TECHNICAL INFORMATION

SILVARA APC+

FLUORINE FREE FIRE FIGHTING FOAM CLASS A, B, 3x3%

1. DESCRIPTION

Quim-Foam Silvara APC+ is a fluorine free foam for extinguishing hydrocarbon fuels, polar solvent fuels and solids fires. It is a mixture of synthetic hydrocarbon surfactants together with solvents, stabilizers, anticorrosive agents and a high molecular weight polymer.

Quim-Foam Silvara APC+ forms resistant foam with a high drainage time, it isolates the fuel from the oxygen and extinguishes the fire. It is an alternative to the use of AFFF/AR products.

It is suitable for use at 3% with fresh, sea or brackish water.

2. APPLICATION

Quim-Foam Silvara APC+ can be used for Class A fires (solids) and Class B fires (hydrocarbon fuels, polar solvents and alcohols) using low expansion devices at concentration of use of 3% with fresh, sea or brackish water and medium expansion at 6%.

It can be used with aspirating discharge devices (nozzles, foam chambers…), which results in higher expansion ratios and longer drainage time.

Quim-Foam Silvara APC+ can be used with any device (aspirating or non-aspirating) in the same way and with the same application rate than an AFFF foam concentrate, due to its ability to form a high quality, compact, fluid and oleophobic foam.

3. DOSAGE

Quim-Foam Silvara APC+ 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.

4. PHYSICAL PROPERTIES OF FOAM CONCENTRATE

Appearance	Amber Liquid
Density, 20ºC, g/cm^3	1,06 ± 0,01
pH, 20ºC	8,0 ± 1,0
Viscosity (20ºC), mPa·s	

375 s^{-1}	75 s^{-1}
80-100	270-310

Freezing Point, ºC	◘-8

5. PROPERTIES OF FOAM SOLUTION

Induction rate	3%
Surface Tension, mN/m (3%, deionized water)	◘ 35
Interfacial Tension, mN/m (3%, cyclohexane)	3-6
Low expansion index (3%, fresh water)	◘ 6,5
Drainage Time 25%	◘ 3'30''

6. FIRE PERFORMANCE

Quim-Foam Silvara APC+ is certified by MPA DRESDEN according to the following standards:

- EN 1568-3:2018 (3%), Class IB (Fresh and Sea water)
- EN 1568-4:2018 (3%), Class IB (Fresh water and acetone)
- EN 1568-1:2018 (6%, Fresh water)
- IMO MSC.1 Circ. 1312:2009

Quim-Foam Silvara APC+ fulfils the requirements of EN 1568-2:2018. It also complies with the EN 1568-3:2018 standard at 3% with diesel as fuel, Class IA (both Fresh and Sea water), and with the EN 1568-4:2018 at 3% with ethanol, Class IB (Fresh water).

Quim-Foam Silvara APC+ fulfils the requirements of clause 4.1 of the standard FM 5130:2014 (3%)

using polar solvent fuels (Acetone and IPA – Isopropanol), with K80 Sprinklers at 2 bars.

7. COMPATIBILITY WITH OTHER CONCENTRATES

QUIMICA 21 recommends the following test: Silvara products are 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 65ºC 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.

8. COMPATIBILITY WITH MATERIALS

Quim-Foam Silvara APC+ is compatible with Standard Carbon Steel "black" pipe and pipe manufactured from various Stainless Steel or Brass Compounds. Other recommended materials are Polyethylene and Aluminium.

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

9. 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 QUIMICA 21

The premixed solutions storage is not recommended.

Annual testing of all firefighting foams is recommended by the National Fire Protection Association (NFPA) if the foam concentrate is not stored in its original container.

10. STORAGE AND HANDLING

Quim-Foam Silvara APC+ 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 -7ºC to 50ºC.

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

11. ENVIRONMENTAL AND TOXICOLOGICAL PROPERTIES

Aquatic Toxicity: Silvara APC+ at concentration of use is "Relatively Harmless" for species as Daphnia, Fish and Algae. Silvara APC+ has undergone Ecotoxicological Investigations.

Persistence and Degradability: Silvara APC+ does not contain persistent organic substances. Silvara APC+ is a fluorine-free foam. Silvara APC+ has a TOPA test (TOP – Total Oxidisable Precursor) and PFT Analysis. Silvara APC+ has a biodegradability at 7 days up to 98% and 100% at 28 days, so Silvara APC+ is a "Fully biodegradable" foam concentrate.

Sewage Treatment Plant Treatability: Silvara products are 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 Silvara products contain no sources of nitrates or phosphates. Furthermore, it is extremely low in total organic carbon.

12. ORDERING INFORMATION

13. Quim-Foam Silvara products are available in plastic Pail (20, 25 or 60 L), Drum (200 L), Container (1000 L) and Bulk.

QUÍMICA 21®, S.L.