

Safety data sheet

Page: 1/13

BASF 3D Printing Safety data sheet according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended from time to time.

Date / Revised: 22.12.2022

Version: 2.0

Date previous version: 02.12.2020

Previous version: 1.0

Date / First version: 02.12.2020

Product: **Ultrafuse® TPU 64D White**

(ID no. 11138258/SDS_GEN_GB/EN)

Date of print 10.01.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Ultrafuse® TPU 64D White

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

Recommended use: 3D Printing

1.3. Details of the supplier of the safety data sheet

Company:

BASF 3D Printing Solutions B.V.
Eerste Bokslootweg 17
7821 AT Emmen, Netherlands

Contact address:

BASF plc
4th and 5th Floors, 2 Stockport Exchange
Railway Road, Stockport, SK1 3GG
UNITED KINGDOM

Telephone: +44 161 475 3000

E-mail address: product-safety-uk-and-ireland@basf.com

1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

For the classification of the mixture the following methods have been applied: extrapolation on the concentration levels of the hazardous substances, on basis of test results and after evaluation of experts. The methodologies used are mentioned at the respective test results.

According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

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No need for classification according to GHS criteria for this product.

2.2. Label elements

According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

The product does not require a hazard warning label in accordance with GHS criteria.

2.3. Other hazards

According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

The product may cause burns, if handled in the melted state.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical nature

Polymer based on: polyurethane, stabilizing agents, additives

Hazardous ingredients (GHS)

| No particular hazards known.

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

| Remove contaminated clothing.

If inhaled:

| Remove the affected individual into fresh air and keep the person calm. If symptoms persist, seek medical advice.

On skin contact:

| Wash thoroughly with soap and water. If irritation develops, seek medical attention. Burns caused by molten material require hospital treatment.

On contact with eyes:

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Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek medical attention.

On ingestion:

Rinse mouth immediately with water. Immediate medical attention required.

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

Symptoms: (Further) symptoms and / or effects are not known so far

Hazards: No hazard is expected under intended use and appropriate handling.

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

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:

water spray, foam, dry powder, carbon dioxide

5.2. Special hazards arising from the substance or mixture

Endangering substances: carbon oxides

Advice: The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters

Special protective equipment:

Wear a self-contained breathing apparatus.

Further information:

Dust can form an explosive mixture with air. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6: Accidental Release Measures

Avoid dispersal of dust in the air (e.g. by clearing dusty surfaces with compressed air). Avoid the formation and build-up of dust - danger of dust explosion. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

6.1. Personal precautions, protective equipment and emergency procedures

No special precautions necessary.

6.2. Environmental precautions

Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

For small amounts: Sweep/shovel up.

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For large amounts: Sweep/shovel up.

Dispose of absorbed material in accordance with regulations. Avoid raising dust.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Avoid inhalation of dusts/mists/vapours. Ensure adequate ventilation. Provide suitable exhaust ventilation at the drying process and in the area surrounding the melt outlet of processing machines. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Avoid the formation and deposition of dust.

Protection against fire and explosion:

The product is not an oxidizer, not self-combustible and not explosive. Avoid dust formation. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Avoid deposition of dust. Avoid extreme heat.

Storage stability:

Protect against moisture.

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

No substance specific occupational exposure limits known.

8.2. Exposure controls

Appropriate engineering controls

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

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Personal protective equipment

Respiratory protection:

Breathing protection if breathable aerosols/dust are formed. Wear respiratory protection if ventilation is inadequate. Particle filter with medium efficiency for solid and liquid particles (e.g. EN 143 or 149, Type P2 or FFP2)

Hand protection:

Use additional heat protection gloves when handling hot molten masses (EN 407), e.g. of textile or leather.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Wear protective clothing to prevent contact during mechanical processing and/or hot melt conditions. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. When using, do not eat, drink or smoke.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

| | |
|------------------------|---|
| Form: | filament |
| Colour: | white |
| Odour: | odourless |
| Odour threshold: | not applicable, odour not perceivable |
| pH value: | 6 - 8 (20 °C) |
| softening temperature: | > 120 °C |
| boiling temperature: | The product is a non-volatile solid. |
| Flash point: | not applicable, the product is a solid |
| Evaporation rate: | The product is a non-volatile solid. |
| Flammability: | Not a flammable solid according to UN transport regulations division 4.1 and GHS chapter 2.7. |
| Lower explosion limit: | For solids not relevant for classification and labelling. |

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Upper explosion limit:

For solids not relevant for classification and labelling.

