

CHEMGUARD® NFF-3H 3% Non-Fluorinated Foam Concentrate

Description

CHEMGUARD NFF-3H 3% is a Non-Fluorinated Foam Concentrate (Synthetic Fluorine-Free Foam SFFF) that provides superior fire and vapor suppression performance for Class B hydrocarbon fuel fires.

CHEMGUARD NFF-3H Foam Concentrate is intended for forceful and gentle firefighting applications at 3% solution on hydrocarbon fuel fires in fresh, brackish, and salt water.

CHEMGUARD NFF-3H Foam Concentrate is UL 162 Listed with an extensive hardware package (sprinklers, B1 nozzles, foam chambers, proportioners, pourers, handline nozzles). It has been specifically designed for type II, type III, and sprinkler systems. It is also approved according to the International Civil Aviation Organization (ICAO level B) for use in airport firefighting applications.

CHEMGUARD NFF-3H Foam Concentrate uses two suppression mechanisms intended for rapid fire knockdown and superior burnback resistance:

- **Foam blanket:** Strong foam blanket at low expansion rates. Extended drain times help block the oxygen supply to the fuel and suppress fuel vapors.
- **Cooling effect:** The water content in the foam solution provides a cooling action, enhancing overall fire suppression.

Table 1: Typical physiochemical properties

Property	Value
Appearance	Viscous yellow liquid
Density	1.13 ±0.02 g/ml at 77 °F (25 °C)
pH	6.8 to 7.8
Refractive index	1.3919 minimum
Surface tension (typical value)	26.6 at 0.1% 25.3 at 0.6% 25.1 at 1.0%
Viscosity*	2300 ±500 cPs at 77 °F (25 °C) at 30 rpm
Viscosity**	1300 ±500 cPs at 77 °F (25 °C) at 60 rpm
Freeze point***	24 °F (-4.5 °C)
Storage and operating range	35 °F to 120 °F (2 °C to 49 °C)
Notes: *Brookfield Spindle #4 30 rpm **Brookfield Spindle #4 60 rpm ***In accordance with the new EN 1568:2018 protocol	



Approvals, listings, and standards

CHEMGUARD NFF-3H Foam Concentrate is designed in accordance with National Fire Protection Association (NFPA) Standard 11 for low-, medium-, and high-expansion foam. The concentrate is approved, listed, qualified under, or meets the requirements of the following specifications and standards:

- UL Standard 162, foam liquid concentrate
 - UL Listed for use with an extensive range of proportioning and discharge equipment, including sprinklers as required by NFPA 11.
- ULC S564, Category 1 foam liquid concentrate
- EN 1568 – Parts 1 and 3
- ICAO Level B
- GreenScreen Certified™ Silver firefighting foam concentrate



Application

CHEMGUARD NFF-3H Foam Concentrate is intended for use on Class B fires involving hydrocarbon fuels that have low water solubility, such as various crude oils, gasolines, diesel fuels, and aviation fuels. It is not suitable for use on fuels with appreciable water solubility (polar solvents).

The concentrate also has excellent wetting properties that can effectively combat Class A fires. It is compatible with dry chemical agents to provide for increased fire suppression performance.

CHEMGUARD NFF-3H Foam Concentrate is UL Listed for use with a range of upright and pendent 5.6 k (80), 8.0 k (115), and 11.2 k (160) sprinklers on hydrocarbon fuels. This concentrate is ideal for fixed and semi-fixed foam systems that use sprinklers, nozzles, foam chambers, and other standard discharge devices for various applications.

Application

Application examples:

- Industrial chemical and petroleum processing facilities
- Fuel or chemical (non-polar) storage tanks
- Truck or rail loading and unloading facilities
- Flammable liquid (non-polar) containment areas
- Aircraft hangars
- Flammable liquid (non-polar) warehouse storage facilities
- Mobile equipment

Foaming properties

CHEMGUARD NFF-3H Foam Concentrate may be applied using most conventional foam discharge equipment at the correct dilution with fresh, salt, or hard water.

