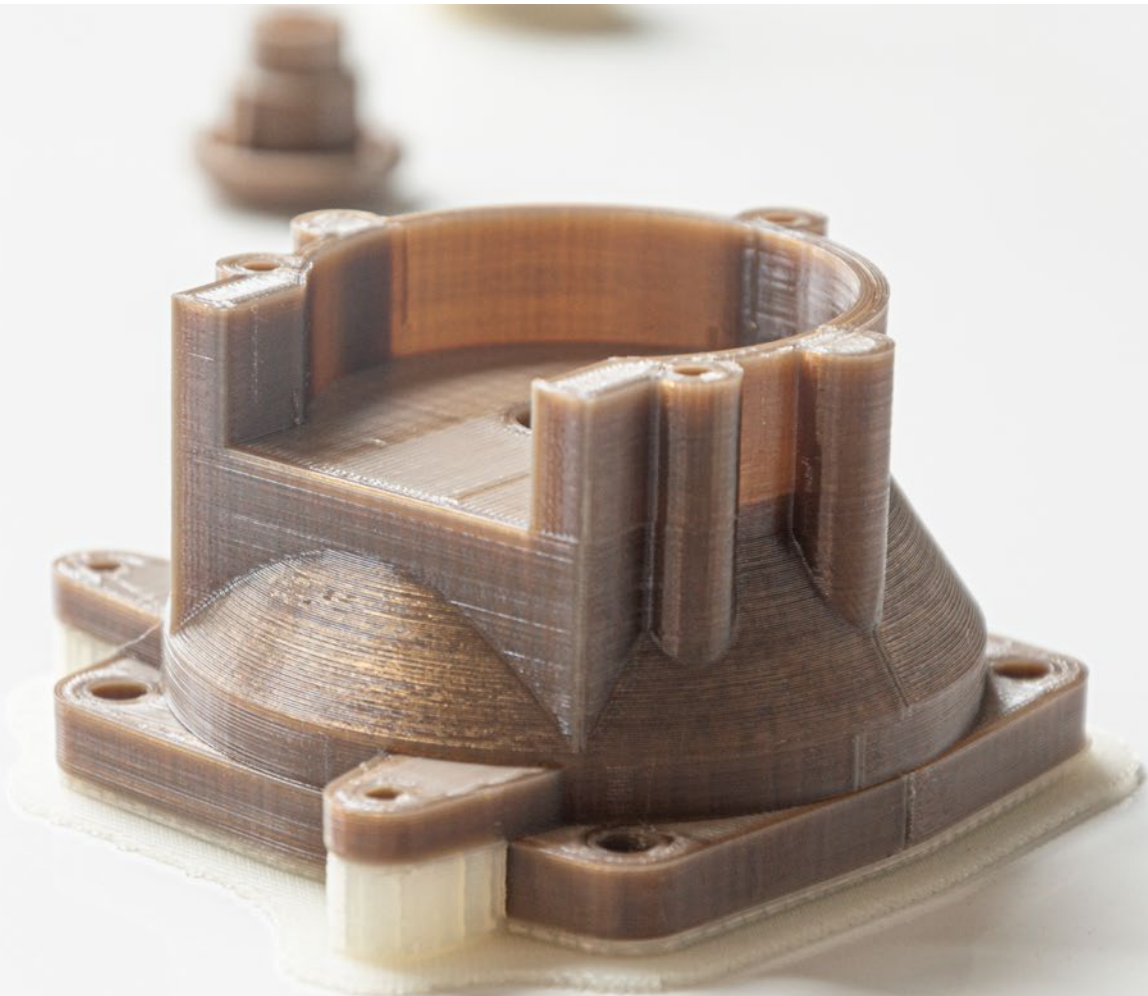


FS-11

TECHNICAL
DATA
SHEET



1. IDENTIFICATION OF THE SUBSTANCE**1.1. Product identifier**

Trade name	FS-11
Product type	FS-11

1.2. Recommended use Monofilament for FFF technology-based 3D printing

1.3. Company VSHAPER Sp. z o. o.
Tajęcina 105
36-002 Jasionka-Rzeszów, Poland

Telephone +48 17 853 00 62

E-Mail contact@vshaper.com

2. IDENTIFICATION OF HAZARDS**2.1. Classification of the substance or mixture****Classification (REGULATION (EC) No. 1272/2008)**

