



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**


Date of compilation: 01/04/2022

Version: 1

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

- 1.1 Product identifier:** SILVARA AR  
FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%
- Other means of identification:**  
Non-applicable
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
Relevant uses: Fire-extinguishing. For professional users only.  
Dosage of use: 3% for use on Class B fires using low expansion devices.  
At concentration recommended the product IS NOT LISTED AS HAZARDOUS.  
Uses advised against: All uses not specified in this section or in section 7.3
- 1.3 Details of the supplier of the safety data sheet:**  
VSFOCUM  
Polígono de Olloniego, Parcela B-17  
33660 OVIEDO - ASTURIAS - ESPAÑA  
Phone: +34985307145 - Fax: +34985168639  
info@vsfocum.com  
www.vsfocum.com
- 1.4 Emergency telephone number:** +34 985 30 71 45 - Hours: 8:00 to 17:00 Monday to Friday (except holidays).  
+34 620 80 86 17 – 24 hour

**SECTION 2: HAZARDS IDENTIFICATION**

- 2.1 Classification of the substance or mixture:**  
**CLP Regulation (EC) No 1272/2008:**  
Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.  
Aquatic Chronic 3: Hazardous to the aquatic environment, long-term hazard, Category 3, H412  
Eye Dam. 1: Serious eye damage, Category 1, H318
- 2.2 Label elements:**  
**CLP Regulation (EC) No 1272/2008:**  
**Danger**
- 
- Hazard statements:**  
Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.  
Eye Dam. 1: H318 - Causes serious eye damage.
- Precautionary statements:**  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/protective footwear.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310: Immediately call a poison center/doctor.  
P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively.
- Supplementary information:**  
EUH208: Contains 1,2-benzisothiazol-3(2H)-one. May produce an allergic reaction.
- Substances that contribute to the classification**  
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts; Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine; (carboxymethyl)dimethyl-3-[(1-oxododecyl)amino]propylammonium hydroxide
- 2.3 Other hazards:**

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 2: HAZARDS IDENTIFICATION (continued)**

Product fails to meet PBT/vPvB criteria  
Endocrine-disrupting properties: The product fails to meet the criteria.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substance:**

Non-applicable

**3.2 Mixture:**

**Chemical description:** Aqueous mixture of hydrocarbon surfactants, solvents and additives

**Components:**

In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification	Concentration
CAS: 112-34-5 EC: 203-961-6 Index: 603-096-00-8 REACH: 01-2119475104-44-XXXX	<b>2-(2-butoxyethoxy)ethanol<sup>(1)</sup></b> Regulation 1272/2008 Eye Irrit. 2: H319 - Warning	ATP CLP00  <b>3 - &lt;10 %</b>
CAS: 107-21-1 EC: 203-473-3 Index: 603-027-00-1 REACH: 01-2119456816-28-XXXX	<b>Ethanediol<sup>(1)</sup></b> Regulation 1272/2008 Acute Tox. 4: H302; STOT RE 2: H373 - Warning	Self-classified  <b>3 - &lt;10 %</b>
CAS: 1469983-50-3 EC: 939-457-4 Index: Non-applicable REACH: 01-2119970901-34-XXXX	<b>1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts<sup>(1)</sup></b> Regulation 1272/2008 Aquatic Chronic 2: H411; Eye Dam. 1: H318 - Danger	Self-classified  <b>1 - &lt;3 %</b>
CAS: 90583-18-9 EC: 939-265-0 Index: Non-applicable REACH: 01-2119970645-28-xxxx	<b>Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine<sup>(1)</sup></b> Regulation 1272/2008 Acute Tox. 4: H302; Eye Dam. 1: H318; Skin Irrit. 2: H315 - Danger	Self-classified  <b>1 - &lt;3 %</b>
CAS: 4292-10-8 EC: 224-292-6 Index: Non-applicable REACH: 01-2119487970-25-XXXX	<b>(carboxymethyl)dimethyl-3-[(1-oxododecyl)amino]propylammonium hydroxide<sup>(1)</sup></b> Regulation 1272/2008 Aquatic Chronic 3: H412; Eye Dam. 1: H318 - Danger	Self-classified  <b>1 - &lt;3 %</b>
CAS: 2634-33-5 EC: 220-120-9 Index: 613-088-00-6 REACH: 01-2120761540-60-XXXX	<b>1,2-benzisothiazol-3(2H)-one<sup>(1)</sup></b> Regulation 1272/2008 Acute Tox. 4: H302; Aquatic Acute 1: H400; Eye Dam. 1: H318; Skin Irrit. 2: H315; Skin Sens. 1: H317 - Danger	Self-classified  <b>&lt;0,1 %</b>

