



### SILVARA I FIRE FIGHTING FOAM CLASS A, B

#### 1. DESCRIPTION

Silvara I is fluorine free low viscosity newtonian foam concentrate to extinguish hydrocarbon fuels fires and solids.

Silvara I is formulated with solvents, hydrocarbon surfactants and additives. Silvara I doesn't contain any type of organo halogen compound, it is easily biodegradable and responsible with the environment.

Silvara I form resistant foam to insulate the fuel of the oxygen and extinguish the fire. Fire performance of Silvara I is similar to fluorine foam concentrates in hydrocarbon fuels fires. It is an alternative to the use of AFFF products.

It is suitable for use at 1% with fresh, sea or brackish water.

#### 2. APPLICATION

Silvara I should be used in fresh water to extinguish class B fires (hydrocarbons fuels). It is not suitable to use on polar fuels.

It is useful to combat class A fires (solids) because its excellent wetting properties.

It should be used with aspirating discharge devices (foam chambers, nozzles,...) with low, medium or high expansion.

Application of Silvara I by foam achieves excellent extinguishing and re-ignition times in hydrocarbon fuels fires. Obviously due to it is not a film forming foam, the application with fog/stream nozzles isn't so effective as with AFFF foam concentrates.

#### 3. DOSAGE

Silvara I can be easily proportioned using most conventional proportioning equipment such as: Balanced pressure pump and bladder tank proportioners, around the pump type and venturuses proportioners, and hanline nozzles with fixed induction/pickup tubes.

#### 4. PHYSICAL PROPERTIES OF FOAM CONCENTRATE

Appearance	Amber liquid
Density, 20°C, g/cm <sup>3</sup>	1,135 ± 0,01
pH, 20°C	8,0 ± 1,0
Viscosity, 375 s <sup>-1</sup> , 20°C	≤ 50 mPa.s
Freezing point	≤ -15° C

#### 5. PROPERTIES OF FOAM SOLUTION

Surface tension, (1%, .D.W.), mN/m	≤ 30
Low expansion index (1%, F.W.)	≥ 7
Drainage Time, 25%	≥ 5'

\*D.W.: Deionized water / F.W.: Fresh water

#### 6. FIRE PERFORMANCE

Silvara I fulfil the requirement EN.1568.3:2008.

#### 7. COMPATIBILITY WITH OTHER CONCENTRATES

The NFPA standards (NFPA 412, Paragraph 214 and NFPA 11B, 1-5.2) prohibits the mixing of AFFF concentrates unless it has 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: Silvara products are considerate compatible in all proportions with the concentrates furnished by other manufacturers when the mixture of them, after having been aged 10 days at 65°C, maintain its properties of foamability and fire performance at least equal of the worst concentrate involved in the mixture and to use the higher induction rate and to the higher minimum usable temperature of the mixing concentrates.

## 8. COMPATIBILITY WITH MATERIALS

Silvara I is compatible with Standard Carbon Steel “black” pipe and pipe manufactured from various Stainless Steel (304 and 316) or Brass Compounds. Other recommended materials are Polyethylene and Aluminum. Avoid using galvanized pipes and fittings, it can cause corrosion.

## 9. SHELF LIFE

The factors affecting shelf life and stability for this foam concentrate are: wide temperature changes, handling procedures, extreme high or low temperatures and contamination by odd materials.

Its shelf life is about 20-25 years if the storage is in accordance with vs FOCUM’s recommendations. 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.

## 10. STORAGE AND HANDLING

Silvara concentrate should be stored in the original shipping container or in an other

special containers designed for this type of products (stainless steel or epoxy lined tanks).

Place the storage container in an area at temperatures between –15°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

**Biodegradability:** The theoretical biodegradability is measured with two different tests: BOD over a five-day period and COD. The biodegradability is the ratio of BOD to COD: BOD/COD.

A concentrate is considered easily biodegradable when the ratio: BOD/COD is above 0,65. Silvara products are well above this level and so they are easily biodegradable.

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 I contains 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.

