



MATERIAL SAFETY DATA SHEET
according to Regulation (EU) No. 1907/2006

ABS Fusion⁺ by Innofil3D BV

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Trade name	: ABS Fusion ⁺
Chemical name	: Acetonitrile Butadiene Styrene
Chemical family	: Thermoplastic Copolymer
Use	: Monofilament for 3D-printing
Company	: Innofil3D BV
Street address	: Eerste Bokslootweg 17
Postal code and city	: 7821 AT Emmen
Country	: The Netherlands
Telephone number	: +31 (0) 591 820 389

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP):

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP):

Not required.

2.3 Other hazards

Under the recommended processing conditions small amounts of emitted substance (e.g. residual monomers, residual solvents, decomposition products) may be discharged. In succession of overheating during the melting process potentially substances are released, which are considered as harmful and carcinogen.

Results of PBT and vPvB assessment:

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.



3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not relevant (mixture).

3.2 Mixtures

The product does not contain any (other) ingredients which are classified according to present knowledge of the supplier and contribute to the classification of the substance and hence require reporting in this section.

4. FIRST-AID MEASURES

4.1 Description of first aid measures

- General notes : Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.
- Eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart.
- Skin contact : Brush off loose particles from skin. Rinse skin with water/shower.
- Inhalation : Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.
- Ingestion : Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

4.2 Symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any Immediate medical attention and special treatment needed

None.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

- Suitable extinguishing media : Water, Foam, Dry extinguishing powder, ABC-powder.
- Unsuitable media : Water jet.

5.2 Special hazards arising from the substance or mixture

Deposited combustible dust has considerable explosion potential. Vapours and fumes, released at elevated processing temperatures, may be irritating for the eyes, nose, throat and respiratory



system. In case of overexposure they can cause nausea and headache.

Hazardous combustion products : During fire hazardous fumes/smoke could be produced. Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO₂).

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal pre cautions from a reasonable distance.

Special protective equipment for firefighters : Self-contained breathing apparatus (EN 133). Standard protective clothing for firefighters.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions

For non-emergency personnel : Remove persons to safety. Ventilate affected area. Control of dust.

For emergency responders : Wear breathing apparatus if exposed to vapours/dust/spray/gases. Use personal protective equipment as required.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill : Covering drains. Take up mechanically.

Advices on how to clean up a spill : Take up mechanically.

Other information relating to spills and releases : Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.



7. HANDLING AND STORAGE

7.1 Precautions for safe handling

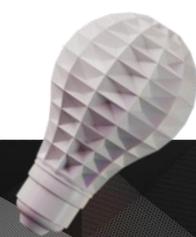
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| Measures to prevent fire as well as aerosol and dust generation | : | Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment. |
| Specific notes/details | : | Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion. Spilled material creates extremely slippery conditions. |
| Advice on general occupational hygiene | : | Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feeding stuffs. |

7.2 Conditions for safe storage, including any incompatibilities

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| Explosive atmospheres | : | Removal of dust deposits. |
| Flammability hazards | : | Keep away from sources of ignition. No smoking. Take precautionary measures against static discharge. |
| Incompatible substances or mixtures | : | Observe hints for combined storage. Keep away from alkalis, oxidising substances, acids. |
| Protect against external exposure, such as | : | High temperatures. UV-radiation/sunlight. |
| Consideration of other advice | : | Store in a well-ventilated place. Keep container tightly closed. |
| Ventilation requirements | : | Use local and general ventilation. |

7.3 Specific end use(s)

There is no additional information.



8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

No data available.

