



# TECHNICAL INFORMATION

## SILVARA APC+

### FLUORINE FREE FIRE FIGHTING FOAM

### CLASS A,B, 3x3%

#### 1. DESCRIPTION

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

Silvara APC+ forms resistant foam with a high drainage time, it insulates the fuel of the oxygen and extinguish 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

Silvara APC+ can be used for Class A fires (solids) and Class B fires (hydrocarbon fuels and polar solvent fuels) 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,...) with results in higher expansion ratios and longer drainage time.

#### 3. DOSAGE

Silvara APC+ can be easily proportioned using most conventional proportioning equipments 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, 20°C, g/cm <sup>3</sup>	1,055 ± 0,01
pH, 20°C	8,0 ± 1,0
Viscosity (20°C), mPa.s	
375 s <sup>-1</sup>	75 s <sup>-1</sup>
80-100	270-310

Freezing Point, °C            ≤-4°C

#### 5. PROPERTIES OF FOAM SOLUTION

Induction rate	3%
Surface Tension, mN/m (3%, deionized water)	≤ 30
Interfacial Tension, mN/m (3%, cyclohexane)	2-5
Low expansion index (3%, fresh water)	≥ 6,5
Drainage Time 25%	≥ 20'

#### 6. FIRE PERFORMANCE

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

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

Silvara APC+ fulfills the requirements of the EN-1568:4 Standards (3%) Class IB (fresh water, acetone).

Silvara APC+ fulfills the requirements of clause 4.1 of the standards FM 5130:2014 (3%) using polar solvent fuels (acetone and isopropanol).

#### 7. COMPATIBILITY WITH OTHER CONCENTRATES

vs FOCUM 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 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.

## 8. COMPATIBILITY WITH MATERIALS

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 Aluminum.

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 vs FOCUM.

The premixed solutions storage is not recommended.

Annual testing of all firefighting foams is recommended by the National Fire Protection Association (NFPA).

## 10. STORAGE AND HANDLING

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 -2°C to 50°C.

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 concentrate of use is “Relatively Harmless” for species as Daphnia, fish and algae.

Persistence and degradability: Silvara APC+ does not contain persistent organic substances. Silvara APC+ is fluorine-free foams. Silvara APC+ has a TOPA test (TOP – Total Oxidisable Precursor). Silvara APC+ has a biodegradability at 7 days up to 98% and 28 days at 100%, so Silvara I is “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

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