REGULATION (EC) No. 1272/2008

Eye irritation, category 2

H 319: Causes serious eye irritation. (Calculation method)

2.2. Labeling elements**Labeling (REGULATION (EC) No. 1272/2008)**

REGULATION (EC) No. 1272/2008

Hazard pictograms:



Signal word:

Warning

Hazard statements:

H319 Causes eye irritation.

Precautionary statements:

P102 Keep out of reach of children.

P101 If medical advice is needed, have product container or label at hand.

P280 Wear eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P501 Dispose of contents/container to an appropriate recycling or disposal facility

2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

3. COMPOSITION/INFORMATION OF INGREDIENTS**3.1. Mixtures**

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
SODIUM CARBONATE	497-19-8 207-838-8 011-005-00-2 01-2119485498-19	Eye Irrit. 2; H319	>30
SODIUM DISSILICATE	1344-09-8 215-687-4 -/- 01-2119448725-31	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	<10

For explanation of abbreviations see section 16.

Further Information:

Labelling for contents according to regulation (EC) No. 648/2004: < 5% anionic surfactants

4. FIRST AID MEASURES**4.1. Description of first aid measures**

General information:	Move victim out of danger zone.
After inhalation:	Following Inhalation: Move victim to fresh air. Consult physician. If unconscious place in recovery position and seek medical advice.
After contact with eyes:	In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing.
After contact with skin:	After contact with skin, wash immediately with: Water and soap. In case of skin irritation, seek medical.
After ingestion:	Let water be drunken in little sips (dilution effect). Call a physician immediately. If SWALLOWED: rinse mouth. Do NOT induce vomiting. Caution if victim vomits: Risk of aspiration! Let water be drunken in little sips (dilution effect). If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No information available

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically

5. FIREFIGHTING MEASURES**5.1. Extinguishing media**

Water spray jet / Foam / Carbon dioxide (CO₂) / Dry extinguishing powder / Extinguishing powder
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media: Full water jet

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Carbondioxide (CO₂), Carbonmonoxide (CO), Nitrogen Oxides (NO_x).

5.3. Advice to firefighters

Special protective equipment
for firefighters:

Wear self-contained breathing apparatus.
Wear chemical resistant suit.
In case of fire and/or explosion do not breathe fumes.

Additional information:

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Dispose of waste according to applicable legislation.

6. ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Wear personal protection equipment.
High slip hazard because of leaking or spilled product.
Avoid contact with skin and eyes.

6.2. Methods and material for containment and cleaning up

Contaminated fire-fighting water must be collected separately.
Do not allow to enter into soil/subsoil.
Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Environmental precautions

Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections

For safe handling see section 7, for personal protection see section 8.

7. HANDLING AND STORAGE**7.1. Precautions for safe handling**

Advice on safe handling: Avoid contact with skin and eyes.
When using do not eat, drink or smoke.

Advice on protection against fire and explosion: No special precautionary measures are necessary.

Further information on handling: Keep container tightly closed.
Protect against frost.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Store only in original container.
Keep container tightly closed in a cool, well-ventilated place.
Avoid UV-radiation/sunlight.
Keep away from food, drink and animal feeding.

Further information: Keep container tightly closed.
Protect against frost.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Additional advice on limit values**

To date, no national critical limit values exist.

