Breakaway

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)
Issue date: 11/10/2023 Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Trade name : Breakaway

1.2. Recommended use and restrictions on use

Recommended use : 3D-Printer filament
Restrictions on use : This product must not be used in applications other than those identified above, without first seeking advice of the supplier

1.3. Supplier

Supplier
UltiMaker
Watermolenweg 2
Geldermalsen, 4191 PN
The Netherlands
T +31 (0) 88 383 4000 (9 AM - 5 PM CET)
Product-Compliance@Ultimaker.com

1.4. Emergency telephone number

Emergency number : +31 (0) 88 383 4000
(during office hours: 9 AM - 5 PM CET)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Not classified

2.2. GHS Label elements, including precautionary statements

GHS CA labelling

No labelling applicable

2.3. Other hazards

Other hazards not contributing to the classification : Risk of thermal burns on contact with molten product.

2.4. Unknown acute toxicity (GHS CA)

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	Conc. (% w/w)	Classification (GHS CA)
Polyurethane (PU)	-	CAS-No.: 27083-55-2	≥ 50	Not classified
Polylactic acid	-	CAS-No.: 26100-51-6	≤ 50	Not classified
Titanium dioxide	-	CAS-No.: 13463-67-7	< 1	Not classified

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. In molten state: Hazardous vapours may be released.

First-aid measures after skin contact : In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Burns caused by molten material must be treated clinically. Wash skin with plenty of water and soap. Take off contaminated clothing.

First-aid measures after eye contact : In the event of contact with molten product: Immediately flush eyes thoroughly with water for at least 15 minutes. Get immediate medical advice/attention. Rinse eyes with water as a precaution.

First-aid measures after ingestion : If you feel unwell, seek medical advice. Call a poison center or a doctor if you feel unwell.

First-aid measures general : If you feel unwell, seek medical advice (show the label where possible).

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : No acute and delayed symptoms and effects are observed.

Symptoms/effects after skin contact : Risk of thermal burns on contact with molten product.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire: Water spray, Dry powder, Foam, Carbon dioxide.

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.3. Specific hazards arising from the hazardous product

Explosion hazard : Material can accumulate some static charge during transfer. Prevent build-up of electrostatic charges (e.g, by grounding).

Hazardous decomposition products in case of fire : Under fire conditions, hazardous fumes will be present: Carbon dioxide, Carbon monoxide, Hydrocarbons, Hydrogen cyanide.

5.4. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Precautionary measures fire : Do not allow run-off from fire-fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions, Protective Equipment and Emergency Procedures : Avoid contact with skin, eyes and clothing. In molten state: Do not breathe vapours. Wear recommended personal protective equipment. Refer to section 8.2. Remove contaminated clothing and shoes. Ventilate spillage area.

6.2. Methods and materials for containment and cleaning up

Methods for cleaning up : Sweep up and put in a closed container for disposal. If melted: allow liquid to solidify before taking it up.

Other information : Dispose of materials or solid residues at an authorized site.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. In molten state: Do not breathe vapours. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : To guarantee the quality and properties of the product: Store in a well-ventilated place. Store in original container. Keep container tightly closed to avoid moisture absorption and contamination.

Incompatible materials : Strong oxidizing agents.

Heat and ignition sources : Keep away from heat, sparks and flames. Keep out of direct sunlight.

Storage temperature : -20 – 30 °C (Relative air humidity: <50%)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Titanium dioxide (13463-67-7)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Notations and remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required.
Regulatory reference	Alberta Regulation 87/2009 (Alberta Regulation 182/2019)
Canada (Quebec) - Occupational Exposure Limits	
VEMP (mg/m³)	10 mg/m³ Td
Notations and remarks	Note 1: The standard corresponds to dust containing no asbestos and the percentage in crystalline silica is less than 1%
Regulatory reference	S-2.1, r. 13 - Regulation respecting occupational health and safety

Titanium dioxide (13463-67-7)	
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³ Total dust 3 mg/m³ Respirable fraction
Notations and remarks	IARC group 2B carcinogen
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Notations and remarks	TLV® Basis: LRT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Notations and remarks	LRT irr
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Notations and remarks	TLV® Basis: LRT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Notations and remarks	TLV® Basis: LRT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
OEL STEL (mg/m³)	20 mg/m³
Regulatory reference	Occupational Health and Safety Regulations, Nu Reg 003-2016
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
OEL STEL (mg/m³)	20 mg/m³
Regulatory reference	Occupation Health and Safety Regulations R-039-2015 (R-013-2020)
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Regulatory reference	Ontario Occuational Exposure Limits under Regulation 833
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³
Notations and remarks	TLV® Basis: LRT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA (mg/m³)	10 mg/m³