CHEMGUARD NFF-3H Foam Concentrate requires low energy to expand. The foam solution may be effectively applied with conventional aspirating and non-aspirating discharge devices at the correct dilution with water. Air-aspirating discharge devices typically produce expansion ratios from 4:1 to 10:1, depending on the type of device and the flow rate. Non-air-aspirating devices, such as handline water fog/stream nozzles or standard sprinkler heads, typically produce expansion ratios from 2:1 to 4:1.

Table 2: Typical foam characteristics in accordance with the latest EN 1568-3 protocol

Water	Fresh	Salt
Proportioning rate	3%	3%
Expansion ratio	9.0	8.5
25% drain time (min:sec)	31:00	20:00
50% drain time (min:sec)	43:30	28:00

Proportioning

The recommended operational temperature range for CHEMGUARD NFF-3H Foam Concentrate is 35 °F to 120 °F (2 °C to 49 °C) in accordance with UL 162. This foam concentrate can be correctly proportioned using most conventional, properly calibrated, in-line proportioning equipment, such as the following:

- 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 and monitor nozzles with fixed eductor/pick-up tubes

Storage and handling

Store CHEMGUARD NFF-3H Foam Concentrate in the original supplied package (totes, drums, or pails) or in the foam system equipment as outlined in the Johnson Controls Technical Bulletin, Storage of Foam Concentrates. Maintain the concentrate within the recommended operational temperature range and avoid freezing the product. Factors that affect the foam concentrate's long-term effectiveness include temperature exposure and cycling, storage container characteristics, air exposure, evaporation, dilution, and contamination.

The effective life of CHEMGUARD NFF-3H Foam Concentrate can be maximized through optimal storage conditions and correct handling. CHEMGUARD foam concentrates have demonstrated effective firefighting performance with contents stored in the original package under correct conditions for more than 10 years. This product should not be mixed with other types of foam concentrates or other manufacturers' foam concentrates under any circumstances. The use of multiple, separately applied finished foam products for incident response is appropriate.

Quality assurance and inspection

CHEMGUARD NFF-3H Foam Concentrate is subject to stringent quality controls throughout production, from incoming raw materials and inspection to finished product testing.

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

CHEMGUARD NFF-3H is a Non-Fluorinated Firefighting Foam Concentrate, meaning that it does not have any intentionally added PFAS chemistry and is produced in equipment that has not handled PFAS chemistry. CHEMGUARD NFF-3H Foam Concentrate complies with Directives (EU) 2017/1000 on PFOA and 2019/1021 (EU POPs directive), (EU) 2024/2462 on PFHxA, and the latest (EU) 2025/1988 Directive on PFAS.

CHEMGUARD NFF-3H Foam Concentrate has been subjected to OECD 301F testing and after 28 days is considered inherently biodegradable.

Ordering information

Table 3: Ordering information

Part No.	Description	Shipping weight
	gal (L)	lb (kg)
Pails		
A1638308RJ*	5 (19)	50 (23)
A16383614M**	5 (19)	50 (23)
Drums		
A163830UET*	55 (208)	541 (246)
A163837VNC**	55 (208)	541 (246)
Totes		
A163830UEV*	265 (1,003)	2,621 (1,189)
A163837VND**	265 (1,003)	2,621 (1,189)
Notes: *Manufactured in the United States of America		
**Manufactured in Europe		

Safety Data Sheets (SDS) are available at www.chemguard.com

Note: While NFF (also known as SFFF) agents may be compatible with existing AFFF and/or NFF hardware, system contamination from fluorinated agents may exist if hardware and piping is not replaced upon conversion to non-fluorinated agents.

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

The GreenScreen Certified Logo and word marks are certification marks of Clean Production Action, Inc.

CHEMGUARD and the product names listed in this material are marks and/or registered marks. Unauthorized use is strictly prohibited.