



TECHNICAL INFORMATION

SILVARA 4F EXTINGUISHING SOLUTION. CLASS F F

1.- DESCRIPTION

Silvara 4F is last generation of fluorine free firefighting foams. It is a mixture of organic salts, surfactants and additives, designed for fighting class F fires.

With difference to others extinguishing solutions for fighting class F fires, Silvara 4F forms resistant foam, with high drainage time that improve the efficiency in the extinguishing.

The main characteristics are:

- Designed to use in kitchen fire extinguishers. The product achieves a quick extinction time in class F fires.
- Specialty formulated to increase the compatibility between the solution and the oil. It is achieved a quicker extinction time than when a solution based only in organic salts is used.
- Great cooling capacity. It is lower the reignition probability.
- Completely free of fluorine components in its formulation
- The solution forms stable foam which provides an additional protection.
- It can be easily removed with water.

2.- APPLICATION

Silvara 4F is provided to recharge the fire extinguisher directly. It is used concentrated, not diluted.

A conventional AFFF product works forming an aqueous film on hydrocarbon and polar fuels surfaces. However, Silvara 4F reacts forming a protective barrier over the surface of the fuel. The protective barrier isolates the fuel from the oxygen, inhibits the reignition and provides an additional cooling. In the case of oils, Silvara 4F reacts with the hot vegetable oil in a saponification reaction.

3.- PROPORTIONING

Principal fields of proportioning are:

1. Automatic systems for extinction in kitchen fires.

Replacing the usual extinguishing agent for Silvara 4F, improving the extinction time and reignition resistance.

2. Fire extinguishers: Small capacity fire extinguishers for oil fires.

3. Household aerosols: 250 mL pressurized container with a hydrofluorocarbon propellant no harmful to the ozone layer.

Silvara 4F can be used to extinguish class B fires (hydrocarbons).

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

4.- PHYSICAL PROPERTIES OF THE SOLUTION

Appearance	Amber liquid
Density, 20°C, g/cm ³	1,21±0,01
pH, 20°C	9,0±0,5
Kinematic Viscosity, mm ² /s, 20°C	≤ 10
Freezing point, °C	≤ -34
Surface Tension (deionized water), mN/m	≤ 35
Wetting power, s	≤ 20"

5.- FIRE PERFORMANCE

Silvara 4F is certified by MPA DRESDEN according to standard EN 3-7:2004+A1:2007, annex-clause L.2, concerning class F fires (test fire rating **75 F**).

6.- 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.

VS FOCUM recommends the following test: Silvara products are considered compatible in all proportions with the concentrates furnished by other manufacturers when the mixture of them, after to have been aged 10 days at 65°C, maintain its properties of foamability, film formation, sealability 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.

7.- MATERIALS OF CONSTRUCTION COMPATIBILITY

Silvara 4F 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 Aluminium.

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

8.- 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. Following the recommended storage conditions, it is expected a shelf life of at least 10 years.

According to NFPA 11 (12.6), samples of foam concentrates shall be sent to the manufacturer or qualified laboratory for quality condition testing at least annually if the foam concentrate is not stored in its original container.

9.- STORAGE AND HANDLING

Silvara concentrate should be stored in the original shipping container or in 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 -32°C to 45°C.

10.- ENVIRONMENTAL PROPERTIES

1.- Aquatic Toxicity.

The aquatic life is not adversely affected when Silvara 4F is used, neither sensitive species nor tolerant ones.

2.- Biodegradability.

- Persistence: Silvara 4F does not contain persistent organic substances. Silvara 4F is a fluorine-free foam.

-Biodegradability: Silvara 4F is an easily biodegradable product.

3.- Sewage Treatment Plant Treatability.

Because Silvara products have a low biological oxygen demand (BOD) at the dosage use, it is not necessary an additional contribution of oxygen to treatment plant.

Silvara 4F 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.

4.- Nutrient Loading.

It is not expected that an algal bloom may occur because Silvara 4F contains no sources of nitrates or phosphates, and it is extremely low in total organic carbon.

11.- ORDERING INFORMATION

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