<sup>(1)</sup> Substances presenting a health or environmental hazard which meet criteria laid down in Regulation (EU) No. 2020/878

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

**Other information:**

Identification	Specific concentration limit
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	% (w/w) >=20: Eye Dam. 1 - H318 10<= % (w/w) <20: Eye Irrit. 2 - H319

Silvara AR does not contain any persistent organic chemicals such as fluorinated organic substances (PFAS) or siloxanes (D4, D5 and D6).

**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures:**

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

**By inhalation:**

- CONTINUED ON NEXT PAGE -

**SILVARA AR  
FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 4: FIRST AID MEASURES (continued)**

This product does not contain substances classified as hazardous for inhalation, however, in case of symptoms of intoxication remove the person affected from the exposure area and provide with fresh air. Seek medical attention if the symptoms get worse or persist.

**By skin contact:**

This product is not classified as hazardous when in contact with the skin. However, in case of skin contact it is recommended to remove contaminated clothes and shoes, rinse the skin or if necessary shower the affected person thoroughly with cold water and neutral soap. In case of serious reaction consult a doctor.

**By eye contact:**

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

**By ingestion/aspiration:**

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

**4.2 Most important symptoms and effects, both acute and delayed:**

Acute and delayed effects are indicated in sections 2 and 11.

**4.3 Indication of any immediate medical attention and special treatment needed:**

Non-applicable

**SECTION 5: FIREFIGHTING MEASURES****5.1 Extinguishing media:****Suitable extinguishing media:**

Fire extinguishers with physical foam, ABC powder or CO<sub>2</sub>.

**Unsuitable extinguishing media:**

IT IS RECOMMENDED NOT to use full jet water as an extinguishing agent.

**5.2 Special hazards arising from the substance or mixture:**

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

**5.3 Advice for firefighters:**

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

**Additional provisions:**

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures:****For non-emergency personnel:**

Isolate leaks provided that there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilled product (See section 8). Evacuate the area and keep out those who do not have protection.

**For emergency responders:**

See section 8.

**6.2 Environmental precautions:**

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 6: ACCIDENTAL RELEASE MEASURES (continued)**

Avoid at all cost any type of spillage into an aqueous medium. Contain the product absorbed appropriately in hermetically sealed containers. Notify the relevant authority in case of exposure to the general public or the environment.

**6.3 Methods and material for containment and cleaning up:**

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

**6.4 Reference to other sections:**

See sections 8 and 13.

**SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for safe handling:**

A.- Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

B.- Technical recommendations for the prevention of fires and explosions

Product is non-flammable under normal conditions of storage, handling and use. It is recommended to transfer at slow speeds to avoid the generation of electrostatic charges that can affect flammable products. Consult section 10 for information on conditions and materials that should be avoided.

C.- Technical recommendations to prevent ergonomic and toxicological risks

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

Due to the danger of this product for the environment it is recommended to use it within an area containing contamination control barriers in case of spillage, as well as having absorbent material in close proximity.

**7.2 Conditions for safe storage, including any incompatibilities:**

A.- Technical measures for storage

Minimum Temp.: 0 °C  
Maximum Temp.: 50 °C  
Maximum time: 60 Months

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

**Other information:**

Technical storage measures applicable to supply containers

**7.3 Specific end use(s):**

Foam concentrate for use in fire fighting.

Exclusive professional use.

Dosage of use: 3% for use on Class B fires using low expansion devices.

Observe handling instructions for preparing ready-to-use mixtures and for using the solutions.

Observe technical data sheet.