8.2 Exposure controls and Personal protective equipment

Appropriate engineering controls	:	Provide mechanical ventilation; in general such ventilation should be provided at compounding/convertng areas and at fabricating/ filling work stations where the material is heated. Local exhaust ventilation should be used over and in the vicinity of machinery involved in handling the molten material. Emissions from ventilation or work process equipment should be checked to ensure they comply with the legal requirements.
Eye protection	:	Use safety goggle with side protection.
Skin and body protection	:	Protective clothing.
Respiratory protection	:	In case of inadequate ventilation wear respiratory protection. P2 (filters at least 94 % of airborne particles, colour code: White).
Hand protection	:	Chemical protection gloves are suitable, which are tested according to EN 374. Use heat resistant gloves when handling molten product.
Other protection measures	:	Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.
Environmental exposure controls	:	Keep away from drains, surface and ground water. Emissions from ventilation or work process equipment should be checked to ensure they comply with the legal requirements.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Filament
Color	:	Natural
Physical state	:	Solid at room temperature.
Odor	:	Weak.
Melting point/range	:	Not available.
Boiling point/range	:	Not applicable.
Decomposition temperature	:	No data available.
Density	:	Not determined.
pH	:	Not applicable.
Vapor pressure	:	Not applicable.
Vapor density	:	Not available.
Evaporation rate	:	Not applicable.
Water solubility	:	Insoluble.
Solubility in other solvents	:	Not available.



10. STABILITY AND REACTIVITY

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.4 Conditions to avoid

Avoid prolonged exposure to heat or UV light since this may influence material properties. Material will burn when exposed to continuing source of ignition. When heated above decomposition temperature toxic fumes may be released.

Hints to prevent fire or explosion : The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Acids, Oxidizers, Alkalis.

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Test data are not available for the complex mixture.

Classification procedure : The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.



Acute toxicity	:	Shall not be classified as acutely toxic.
Skin/corrosion/irritation	:	Shall not be classified as corrosive/irritant to skin.
Serious eye damage/eye irritation	:	Shall not be classified as seriously damaging to the eye or eye irritant.
Respiratory or skin sensitization	:	Shall not be classified as a respiratory or skin sensitiser.
Germ cell mutagenicity	:	Shall not be classified as germ cell mutagenic.
Carcinogenicity	:	Shall not be classified as carcinogenic.
Reproductive toxicity	:	Shall not be classified as a reproductive toxicant.
Specific target organ toxicity - single exposure	:	Shall not be classified as a specific target organ toxicant (single exposure).
Specific target organ toxicity - repeated exposure	:	Shall not be classified as a specific target organ toxicant (repeated exposure).
Aspiration hazard	:	Shall not be classified as presenting an aspiration hazard.
Other information	:	Fine dust may be irritating for the skin, eyes and respiratory tract. Skin contact with molten material can cause burns.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Based on previous experience, this product is non-degradable.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB

12.6 Other adverse effects

Data are not available

Endocrine disrupting potential	:	The product contains low amount of a substance(s) with an endocrine disrupting potential.
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13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Sewage disposal-relevant information	:	Do not empty into drains. Avoid release to the environment.
Waste treatment of containers/packagings	:	Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

14. TRANSPORT INFORMATION

ADR/RID/ADN	:	Irrelevant.
ICAO/IATA	:	Irrelevant.
IMDG	:	Irrelevant.

15. REGULATORY INFORMATION

NOTICE: The information herein is presented in good faith and believed to be accurate as of the print date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. See other sections for health and safety information.

REACH; 1907/2006/EC	:	None of the ingredients are listed.
Directive 2000/60/EC	:	None of the ingredients are listed.
Regulation 98/2013/EU	:	None of the ingredients are listed.

16. OTHER INFORMATION

- The information in this Material Safety Data Sheet (MSDS) is mainly based on information used from the supplier of the raw materials which are used for production of the filaments.
- The information in this Material Safety Data Sheet (MSDS) is based on current knowledge and experience. No liability can be assumed for the accuracy and completeness of this information.
- Users should consider this information only as additional to other data gathered. Independent determination of suitability and completeness of information from all available sources is essential to ensure proper and safe use and disposal of these materials.
- The information in this MSDS applies for this specific material only. It therefore does not apply for its usage in combination with other materials or ways of processing.