

# Safety data sheet Breakaway

Ultimaker

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

<b>1.1 Trade name</b>	Breakaway
<b>1.2 Use of the product</b>	3D printer filament
<b>1.3 Supplier</b>	Ultimaker B.V. Watermolenweg 2 4191 PN, Geldermalsen The Netherlands
Emergency phone number	In case of toxicological emergency, contact your doctor

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

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

## 3. Composition / information on ingredients

<b>3.1 Composition</b>	Not applicable
<b>3.2 Mixture</b>	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. Seek 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

<b>4.2 Most important symptoms and effects, both acute and delayed</b>	Burns should be treated as thermal burns. The material will come off as healing occurs; therefore immediate removal from skin is not necessary
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	No data available

## 5. Firefighting measures

<b>5.1 General advice</b>	Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures
<b>5.2 Extinguishing media</b>	Use dry chemical powder for small fires. For large fire use water spray, fog, or foam  Unsuitable extinguishing media: water jet
<b>5.3 Special hazards arising from the substance or mixture</b>	Burning produces unpleasant and toxic fumes: carbon oxides (CO <sub>x</sub> ), nitrogen oxides (NO <sub>x</sub> ), hydrogen cyanide (HCN), hydrocarbons
<b>5.4 Advice for firefighters</b>	Use self-contained breathing apparatus and full protective clothing

## 6. Accidental release measures

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

## 7. Handling and storage

<b>7.1 Precautions for safe handling</b>	Avoid contact with molten material. Take precautionary measures against static discharges
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	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
<b>7.3 Specific end use(s)</b>	Filament for 3D printing

## 8. Exposure controls / personal protection

<b>8.1 Control parameters</b>	None
DNEL	No data available
PNEC	No data available
<b>8.2 Exposure controls</b>	
Eye protection	Use safety glasses for prolonged staring 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	~ 1.23 g/cm <sup>3</sup>
Water solubility	Insoluble
Solubility in other solvents	-
<b>9.2 Other information</b>	-

## 10. Stability

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

## 11. Toxicological information

### 11.1 Information on toxicological effects

Principal 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`

Not meant to be all-inclusive – selected regulations represented

### 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 EINECS	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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