Recommended temperatures for use between -2°C and + 50°C.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters:**

Substances whose occupational exposure limits have to be monitored in the workplace (European OEL, not country-specific legislation):

- CONTINUED ON NEXT PAGE -

**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

Directive (EU) 2000/39, Directive 2004/37/EC, Directive (EU) 2006/15, Directive (EU) 2009/161, Directive (EU) 2017/164, Directive (EU) 2019/1831:

Identification	Occupational exposure limits		
2-(2-butoxyethoxy)ethanol CAS: 112-34-5 EC: 203-961-6	IOELV (8h)	10 ppm	67,5 mg/m <sup>3</sup>
	IOELV (STEL)	15 ppm	101,2 mg/m <sup>3</sup>
Ethanediol CAS: 107-21-1 EC: 203-473-3	IOELV (8h)	20 ppm	52 mg/m <sup>3</sup>
	IOELV (STEL)	40 ppm	104 mg/m <sup>3</sup>

**8.2 Exposure controls:**



A.- Individual protection measures, such as personal protective equipment

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Regulation (EU) 2016/425. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection



The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

C.- Specific protection for the hands



Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory hand protection	Protective gloves against minor risks			Replace gloves in case of any sign of damage. For prolonged periods of exposure to the product for professional users/industrials, we recommend using CE III gloves in line with standards EN 420:2004+A1:2010 and EN ISO 374-1:2016+A1:2018

As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application.



D.- Ocular and facial protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Panoramic glasses against splash/projections.		EN 166:2002 EN ISO 4007:2018	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

E.- Body protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Work clothing			Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 6529:2013, EN ISO 6530:2005, EN ISO 13688:2013, EN 464:1994.
	Anti-slip work shoes		EN ISO 20347:2012	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 20345:2012 y EN 13832-1:2007

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2011, ISO 3864-4:2011	 Eyewash stations	DIN 12 899 ISO 3864-1:2011, ISO 3864-4:2011

**Environmental exposure controls:**

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties:**

For complete information see the product datasheet.

**Appearance:**

Physical state at 20 °C:	Liquid
Appearance:	Not available
Colour:	Amber
Odour:	Characteristic
Odour threshold:	Non-applicable *

**Volatility:**

Boiling point at atmospheric pressure:	106 °C
Vapour pressure at 20 °C:	2299 Pa
Vapour pressure at 50 °C:	12111,46 Pa (12,11 kPa)
Evaporation rate at 20 °C:	Non-applicable *

**Product description:**

Density at 20 °C:	1010 - 1030 kg/m <sup>3</sup>
Relative density at 20 °C:	1,01 - 1,03
Dynamic viscosity at 20 °C:	75 - 95 cP
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *
Concentration:	Non-applicable *
pH:	7 - 8
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *
Solubility properties:	Water-soluble
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	≤-4 °C

**Flammability:**

Flash Point:	>100 °C (Does not maintain combustion)
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	204 °C
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *

**Particle characteristics:**

Median equivalent diameter:	Non-applicable
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**9.2 Other information:**

**Information with regard to physical hazard classes:**

Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *
Corrosive to metals:	Non-applicable *
Heat of combustion:	Non-applicable *
Aerosols-total percentage (by mass) of flammable components:	Non-applicable *

\*Not relevant due to the nature of the product, not providing information property of its hazards.

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)**

**Other safety characteristics:**

Surface tension at 20 °C: Non-applicable \*

Refraction index: Non-applicable \*

Dynamic viscosity (Brookfield HADV-II + CP40) at 20°C, cP / mPa.s:

375s-1: 75-95

75s-1: 240-270

\*Not relevant due to the nature of the product, not providing information property of its hazards.

**SECTION 10: STABILITY AND REACTIVITY**

**10.1 Reactivity:**

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

**10.2 Chemical stability:**

Chemically stable under the conditions of storage, handling and use.

**10.3 Possibility of hazardous reactions:**

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

**10.4 Conditions to avoid:**

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

**10.5 Incompatible materials:**

Acids	Water	Oxidising materials	Combustible materials	Others
Avoid strong acids	Not applicable	Not applicable	Not applicable	Avoid alkalis or strong bases

**10.6 Hazardous decomposition products:**

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO<sub>2</sub>), carbon monoxide and other organic compounds.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:**

The experimental information related to the toxicological properties of the product itself is not available

Contains glycols. It is recommended not to breathe the vapours for prolonged periods of time due to the possibility of effects that are hazardous to the health .

**Dangerous health implications:**

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A- Ingestion (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it does contain substances classified as dangerous for this effect. For more information see section 3.