Ignition temperature:

> 400 °C

Vapour pressure:

not determined

Density:

approx. 1.1 - 1.2 g/cm³
(20 °C)

Relative density:

approx. 1.1 - 1.2
(20 °C)

Relative vapour density (air):

The product is a non-volatile solid.

Solubility in water:

insoluble

Partitioning coefficient n-octanol/water (log K_{ow}):

not applicable for mixtures

Self ignition:

not self-igniting

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.
> 230 °C

Thermal decomposition above the indicated temperature is possible.
Prolonged thermal loading can result in products of degradation being given off.

Explosion hazard:

not explosive

Fire promoting properties: not fire-propagating

9.2. Other information

Self heating ability:

It is not a substance capable of spontaneous heating according to UN transport regulations class 4.2.

Bulk density:

500 - 700 kg/m³
(20 °C)

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: No corrosive effect on metal.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

No hazardous reactions when stored and handled according to instructions.

10.4. Conditions to avoid

No conditions to avoid anticipated.

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10.5. Incompatible materials

Substances to avoid:

| oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products:

| Prolonged thermal loading can result in products of degradation being given off., monomers, gases/vapours, oxides, hydrocarbons, cyclic low molecular weight oligomers

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:

| Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact. Contact with molten product may cause thermal burns.

Experimental/calculated data:

| (oral):No applicable information available.

| (by inhalation):The inhalation of dusts represents a potential acute hazard.

| (dermal):No applicable information available.

Irritation

Assessment of irritating effects:

| Not irritating to eyes and skin. May cause mechanical irritation.

Respiratory/Skin sensitization

Assessment of sensitization:

| Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Assessment of mutagenicity:

| Based on available data, the classification criteria are not met.

Carcinogenicity

Assessment of carcinogenicity:

The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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Reproductive toxicity

Assessment of reproduction toxicity:

| Based on available data, the classification criteria are not met.

Developmental toxicity

Assessment of teratogenicity:

| Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Assessment of STOT single:

| Based on available data, the classification criteria are not met.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

| Based on available data, the classification criteria are not met.

Aspiration hazard

| not applicable

Other relevant toxicity information

The product has not been tested. The statement has been derived from the properties of the individual components.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:

| Based on available data, the classification criteria are not met. At the present state of knowledge, no negative ecological effects are expected.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H₂O):

Poorly biodegradable.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:

| The product has not been tested.

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12.4. Mobility in soil

Assessment transport between environmental compartments:

Adsorption in soil: Adsorption to solid soil phase is expected.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria.

12.6. Other adverse effects

The product does not contain substances that are listed in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

12.7. Additional information

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Add. remarks environm. fate & pathway:

Due to the consistency of the product, dispersion into the environment is impossible. Therefore no negative effects on the environment may be anticipated based on the present state of knowledge.

Other ecotoxicological advice:

The ecotoxic effect of the product has not been tested. The information on this was derived from products of similar structure or composition.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Dispose of in accordance with national, state and local regulations.

Contact specialized companies about recycling.

The UK Environmental Protection (Duty of Care) Regulations (EP) and amendments should be noted (United Kingdom).

Contaminated packaging:

Dispose of in accordance with national, state and local regulations.

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

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SECTION 14: Transport Information

Land transport

ADR

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

RID

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

Inland waterway transport

ADN

| | |
|-------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user: | None known |

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

| | |
|--------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |

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| | |
|------------------------------|----------------|
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

Air transport

IATA/ICAO

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

14.1. UN number or ID number

See corresponding entries for "UN number or ID number" for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

14.4. Packing group

See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

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Date of print 10.01.2023

SECTION 15: Regulatory Information

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

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):
Listed in above regulation: no

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

The data should be considered when making any assessment under the Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, for example, 'COSHH Essentials' (United Kingdom).

15.2. Chemical Safety Assessment

Product is not classified as hazardous.

Chemical Safety Assessment not required

SECTION 16: Other Information

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Any other intended applications should be discussed with the manufacturer.

Abbreviations

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a

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Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.