Safety data sheet Breakaway

Ultimaker

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

1.1 Trade name:	Breakaway
1.2 Use of the product:	3D-Printer filament
1.3 Supplier:	Ultimaker (Watermolenweg 2, 4191PN, Geldermalsen, The Netherlands)
Emergency phone number	In case of toxicological emergency contact your physician

2. Hazards identification according to regulation (EC) No 1272/2008 and GHS

2.1 Classification of the substance or mixture	No risk exists to the health of users if the product is handled and processed properly
2.2 Label elements	-
	Not applicable
2.3 Other hazards	Not known

3. Composition/information on ingredients

3.1 Composition	Not applicable
3.2 Mixture	Thermoplastic polyurethane Polylactic acid - CAS 9051-89-2

4. First aid measures

4.1 Description of first aid measures	General advice: If you feel unwell, seek medical advice (show the label where possible). Never give anything by mouth to an unconscious person
Inhalation	In case of inhalation of gases released from molten filament, move person into fresh air
Skin contact	Wash with soap and water. Seek medical attention if symptoms occur. If burned by contact with hot material, cool molten material adhering to skin as quickly as possible with water, do not try to peel it off and seek for medical attention, if necessary, for removal and treatment of the burns

Eye contact	Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Seek medical attention if symptoms persist. If molten material contacts the eye, immediately flush with plenty of water for at least 15 minutes. Seek medical attention immediately
Ingestion	Not probable. Seek medical advice in case ingestion occurs
Note to physician	Treat symptomatically
4.2 Most important symptoms and effects, both acute and delayed	Burns should be treated as thermal burns. The material will come off as healing occurs; therefore immediate removal from skin is not necessary
4.3 Indication of any immediate medical attention and special treatment needed	No data available

5. Firefighting measures

Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures

5.1 Extinguishing media	Use dry chemical powder for small fires. For large fire use water spray, fog or foam Unsuitable extinguishing media: water jet
5.2 Special hazards arising from the substance or mixture	Burning produces obnoxious and toxic fumes: carbon oxides (COx), nitrogen oxides (NOx), hydrogen cyanide (HCN), hydrocarbons
5.3 Advice for firefighters	Use self-contained breathing apparatus and full protective clothing

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures	Avoid breathing gases released from molten filament. Ensure adequate ventilation, especially in confined areas
6.2 Environmental precautions	No data available
6.3 Methods and materials for containment and cleaning up	Allow molten material to solidify. Dispose waste and residue in accordance with local regulations
6.4 Reference to other sections	-

7. Handling and storage

7.1 Precautions for safe handling	Avoid contact with molten material. Take precautionary measures against static discharges.
7.2 Conditions for safe storage, including any incompatibilities	Product should be stored in a dry and cool place at temperatures between -20 to +30 °C and below 50% relative humidity. Avoid direct sunlight. Take precautions to avoid static discharges
7.3 Specific end use(s)	Filament for 3D printing

8. Exposure controls/personal protection

8.1 Control parameters	None
Dnel:	No data available
PNEC:	No data available
8.2 Exposure controls	
Eye protection	Use safety glasses for prolongated stare at printing
Skin and body protection	Good practices suggest to minimize skin contact. When material is heated, wear gloves to protect against thermal burns
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (when applicable) or to an acceptable level (in countries where exposure limits have not been established) an approved respirator must be worn. Respirator type: air-purifying respirator with an appropriate government approved (where applicable) air purifying filter, cartridge or canister. Contact a health and safety professional or manufacturer for specific information
Hand protection	Follow good industrial hygiene practices
Hygiene measures	Follow good industrial hygiene practices
Engineering measures	Good general ventilation (typically 10 air changes per hour) is recommended. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation or other engineering controls that maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Filament
Color	White
Odor	Slight
Flash point	-
Ignition temperature	-
Thermal decomposition	Onset of decomposition > 280°C
Auto-ignition temperature	-
Melting point/range	-
Density	~1.22 g/cm3
Water solubility	Insoluble
Solubility in other solvents	-
9.2 Other information	-

10. Stability

	Stable under recommended storage conditions
10.1 Reactivity	Stable if stored and handled as indicated
10.2 Chemical stability	Stable if stored and handled as indicated
10.3 Possibility of hazardous reactions	No decomposition or hazardous reactions if stored and applied as directed
10.4 Conditions to avoid	Print temperatures above 240 °C (at standard printing speeds). Avoid all sources of ignition: heat, sparks, open flames, etc.
10.5 Incompatible materials	Strong oxidizing agents
10.6 Hazardous decomposition products	See 5.2

11. Toxicological information

11.1 Information on toxicological effects

Principle routes of exposure	Eye contact, skin contact, inhalation, ingestion
Acute toxicity	Not hazardous in normal industrial use
Skin corrosion/irritation	Not irritating. Molten polymer will adhere to the skin, thereby causing thermal burns
Serious eye damage/eye irritation	If molten polymer gets in contact with the eyes, it can cause serious burns.
Respiratory or skin sensitization	No sensitization
Reproductive toxicity	No data available
Carcinogenicity	The substances are not listed as carcinogenic by ACGIH, NTP or IARC and not regulated as carcinogens by OSHA

12. Ecological information

12.1 Toxicity	No data available
12.2 Persistence and degradability	No data available
12.3 Bio accumulative potential	No data available
12.4 Mobility in soil	No data available
12.5 Results of PBT and vPvB assessment	No data available
12.6 Other adverse effects	Not classified as environmentally hazardous. Disposal of large contents could have a negative effect on the environment

13. Disposal considerations

13.1 Waste treatment methods	In accordance with local and national regulations

14. Transport information

ADR	Not regulated
RID	Not regulated
IATA	Not regulated
IMDG	Not regulated
Special precautions for user	Keep away from strong oxidizers and sources of ignition

15. Regulatory information

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

US Regulations:

Sara 313 title III	not listed
TSCA Inventory List	not listed
OSHA hazard category	not listed
CERCLA	not listed
WHMIS	not listed
State right-to-know requirements	not listed

Other Inventories:

Canada DSL Inventory List	not listed
REACH/EU EINIECS	not listed
NEHAPS	not listed
Japan (ECL/MITI)	not listed
Australia (AICS)	not listed
Korean toxic substances control act (ECL)	not listed
Philippines inventory (PICCS)	not listed
Chinese chemical inventory (IECSC)	not listed

15.2 Chemical Safety Assessment	No data available

16. Other information

The information provided in this Safety Data Sheet (SDS) is based on current knowledge and experience. This information is provided without warranty. This information should help to make an independent determination of the methods to ensure proper and safe use and disposal of the filament

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Ultimaker