B- Inhalation (acute effect):

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 11: TOXICOLOGICAL INFORMATION (continued)**

- Acute toxicity : Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- C- Contact with the skin and the eyes (acute effect):
  - Contact with the skin: Based on available data, the classification criteria are not met. However, it contains substances classified as dangerous for skin contact. For more information see section 3.
  - Contact with the eyes: Produces serious eye damage after contact.
- D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):
  - Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.
  - Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
  - Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- E- Sensitizing effects:
  - Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitising effects. For more information see section 3.
  - Cutaneous: Based on available data, the classification criteria are not met. However, it contains substances classified as dangerous with sensitising effects. For more information see section 3.
- F- Specific target organ toxicity (STOT) - single exposure:
 

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- G- Specific target organ toxicity (STOT)-repeated exposure:
  - Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met. However, it does contain substances classified as dangerous for this effect. For more information see section 3.
  - Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- H- Aspiration hazard:
 

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

**Other information:**

Non-applicable

**Specific toxicology information on the substances:**

Identification	Acute toxicity		Genus
2-(2-butoxyethoxy)ethanol CAS: 112-34-5 EC: 203-961-6	LD50 oral	2410 mg/kg	Rat
	LD50 dermal	2764 mg/kg	Rabbit
	LC50 inhalation	Non-applicable	
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	LD50 oral	1063 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
(carboxymethyl)dimethyl-3-[(1-oxododecyl)amino]propylammonium hydroxide CAS: 4292-10-8 EC: 224-292-6	LD50 oral	>5000 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts CAS: 1469983-50-3 EC: 939-457-4	LD50 oral	2950 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Ethanediol CAS: 107-21-1 EC: 203-473-3	LD50 oral	500 mg/kg (ATEi)	
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	

- CONTINUED ON NEXT PAGE -





**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 11: TOXICOLOGICAL INFORMATION (continued)**

Identification	Acute toxicity		Genus
	LD50 oral	532 mg/kg	
1,2-benzisothiazol-3(2H)-one	LD50 dermal	Non-applicable	Rat
CAS: 2634-33-5	LC50 inhalation	Non-applicable	
EC: 220-120-9			

**11.2 Information on other hazards:**

**Endocrine disrupting properties**

Endocrine-disrupting properties: The product fails to meet the criteria.

**Other information**

Non-applicable

**SECTION 12: ECOLOGICAL INFORMATION**

The experimental information related to the eco-toxicological properties of the product itself is not available

**12.1 Toxicity:**

**Acute toxicity:**

Identification	Concentration		Species	Genus
	LC50	EC50		
2-(2-butoxyethoxy)ethanol CAS: 112-34-5 EC: 203-961-6	LC50	1300 mg/L (96 h)	Lepomis macrochirus	Fish
	EC50	4950 mg/L (48 h)	Daphnia magna	Crustacean
	EC50	53 mg/L (192 h)	Microcystis aeruginosa	Algae
Ethanediol CAS: 107-21-1 EC: 203-473-3	LC50	53000 mg/L (96 h)	Pimephales promelas	Fish
	EC50	51000 mg/L (48 h)	Daphnia magna	Crustacean
	EC50	24000 mg/L (168 h)	Selenastrum capricornutum	Algae
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts CAS: 1469983-50-3 EC: 939-457-4	LC50	2,12 mg/L (96 h)	Pimephales promelas	Fish
	EC50	4 mg/L (48 h)	Daphnia magna	Crustacean
	EC50	2,26 mg/L (72 h)	Skeletonema costatum	Algae
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	LC50	3,6 mg/L (96 h)	Oncorhynchus mykiss	Fish
	EC50	7,1 mg/L (48 h)	Daphnia magna	Crustacean
	EC50	11 mg/L (72 h)	Scenedesmus subspicatus	Algae
(carboxymethyl)dimethyl-3-[(1-oxododecyl)amino]propylammonium hydroxide CAS: 4292-10-8 EC: 224-292-6	LC50	>10 - 100 (96 h)		Fish
	EC50	>10 - 100 (48 h)		Crustacean
	EC50	>10 - 100 (72 h)		Algae

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Concentration		Species	Genus
	LC50	>0.1 - 1 (96 h)		
1,2-benzisothiazol-3(2H)-one CAS: 2634-33-5 EC: 220-120-9	LC50	>0.1 - 1 (96 h)		Fish
	EC50	>0.1 - 1 (48 h)		Crustacean
	EC50	>0.1 - 1 (72 h)		Algae

