

TECHNICAL DATA SHEET



Newtonian Foam Concentrate Film Forming - AFFF-AR 1x1%

DESCRIPTION

Atila is a new Synthetic Newtonian Aqueous Film Forming Foam (AFFF/AR) Concentrate, designed to be used at very low concentration: 1% for Class B hydrocarbon fires and polar fuels and with lowest application rate.

Atila is different to other AFFF/AR because it doesn't contain polymers in its formulation. It's formulated from hydrocarbon and fluorochemical surfactants along with solvents.

The AFFF solution requires relatively low energy to expand into foam and the liquid which drains from the foam has the unique ability to form an aqueous film on most fuel surfaces. This film avoids contact with oxygen and helps preventing the release of fuel vapour. The water content of the foam produces a cooling effect.

Two of the most interesting advantages using Atila are the small quantity of foam concentrate needed and that it doesn't have gelification problems because it doesn't contain polymers.

It's suitable in concentrations of 1% with fresh, sea or brackish water.

Atila is specially appropriated for marine purposes because it can be applied in deck with low expansion nozzles and in engine room with high expansion generator.

APPLICATION

Atila should be used with an induction rate of 1% for Class B hydrocarbon fires and polar fuels using high, medium and low expansion devices.

-Low Expansion: It can be used with low expansion foam equipment (foam chambers, nozzles...) and non-aspirating discharge devices (handline water fog/stream nozzles or standard sprinkler heads).

-Medium Expansion: With medium expansion nozzles you can reach high expansion index and its use is only for medium distance firefighting filling the security pools of the fuel tanks with foam in case of a possible spillage.

-High Expansion: At 1% Atila reaches adequate expansion index.

Its excellent wetting characteristics make it useful for combating Class A fires as well.

Aspirated AFFF results in higher expansion ratios, in a longer 25% drainage time and 25% burnback time than nonaspirated. The use of non-aspirated AFFF has several advantages over the use of aspirated AFFF in situations involving low vapor pressure fuels and rescue operations involving life danger.

PROPORTIONING

Atila can be easily proportioned using most conventional proportioning equipment such as:

*Balanced pressure pump and bladder tank proportioners, around the pump type and venturis proportioners, and handline nozzles with fixed induction/pickup tubes.

TYPICAL PHYSICAL PROPERTIES OF CONCENTRATE

Appearance.....	Yellow-brown Liquid
Density, g/cm ³	1,10 ± 0,02
pH.....	7,5 ± 0,5
Viscosity (Brookfield), 375 s ⁻¹ , mPa.s:	
20°C.....	< 50
0°C.....	< 140
Freezing Point, °C.....	< -15

PROPERTIES OF FOAM SOLUTIONS

Induction Rate.....	1 %
Surface Tension, mN/m.....	15,5 ± 0,5
Interfacial Tens.(ciclohex.), mN/m.....	2,5 ± 1
Low Expansion Rate (1%).....	> 8
Drainage Time.....	> 3'30"
Medium Expansion Rate (1%).....	> 100
High Expansion Rate* (1%).....	> 300

* The value is depending on the type of generator used.

FIRE PERFORMANCE

Atila is certified according the standard OACI, by Civil Aviation Authority (CAA):

- Level C at 1%
- Level B at 0,5%

Atila is certified according the standard EN-1568 at 1%:

- EN-1568 parts 1 and 2 in fresh and sea water.
- EN-1568 parts 3 (Class IB) and 4 (Class IC acetone and isopropyl alcohol) in fresh and sea water.

COMPATIBILITY WITH OTHER CONCENTRATES

The NFPA standard (NFPA 412, Paragraph 214 and NFPA 11B, 1-5.2) prohibits the mixing of AFFF concentrates unless it has previously been determined that they are compatible.

The MIL-F24385C standard provides a formalized method of compatibility determination but the Freeze Protected AFFF fall outside the military specification.

vs FOCUM recommends the following test: Atila is considered compatible in all proportions with the concentrates supplied by other manufacturers, when their mixture maintains its properties of foamability, film formation, sealability and fire performance to the same extent as the worst concentrate involved in the mixture, after an aging period of 10 days at 65°C at least.

Furthermore, the mixture should always be used with the higher induction and for the higher minimum temperature of use of the mixed concentrates.

Atila may simultaneously be applied to fires with other foam solutions and dry chemical fire fighting agents.

MATERIALS OF CONSTRUCTION COMPATIBILITY

Atila is compatible with pipe manufactured from various Stainless Steel or Brass Compounds. Other recommended materials are Polyethylene and Aluminum (Alloys 3003-H-14 and 661-T-6).

Galvanized pipe and fittings must not be used in areas where undiluted concentrate can get in contact with them since corrosion will result.

SHELF LIFE

The factors affecting shelf life and stability for this foam concentrate are the following: big temperature changes, handling procedures,

extremely high or low temperatures and contamination by unknown materials.

Its shelf life is about 20-25 years if the storage is done according to the recommendations of vs FOCUM.

According NFPA 11 (12.6), samples of foam concentrates shall be sent to the manufacturer or qualified laboratory for quality condition testing at least annually.

STORAGE AND HANDLING

Atila concentrate should be stored in the original shipping containers or in other special containers specially designed for this type of products (stainless steel or epoxy lined tanks).

Place the storage containers in an area at temperatures between -15°C to 50°C.

If foam concentrate is frozen during storage or transportation, thawing will render the product completely usable. Mixing after freeze thaw cycle is recommended.

ENVIRONMENTAL/TOXICOLOGICAL PROPERTIES

Aquatic Toxicity. The aquatic life, neither sensitive species nor tolerant ones, is not adversely affected by the use of Atila.

Biodegradability. The theoretical biodegradability is measured with two different tests: BOD over a five day period and COD; but for AFFF solutions BOD tests are conducted for a twenty day period because there is a lag phase in the bacterial population growth curve as the bacteria become acclimated to the chemicals in AFFF. The biodegradability is the ratio of BOD to COD: BOD_{28}/COD .

The ratio: DBO_{28}/DQO for Atila is up to 0,99 so, it has an excellent biodegradability.

Sewage Treatment Plant Treatability. Atila is not particularly toxic to the microbial populations normally found in treatment plants. Compatible with the treatment plant's flora Anti-foam agents may be used to reduce foaming in waste streams.

Nutrient Loading. An algal bloom is not expected as Atila contains no sources of nitrates or phosphates. Furthermore, it is extremely low in total organic carbon.

ORDERING INFORMATION

Atila product is available in plastic Pail (20, 25 or 60 L), Drum (200 L), Container (1000 L) and Bulk.