8.2. Exposure controls**Appropriate engineering controls**

Provide adequate ventilation.
If handled uncovered, arrangements with local exhaust ventilation should be used if possible.
If local exhaust ventilation is not possible or not sufficient the entire working area should be ventilated by technical means

Protective and hygiene measures

Do not eat, drink, smoke or sneeze at the workplace. Wash hands before breaks and after work.
Remove contaminated, saturated clothing immediately. Protect skin by using skin protective cream.
Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.
Keep away from: food, feeding stuff

Eye/face protection

Suitable eye protection: Tightly sealed safety glasses. (DIN EN 166)

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is

recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Recommendation: Disposable gloves
Recommended material: NBR (Nitrile rubber)

Skin protection

Wear suitable protective clothing.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Environmental exposure controls

Do not allow uncontrolled leakage of product into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1. Fundamental physical and chemical properties**

Form:	Powder
Color:	colorless
Odor:	product specific
Odor Threshold:	Not relevant.
pH:	(10%) 11,4

Changes in the physical state

Melting point/range:	not relevant.
Boiling point/range:	not relevant.
Sublimation point:	not relevant.
Softening point:	not relevant.
Pour point:	not relevant.
Flash point:	not relevant.

Flammability

Solid:	not relevant.
Gas:	not relevant.
Lower explosion limits:	not relevant.
Upper explosion limits:	not relevant.
Decomposition temperature:	not relevant.

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Auto-ignition temperature

Solid: not relevant.
Gas: not relevant.
Decomposition temperature: not relevant.

Oxidizing properties

Not relevant.
Vapor pressure: not relevant.
Density: not relevant.

Bulk density: 1053 kg/m³
Water solubility: easily soluble

Solubility in other solvents

Not determined.
Partition coefficient: not relevant.
Viscosity/dynamic: not relevant.
Viscosity/kinematic: not relevant.
Flow time: not relevant.
Vapor density: not relevant.
Evaporation rate: not relevant.
Solvent separation test: not relevant.
Solvent content: not relevant.

9.2. Other information

Solid content: not relevant.

10. STABILITY AND REACTIVITY**10.1. Reactivity**

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

Do not mix with acids

10.4. Conditions to avoid

Exposure to moisture or frost

10.5. Incompatible materials

No hazardous reaction when handled and stored according to provisions.

10.6. Hazardous decomposition products

The product is chemically stable under recommended conditions of storage, use and temperature.

11. TOXICOLOGICAL INFORMATION**11.1. Acute toxicity****SODIUM CARBONATE**

Acute oral toxicity: LD50 Oral (Rat): 4090 mg/kg

11.2. Eye corrosion/irritation

Causes serious Eye irritation.

12. ECOLOGICAL INFORMATION**12.1. Toxicity**

The product is not ecotoxic.

Components:**SODIUM CARBONATE:**

Toxicity to fish: LC50 (Lepomis macrochirus (Bluegill sunfish)):
300 mg/l
Exposure time: 96 h

Toxicity to daphnia and other
aquatic invertebrates: EC50 (Ceriodaphnia dubia (water flea)): 265 mg/l
Exposure time: 48 h

12.2. Persistence and degradability**Product:**

Biodegradability: The surfactants contained in this mixture comply with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

12.3. Bio accumulative potential

No indication of bioaccumulation potential.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects:

No information available.

Further information: Avoid release into the environment.

13. DISPOSAL CONSIDERATIONS**Advice on disposal**

Do not allow to enter into surface water or drains.

Dispose of waste according to applicable legislation.

Consult the appropriate local waste disposal expert about waste disposal.

Consult the appropriate authorities about waste disposal.

Contaminated packaging

Wash with plenty of water.

Completely emptied packings can be re-cycled.

Dispose of waste according to applicable legislation.

14. TRANSPORT INFORMATION**Land transport (ADR/RID)**

14.1. UN number: No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.

14.4. Packing group: No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number: No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.

14.4. Packing group: No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number: No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.

14.4. Packing group: No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.

14.4. Packing group: No dangerous good in sense of this transport regulation.

14.5. Environmental hazards:

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

