

3D Printing Filament ST-ABS

MATERIAL SAFETY DATA SHEET

Fiber Force Italy srl encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

Section 1. Identification of the substance/preparation and of the company/undertaking

1.1 Product Identifiers

Product Name: Fiber Force ST-ABS

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses

3D printing filament. Material for 3D printing FDM applications.

1.3 Details of the supplier of the Safety Data Sheet

Company identification

Fiber Force Italy srl

Vicolo Del Cristo n.4

31100 – Treviso

ITALY

Mail address: info@fiberforce.it

Section 2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to EU Directives 67/584/EEC

This product is not classified as dangerous according to EC criteria

2.2 Label elements

Labelling according to EC Directives

This product is not classified as dangerous according to EC criteria

2.3 Other Hazards

No information available.

Section 3. Composition/information on ingredients

Description: Acrylonitrile/butadiene/styrene – This product is a Mixture

CAS-No. 9003-56-9

EC-No. Polymer

Purity: >98%

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin Contact: Wash skin with plenty of water. Seek first aid or medical attention as needed. If molten material comes in contact with the skin, do not apply ice but cool under ice water or running stream of water. DO NOT attempt to remove the material from skin. Removal could result in severe tissue damage. Seek medical attention immediately. Suitable emergency safety shower facility should be immediately available.

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: If swallowed, seek medical attention. May cause gastrointestinal blockage. Do not give laxatives. Do not induce vomiting unless directed to do so by medical personnel

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 indication of medical attention and special treatment needed

If burn is present, treat as any thermal burn, after decontamination. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient

Section 5. Fire fighting measures

5.1 Extinguishing media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.

Combustion products may include trace amounts of: Styrene. Hydrogen cyanide.

Unusual Fire and Explosion Hazards: Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate. Dense smoke is produced when product burns.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct water stream. Use fine water spray or foam. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Spilled material may cause a slipping hazard. Use appropriate safety equipment.
For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up

Sweep up. Collect in suitable and properly labeled containers.
See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.2 Precautions for safe handling

General Handling:

No smoking, open flames or sources of ignition in handling and storage area. Good housekeeping and controlling of dusts are necessary for safe handling of product. Avoid breathing process fumes. Use with adequate ventilation. When appropriate, unique handling information for containers can be found on the product label. Workers should be protected from the possibility of contact with molten resin. Do not get molten material in eyes, on skin or clothing. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, electrically bond and ground equipment and do not permit dust to accumulate. Dust can be ignited by static discharge.

7.3 Conditions for safe storage, including any incompatibilities storage

Store in accordance with good manufacturing practices, in cool place and far from direct sunlight.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

None established.

8.2 Exposure Controls

Personal protection

Eye/Face Protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator.

Skin Protection: No precautions other than clean body-covering clothing should be needed.

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized. Use gloves with insulation for thermal protection (EN 407), when needed. Use gloves to protect from mechanical injury. Selection of gloves will depend on the task.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. Use an approved air-purifying respirator when vapors are generated at increased temperatures or when dust or mist is present. Use the following CE approved air-purifying respirator: When dust/mist are present use a/an Particulate filter, type P2. When combinations of vapors, acids, or dusts/mists are present use a/an Organic vapor cartridge with a particulate pre-filter, type AP2.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	solid
Colour:	Clear, Translucent, opaque
Odor:	Odorless
Odor threshold:	N/A
pH:	N/A
Melting point:	180°C
Freezing point:	N/A
Boiling point:	N/A
Flash point:	N/A
Flammability:	N/A
Specific Gravity:	1.05 g/cc
Solubility in water:	Insoluble
Autoignition Temp	N/A
Decomposition Temp.:	260°C
Oxidizing properties:	N/A
Explosive properties	N/A
Molecular weight	N/A

Section 10. Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under consideration of normal use.

10.2 Chemical stability

Stable

10.3 Possibility of hazardous reactions

Polymerization will not occur

10.4 Conditions to Avoid

Avoid temperatures above 300°C. Exposure to elevated temperatures can cause product to decompose

10.5 Incompatible Materials

None Known

10.6 Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

Processing may release fumes and other decomposition products. At temperatures exceeding melt temperatures, polymer fragments can be released. Fumes can be irritating.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Ingestion

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. May cause choking if swallowed.

Single dose oral LD50 has not been determined.

Typical for this family of materials. Estimated. LD50, rat > 5,000 mg/kg

Aspiration hazard

Based on physical properties, not likely to be an aspiration hazard.

Dermal

No adverse effects anticipated by skin absorption.

The dermal LD50 has not been determined.

Typical for this family of materials. Estimated. LD50, rabbit > 2,000 mg/kg

Inhalation

No adverse effects are anticipated from single exposure to dust. Vapors released during thermal processing may cause respiratory irritation.

The LC50 has not been determined.

Eye damage/eye irritation

Solid or dust may cause irritation or corneal injury due to mechanical action. Elevated temperatures may generate vapor levels sufficient to cause eye irritation. Effects may include discomfort and redness.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin. Mechanical injury only. Under normal processing conditions, material is heated to elevated temperatures; contact with the material may cause thermal burns.

Sensitization**Skin**

No relevant data found.

Respiratory

No relevant data found.

Repeated Dose Toxicity

Additives are encapsulated in the product and are not expected to be released under normal processing conditions or foreseeable emergency.

Chronic Toxicity and Carcinogenicity

No relevant data found.

Developmental Toxicity

No relevant data found.

Reproductive Toxicity

No relevant data found.

Genetic Toxicology

In vitro genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity

Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

12.2 Persistence and degradability

This water-insoluble polymeric solid is expected to be inert in the environment.
Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected.

12.3 Bioaccumulative potential

No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

12.4 Mobility in soil

In the terrestrial environment, material is expected to remain in the soil.
In the aquatic environment, material will sink and remain in the sediment.

Section 13. Disposal Considerations

13.1 Waste treatment methods

For uncontaminated material the disposal options include mechanical and chemical recycling or energy recovery. In some countries landfill is also allowed. For contaminated material the options remain the same, although additional evaluation is required. For all countries the disposal methods must be in compliance with national and provincial laws and any municipal or local by-laws. All disposal methods must be in compliance with the EU framework Directives

2008/98/EC and their subsequent adaptations, as implemented in National Laws and Regulations, as well as EU Directives dealing with priority waste streams. Transboundary shipment of wastes must be in compliance with Regulation (EC) No 1013/2006 and subsequent modifications.

Section 14. Transport Information

Not Classified – not considered hazardous based on available data

Section 15. Regulatory Information

15.1 Safety, health and environmental regulations specific for the substance or mixture

European Inventory of Existing Commercial Chemical Substances (EINECS)

REACH/ EU EINECS: components are in compliance with REACH.

ROHS: not applicable.

Section 16. Other Information

The information herein is based on our present knowledge and given in good faith, but no warranty, express or implied, is made.

Consult the Company for further information.