Titanium dioxide (13463-67-7)	
OEL STEL (mg/m³)	20 mg/m³
Regulatory reference	The Occupational Health and Safety Regulations, 1996. Chapter O-1.1 Reg 1
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA (mg/m³)	30 mppcf 10 mg/m³
OEL STEL (mg/m³)	20 mg/m³

8.2. Appropriate engineering controls

Appropriate engineering controls : Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below specified exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne particles below the exposure limit. Ventilation conditions (1 printer): Provide a good standard of general ventilation, not less than 2 air changes per hour (assumes a room volume of: 30 m³).

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

None under normal conditions. Use insulated gloves when handling this material hot

Type	Material	Permeation	Thickness (mm)	Penetration
In molten state: Chemically resistant protective gloves, Heat-resistant	Nitrile rubber (NBR)	6 (> 480 minutes)	>0.35	

Eye protection:

None under normal use. In molten state: Wear eye protection

Type	Use	Characteristics
Safety glasses with side shields	In molten state	

Skin and body protection:

None under normal use. In molten state: Wear suitable protective clothing

Type
Long sleeved protective clothing

Respiratory protection:

None under normal use. In molten state: In case of insufficient ventilation, wear suitable respiratory equipment

Thermal hazard protection:
Risk of thermal burns on contact with molten product. Hazardous vapours may be released. In molten state: Wear respiratory protection/heat resistant gloves.

Other information:
Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Wash hands immediately after handling the product. Take off contaminated clothing and wash before reuse.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Filament.
Colour	:	White
Odour	:	Slight
Odour threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	No data available
Melting point	:	190 °C
Freezing point	:	Not applicable
Boiling point	:	No data available
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Non flammable
Vapour pressure	:	No data available
Relative vapour density at 20°C	:	No data available
Relative density	:	No data available
Density	:	1.2 g/cm³
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive.
Oxidising properties	:	Non oxidizing.
Explosive limits	:	Not applicable
Particle size distribution	:	Not applicable

9.2. Other information

SADT	:	280 °C

SECTION 10: Stability and reactivity

Reactivity	:	The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reactions known under normal conditions of use.
Conditions to avoid	:	None under recommended storage and handling conditions (see section 7). To avoid thermal decomposition, do not overheat.
Incompatible materials	:	Strong oxidizing agents.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under fire conditions, hazardous fumes will be present: Carbon dioxide, Carbon monoxide, Hydrocarbons, Hydrogen cyanide.
Hardening time:	:	No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified

Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

Breakaway	
Viscosity, kinematic	Not applicable

Symptoms/effects	:	No acute and delayed symptoms and effects are observed.
Symptoms/effects after skin contact	:	Risk of thermal burns on contact with molten product.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short–term (acute)	:	Not classified
Hazardous to the aquatic environment, long–term (chronic)	:	Not classified

Titanium dioxide (13463-67-7)	
LC50 fish 1	> 1000 mg/l

12.2. Persistence and degradability

Breakaway	
Persistence and degradability	No additional information available.

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone	:	Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional waste regulation	:	Dispose of in accordance with relevant local regulations.
Waste treatment methods	:	Dispose of contents/container in accordance with licensed collector’s sorting instructions.
Product/Packaging disposal recommendations	:	Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

SECTION 14: Transport information

In accordance with Transportation of Dangerous Goods / Department of Transport / IMDG / IATA

TDG	DOT	IMDG	IATA
14.1. UN number			
Not regulated for transport			
14.2. Proper Shipping Name			
Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)			
Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group			
Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards			
Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available			

14.6. Special precautions for user

TDG
Not regulated

DOT
Not regulated

IMDG
Not regulated

IATA
Not regulated

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. National regulations

Polyurethane (PU) (27083-55-2)

Listed on the Canadian DSL (Domestic Substances List)

Polylactic acid (26100-51-6)

Listed on the Canadian NDSL (Non-Domestic Substances List)

Titanium dioxide (13463-67-7)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Polyurethane (PU) (27083-55-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

Polylactic acid (26100-51-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)

Titanium dioxide (13463-67-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

SECTION 16: Other information

Issue date : 10/11/2023

Indication of changes:
Not applicable.

Training advice : Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure.

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
IATA	International Air Transport Association

Abbreviations and acronyms:	
IMDG	International Maritime Dangerous Goods
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative
PBT	Persistent Bioaccumulative Toxic
SDS	Safety Data Sheet

Safety Data Sheet (SDS), Canada

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.