TECHNICAL INFORMATION

SILVARA AR

FLUORINE FREE FIRE FIGHTING FOAM CLASS B, 3x3%

1. DESCRIPTION

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

Silvara AR 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 specially designed for extinguishing polar solvents fires, including MEK and butanol, at the induction rate of 3%.

2. APPLICATION

Silvara AR can be used for Class B fires (hydrocarbon fuels and polar solvent fuels) using low expansion devices at concentration of use of 3% with fresh water.

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

Silvara AR 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

Silvara AR 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	1,03 ± 0,01
pH, 20ºC	8,0 ± 1,0
Viscosity (20ºC), mPa·s	

375 s^{-1}	75 s^{-1}
80-100	260-300

Freezing Point, ºC	≤-4

5. PROPERTIES OF FOAM SOLUTION

Induction rate	3%
Surface Tension, mN/m (3%, deionized water)	≤ 25
Interfacial Tension, mN/m (3%, cyclohexane)	2-5
Low expansion index (3%, fresh water)	≥ 4
Drainage Time 25%	≥ 3’

6. FIRE PERFORMANCE

Silvara AR is certified by MPA Dresden according to the following standards:

- EN 1568-3:2018 (classified IC) at 3% dosage
- EN 1568-4:2018; acetone (classified IA) and isopropanol (classified IB) at 3% dosage

Silvara AR also complies with the EN 1568-4:2018 standard, if the following fuels are used (MPA Dresden assessment):

- Methanol (classified IB), isoamyl alcohol (classified IC), ethyl acetate (classified IB), ethanol (classified IA)

Silvara AR is suitable for use against the following fuels, at double of the EN 1568-4:2018 application rate (MPA Dresden assessment):

- Butanol and butanone (MEK – Methyl Ethyl Ketone)

Furthermore, Silvara AR fulfils FM 5130 Sprinkler tests with Water Sprinklers K80 (2 bars, fuel: Acetone; 2 bars, fuel: IPA), K115 (2 bars, fuel: MEK) and K160 (2 bars, fuel: MEK).

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 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

Silvara AR 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 10 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) if the foam concentrate is not stored in its original container.

10. STORAGE AND HANDLING

Silvara AR 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 -2ºC 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 AR at concentration of use is “Relatively Harmless” for species as Daphnia, Fish and Algae.

Persistence and Degradability

Silvara AR does not contain persistent organic substances. Silvara AR is a fluorine-free foam.

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.