**Chronic toxicity:**

Identification	Concentration		Species	Genus
	NOEC	0,072 mg/L		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts CAS: 1469983-50-3 EC: 939-457-4	NOEC	0,072 mg/L	Pimephales promelas	Fish
	NOEC	2,9 mg/L	Daphnia magna	Crustacean
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	NOEC	1,357 mg/L	Pimephales promelas	Fish
	NOEC	0,88 mg/L	Ceriodaphnia dubia	Crustacean
(carboxymethyl)dimethyl-3-[(1-oxododecyl)amino] propylammonium hydroxide CAS: 4292-10-8 EC: 224-292-6	NOEC	0,135 mg/L	Oncorhynchus mykiss	Fish
	NOEC	0,032 mg/L	Daphnia magna	Crustacean

**12.2 Persistence and degradability:**

Identification	Degradability		Biodegradability	
	BOD5	0,25 g O2/g	Concentration	100 mg/L
2-(2-butoxyethoxy)ethanol CAS: 112-34-5 EC: 203-961-6	COD	2,08 g O2/g	Period	28 days
	BOD5/COD	0,12	% Biodegradable	92 %
	BOD5	0,47 g O2/g	Concentration	100 mg/L
Ethenediol CAS: 107-21-1 EC: 203-473-3	COD	1,29 g O2/g	Period	14 days
	BOD5/COD	0,36	% Biodegradable	90 %
	BOD5	Non-applicable	Concentration	8.29 mg/L
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts CAS: 1469983-50-3 EC: 939-457-4	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	57 %
	BOD5	Non-applicable	Concentration	14 mg/L
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	95 %
	BOD5	Non-applicable	Concentration	100 mg/L
(carboxymethyl)dimethyl-3-[(1-oxododecyl)amino] propylammonium hydroxide CAS: 4292-10-8 EC: 224-292-6	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	95 %
	BOD5	Non-applicable	Concentration	100 mg/L

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Degradability		Biodegradability	
	1,2-benzisothiazol-3(2H)-one CAS: 2634-33-5 EC: 220-120-9	BOD5	Non-applicable	Concentration
COD		Non-applicable	Period	28 days
BOD5/COD		Non-applicable	% Biodegradable	0 %

Silvara AR does not contain persistent organic substances.

**12.3 Bioaccumulative potential:**

Identification	Bioaccumulation potential	
	2-(2-butoxyethoxy)ethanol CAS: 112-34-5 EC: 203-961-6	BCF
Pow Log		0.56
Potential		Low
Ethanediol CAS: 107-21-1 EC: 203-473-3	BCF	10
	Pow Log	-1.36
	Potential	Low
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts CAS: 1469983-50-3 EC: 939-457-4	BCF	
	Pow Log	2.1
	Potential	
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	BCF	
	Pow Log	-0.87
	Potential	
1,2-benzisothiazol-3(2H)-one CAS: 2634-33-5 EC: 220-120-9	BCF	2
	Pow Log	1.45
	Potential	Low

Chronic toxicity effects on biopersistence, bioaccumulation, bioconcentration, biomagnification are not expected in the long term.

**12.4 Mobility in soil:**

Identification	Absorption/desorption		Volatility	
	2-(2-butoxyethoxy)ethanol CAS: 112-34-5 EC: 203-961-6	Koc	48	Henry
Conclusion		Very High	Dry soil	No
Surface tension		3,395E-2 N/m (25 °C)	Moist soil	No
Ethanediol CAS: 107-21-1 EC: 203-473-3	Koc	0	Henry	1,327E-1 Pa·m <sup>3</sup> /mol
	Conclusion	Very High	Dry soil	No
	Surface tension	4,989E-2 N/m (25 °C)	Moist soil	No

- CONTINUED ON NEXT PAGE -



**SILVARA AR**  
**FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Absorption/desorption		Volatility	
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-, N-C12-18 acyl derivs., inner salts CAS: 1469983-50-3 EC: 939-457-4	Koc	129.42	Henry	Non-applicable
	Conclusion	High	Dry soil	Non-applicable
	Surface tension	Non-applicable	Moist soil	Non-applicable
Sulfuric acid, mono-C12-14 (pairs) -alkyl esters, compds. with triethanolamine CAS: 90583-18-9 EC: 939-265-0	Koc	1577	Henry	Non-applicable
	Conclusion	Low	Dry soil	Non-applicable
	Surface tension	Non-applicable	Moist soil	Non-applicable
(carboxymethyl)dimethyl-3-[(1-oxododecyl)amino]propylammonium hydroxide CAS: 4292-10-8 EC: 224-292-6	Koc	3063	Henry	Non-applicable
	Conclusion	Low	Dry soil	Non-applicable
	Surface tension	Non-applicable	Moist soil	Non-applicable

Avoid spillage to the ground and water. If the surfactant mixture penetrates the soil, it will move through the soil and can contaminate ground and surface waters.

