFPA 11, EN 13565-2, or other relevant standard. A representative concentrate sample should be sent to Johnson Controls Foam Analytical Services or other qualified laboratory for quality analysis per the applicable standard. An annual inspection and sample analysis is typically sufficient unless the product has been exposed to unusual conditions.

## Quality Assurance

SKUM ARC 3X3 EG Concentrate is subject to stringent quality controls throughout production, from incoming raw materials inspection to finished product testing, and is manufactured in an ISO 9001:2008 certified facility.

## Ordering Information

SKUM ARC 3X3 EG Concentrate is available in pails, drums, totes, or bulk shipment.

Part No.	Description	Shipping Weight
F113193C2	20 L Pail	22.1 kg
F113193C1	25 L Pail	27.45 kg
F113193D1	200 L Drum	218.5 kg
F113193T1	1,000 L Tote	1,110 kg

For bulk orders, consult an account representative.

Safety Data Sheets (SDS) are available at [www.skum.com](http://www.skum.com)

**Note:** The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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