

HYDRAL 3 ICAO C 3% AFFF Concentrate

Description

HYDRAL 3 ICAO C 3% AFFF (Aqueous Film-Forming Foam) Concentrate combines fluoro- and hydrocarbon-surfactant technologies to provide superior fire and vapor suppression for Class B hydrocarbon fuel fires. This synthetic foam concentrate is intended for firefighting applications at 3% solution in fresh, salt, or hard water.

HYDRAL 3 ICAO C 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 an aqueous film that suppresses fuel 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	Pale yellow liquid
Density	1.02 ± 0.02 g/ml
pH	7.0 – 8.5
Refractive Index	1.3655 ± 0.0020
Viscosity*	3.25 ± 1.5 cSt
Sediment**	≤ 0.25%
Spreading Coefficient	3 dynes/cm minimum at 3% dilution
Pour Point	-3 °C
Freeze Point	-3 °C

* Cannon-Fenske viscometer at 20 °C

** EN1568:2008 protocol

The environmentally-minded HYDRAL 3 ICAO C 3% AFFF 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.



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Approvals, Listings, and Standards

HYDRAL 3 ICAO C 3% AFFF Concentrate is approved, listed, qualified under, or meets the requirements of the following specifications and standards:

- ICAO
 - Level C



Application

HYDRAL 3 ICAO C 3% AFFF Concentrate is intended for use on Class B hydrocarbon fuel fires with low water solubility such as crude oils, gasolines, diesel fuels, and aviation fuels. It is not suitable for use on polar fuels with appreciable water solubility, such as methyl and ethyl alcohol, acetone, and methyl ethyl ketone. The concentrate also has excellent wetting properties that can effectively combat Class A fires and may be used in conjunction with dry chemical agents to provide even greater fire suppression performance.

HYDRAL 3 ICAO C Concentrate is specifically designed for aviation applications requiring exceptional firefighting performance, per the International Civil Aviation Organization (ICAO) standard. Ideal applications include:

- Aircraft Rescue and Fire Fighting (ARFF) vehicles
- Aircraft hangars, helidecks, and terminals
- Mobile emergency response equipment
- Flammable liquid containment areas

Foaming Properties

HYDRAL 3 ICAO C 3% AFFF Concentrate may be effectively applied using most conventional foam discharge equipment at a 3% dilution with fresh, salt, or hard water. For optimum performance, water hardness should not exceed 500 ppm expressed as calcium and magnesium.

HYDRAL 3 ICAO C Concentrate requires low energy to foam and the foam solution may be applied with aspirating and non-aspirating discharge devices. Aspirating discharge devices typically produce expansion ratios from 3.5:1 to 10:1, depending on the type of device and the flow rate. Non-aspirating devices, such as handline water fog/stream nozzles, or standard sprinkler heads, typically produce expansion ratios from 2:1 to 4:1. 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	≥ 9.5
25% Drain Time (min:sec)	≥ 3:30
50% Drain Time (min:sec)	≥ 5:45

** per EN 1568-3, 2008 protocol

Proportioning

The recommended operational temperature range for HYDRAL 3 ICAO C 3% AFFF Concentrate is -2 °C to 60 °C. This foam concentrate 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 also be diluted with fresh or salt 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).

Storage and Handling

HYDRAL 3 ICAO C 3% AFFF Concentrate should be stored in the original supplied package (HDPE totes, drums, or pails) or in the recommended foam system equipment as outlined in Tyco Fire Protection Products Technical Bulletin "Storage of Foam Concentrates". The product should be maintained within the recommended temperature range. If the concentrate freezes during transport or storage, full product serviceability can be restored upon thaw with gentle re-mixing.

Factors affecting 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 HYDRAL 3 ICAO C Concentrate can be maximized through optimal storage conditions and proper handling. SABO FOAM concentrates have demonstrated effective firefighting performance with contents stored in the original package under proper conditions for more than 10 years. Mixing HYDRAL 3 ICAO C Concentrate with other foam concentrates for long-term storage is not recommended. Use in conjunction with comparable 3% AFFF products for immediate incident response is appropriate.

Materials of Construction Compatibility

To help avoid corrosion, galvanized pipe and fittings should never be used in contact with undiluted HYDRAL 3 ICAO C 3% AFFF Concentrate. Refer to Tyco Fire Protection Products 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.

Inspection

HYDRAL 3 ICAO C 3% AFFF 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 Tyco Fire Protection Products 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

HYDRAL 3 ICAO C 3% AFFF 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

HYDRAL 3 ICAO C 3% AFFF Concentrate is available in pails, drums, totes, or bulk shipment.

Part No.	Description	Shipping Weight	Container Volume
F103381C2	20 L Pail	22.1 kg	0.0285 m ³
F103381C1	25 L Pail	27.45 kg	0.0329 m ³
F103381D1	200 L Drum	218.5 kg	0.2477 m ³
F103381T1	1000 L Tote	1100 kg	1.398 m ³

For bulk orders, consult an account representative.

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

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

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