**12.5 Results of PBT and vPvB assessment:**

Product fails to meet PBT/vPvB criteria

The organic components of this product are non-persistent biodegradable materials and do not contain any fluorinated organic compounds or other persistent organic pollutants.

Silvara AR is a fluorine-free fire fighting foam concentrate.

**12.6 Endocrine disrupting properties:**

Endocrine-disrupting properties: The product fails to meet the criteria.

**12.7 Other adverse effects:**

Not described

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods:**

Code	Description	Waste class (Regulation (EU) No 1357/2014)
16 03 05*	organic wastes containing hazardous substances	Dangerous

**Type of waste (Regulation (EU) No 1357/2014):**

HP14 Ecotoxic

**Waste management (disposal and evaluation):**

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommend disposal down the drain. See paragraph 6.2.

If a spill occurs: Contain the spill. Cover with absorbent material. Collect spilled material and place in a closed, identified container.

In the event of a large spill, it can create large amounts of foam: inform the competent authorities in accordance with local legislation.

It must not be disposed of with household garbage. Do not allow product to enter the sewer system unless authorized by an agreement with the operator of the wastewater treatment plant.

**Regulations related to waste management:**

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

- CONTINUED ON NEXT PAGE -

**SILVARA AR  
FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 14: TRANSPORT INFORMATION****Transport of dangerous goods by land:**

With regard to ADR 2021 and RID 2021:

- |  |                |
|--|----------------|
| <b>14.1 UN number or ID number:</b>                                  | Non-applicable |
| <b>14.2 UN proper shipping name:</b>                                 | Non-applicable |
| <b>14.3 Transport hazard class(es):</b>                              | Non-applicable |
| Labels:  | Non-applicable |
| <b>14.4 Packing group:</b>   | Non-applicable |
| <b>14.5 Environmental hazards:</b>                                   | No             |
| <b>14.6 Special precautions for user</b>                             |                |
| Special regulations:   | Non-applicable |
| Tunnel restriction code:   | Non-applicable |
| Physico-Chemical properties:   | see section 9  |
| Limited quantities:  | Non-applicable |
| <b>14.7 Maritime transport in bulk according to IMO instruments:</b> | Non-applicable |

**Transport of dangerous goods by sea:**

With regard to IMDG 39-18:

- |  |                |
|--|----------------|
| <b>14.1 UN number or ID number:</b>                                  | Non-applicable |
| <b>14.2 UN proper shipping name:</b>                                 | Non-applicable |
| <b>14.3 Transport hazard class(es):</b>                              | Non-applicable |
| Labels:  | Non-applicable |
| <b>14.4 Packing group:</b>   | Non-applicable |
| <b>14.5 Marine pollutant:</b>  | No             |
| <b>14.6 Special precautions for user</b>                             |                |
| Special regulations:   | Non-applicable |
| EmS Codes:   |                |
| Physico-Chemical properties:   | see section 9  |
| Limited quantities:  | Non-applicable |
| Segregation group:   | Non-applicable |
| <b>14.7 Maritime transport in bulk according to IMO instruments:</b> | Non-applicable |

**Transport of dangerous goods by air:**

With regard to IATA/ICAO 2021:

- |  |                |
|--|----------------|
| <b>14.1 UN number or ID number:</b>                                  | Non-applicable |
| <b>14.2 UN proper shipping name:</b>                                 | Non-applicable |
| <b>14.3 Transport hazard class(es):</b>                              | Non-applicable |
| Labels:  | Non-applicable |
| <b>14.4 Packing group:</b>   | Non-applicable |
| <b>14.5 Environmental hazards:</b>                                   | No             |
| <b>14.6 Special precautions for user</b>                             |                |
| Physico-Chemical properties:   | see section 9  |
| <b>14.7 Maritime transport in bulk according to IMO instruments:</b> | Non-applicable |

**SECTION 15: REGULATORY INFORMATION****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**

Regulation (EC) No 528/2012: contains a preservative to protect the initial properties of the treated article. Contains 1,2-benzisothiazol-3(2H)-one.

- CONTINUED ON NEXT PAGE -

Date of compilation: 01/04/2022

Version: 1

Page 13/15

**SILVARA AR  
FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 15: REGULATORY INFORMATION (continued)**

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable  
Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable  
Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable  
Article 95, REGULATION (EU) No 528/2012: 1,2-benzisothiazol-3(2H)-one (Product-type 2, 6, 9, 11, 12, 13)  
REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

**Seveso III:**

Non-applicable

**Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc ....):**

Shall not be used in:

- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

**Specific provisions in terms of protecting people or the environment:**

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

**Other legislation:**

The product could be affected by sectorial legislation

**Other information:**

Regulation (EC) No. 1000/2017 (PFOA).

Regulation (EU) 2019/1021 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of June 20, 2019 on persistent organic pollutants. (Perfluorooctane sulfonic acid and its derivatives (PFOS) C8F17SO2X (X = OH, metal salt (O-M +), halide, amide and other derivatives, including polymers).

Commission Delegated Regulation (EU) 2020/784 of April 8, 2020 amending Annex I of Regulation (EU) 2019/1021 of the European Parliament and of the Council with regard to inclusion in the list of the perfluorooctanoic acid (PFOA), its salts and PFOA-related substances

VS Focum fire fighting foams comply with the European Regulation 2019/1021 / CE of the European Parliament and of the Council of June 20, 2019 on persistent organic pollutants modified by Delegated Regulation (EU) 2020/784 of the Commission of April 8, 2020.

VS Focum fire fighting foams comply with European Regulation 1000/2017 / EC of June 13, 2017 that modifies Annex XVII of Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on registration, evaluation, Chemical Authorization and Restriction (REACH) for perfluorooctanoic acid (PFOA), its salts and PFOA-related substances.

**15.2 Chemical safety assessment:**

The supplier has not carried out evaluation of chemical safety.

**SECTION 16: OTHER INFORMATION****Legislation related to safety data sheets:**

The SDS shall be supplied in an official language of the country where the product is placed on the market. This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (COMMISSION REGULATION (EU) 2020/878).

**Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:**

Non-applicable

**Texts of the legislative phrases mentioned in section 2:**

H318: Causes serious eye damage.

H412: Harmful to aquatic life with long lasting effects.

**Texts of the legislative phrases mentioned in section 3:**

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

- CONTINUED ON NEXT PAGE -

Date of compilation: 01/04/2022

Version: 1

Page 14/15

**SILVARA AR  
FLUORINE FREE FOAM FFF/AR CLASS B, 3X3%**

Date of compilation: 01/04/2022

Version: 1

**SECTION 16: OTHER INFORMATION (continued)****CLP Regulation (EC) No 1272/2008:**

Acute Tox. 4: H302 - Harmful if swallowed.

Aquatic Acute 1: H400 - Very toxic to aquatic life.

Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects.

Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.

Eye Dam. 1: H318 - Causes serious eye damage.

Eye Irrit. 2: H319 - Causes serious eye irritation.

Skin Irrit. 2: H315 - Causes skin irritation.

Skin Sens. 1: H317 - May cause an allergic skin reaction.

STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure (Oral).

**Classification procedure:**

Eye Dam. 1: Calculation method

Aquatic Chronic 3: Calculation method

**Advice related to training:**

Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

**Principal bibliographical sources:**<http://echa.europa.eu><http://eur-lex.europa.eu>**Abbreviations and acronyms:**

ADR: European agreement concerning the international carriage of dangerous goods by road

IMDG: International maritime dangerous goods code

IATA: International Air Transport Association

ICAO: International Civil Aviation Organisation

COD: Chemical Oxygen Demand

BOD5: 5day biochemical oxygen demand

BCF: Bioconcentration factor

LD50: Lethal Dose 50

LC50: Lethal Concentration 50

EC50: Effective concentration 50

LogPOW: Octanolwater partition coefficient

Koc: Partition coefficient of organic carbon

UFI: unique formula identifier

IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -

Date of compilation: 01/04/2022

Version: 1

Page 15/15