

Shape Memory Polymer (SMP)

Date of issue: 12/02/2021
Date of First Issue: 12/02/2021
Version: 1.0

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

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

1.1 Product identifier	
Product name	Shape Memory Polymer (SMP)
Product code	Art.:1000287 / 1000285
Product type	Mixture - Polymer
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Identified Use(s)	Shape Memory Polymer for FDM (Fused Deposition Modelling) 3D Printing.
Uses advised against	None Known
1.3 Details of the supplier of the safety data sheet	
Company Identification	Convena - Delacamp A.G. Bargkoppelweg 64 D-22145 Hamburg Germany
Telephone	+49 (0)40 32 58 28-0
Fax	+49 (0)40 32 58 28-210
E-mail (competent person)	info@delacamp.com
1.4 Emergency telephone number	
Emergency Phone No.	+49 (0)40 32 58 28-0 09.00-17.00 (GMT+1)
Languages spoken	German, English, French, Italian

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture	
2.1.1 Regulation (EC) No. 1272/2008 (CLP)	Not classified as hazardous for supply/use.
2.2 Label elements	
Product name	Shape Memory Polymer (SMP)
Contains:	Not applicable
Hazard Pictogram(s)	None assigned
Signal Word(s)	None assigned
Hazard Statement(s)	None assigned
Precautionary Statement(s)	None assigned
Supplemental information	None Known
2.3 Other hazards	Dusts and vapours or fumes evolved during thermal processing may cause irritation to the respiratory system.

SECTION 3: Composition/information on ingredients

3.1 Substances	Not applicable
3.2 Mixtures	Substances in preparations / mixtures
Product description / chemical characterisation:	Thermoplastic Polyurethane (TPU) Elastomer
No component of this mixture is included above the relevant concentration levels detailed within section 3.2.1 of SDS regulation 2015/830.	

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SECTION 4: First aid measures



4.1 Description of first aid measures

Self-protection of the first aider

Ensure adequate ventilation. Avoid breathing dust. Wear suitable protective clothing and gloves. Avoid contact with skin and eyes.

Inhalation

IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.

Skin contact

IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.

Ingestion

Rinse mouth. Get medical advice/attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Dusts and vapours or fumes evolved during thermal processing may cause irritation to the respiratory system.

4.3 Indication of any immediate medical attention and special treatment needed

Unlikely to be required but if necessary treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

As appropriate for surrounding fire.

Unsuitable extinguishing media

Direct water jet may spread the fire.

5.2 Special hazards arising from the substance or mixture

Not flammable. Combustion may cause toxic fumes. Carbon monoxide, Carbon dioxide, Nitrogen oxides (NOx).

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. Eliminate sources of ignition. Shut off leaks if without risk. Avoid contact with skin and eyes. Ensure adequate ventilation. Avoid breathing dust. Avoid dust generation.

6.2 Environmental precautions

Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

Sweep up spilled substance. Avoid dust generation. Recommended: Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a container for disposal. Wash the spillage area with water.

6.4 Reference to other sections

See Section: 8, 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Ensure operatives are trained to minimise exposures. Ensure adequate ventilation. Avoid contact with skin and eyes. Wear protective gloves/eye protection. Avoid dust generation. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Avoid inhalation of vapours that may be evolved at elevated temperatures.

7.2 Conditions for safe storage, including any incompatibilities

Keep container closed when not in use. Store in a cool dry place. Protect from direct sunlight.

Storage temperature

Stable at ambient temperatures.

Storage measures

Keep only in original packaging.

Incompatible materials

Strong oxidising agents

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7.3 Specific end use(s) See Section: 1.2

SECTION 8: Exposure controls/personal protection

8.1	Control parameters	
8.1.1	Occupational exposure limits	The UK HSE (EH40) recommends the following limits for dusts: 10 mg/m ³ (8hr TWA) total inhalable dust; 5 mg/m ³ (8hr TWA) total respirable dust.
8.1.2	Biological limit value	Not established
8.1.3	PNECs and DNELs	Not applicable
8.2	Exposure controls	
8.2.1	Appropriate engineering controls	Ensure adequate ventilation. Have available eyewash bottle with clean water. Good hygiene practices and housekeeping measures
8.2.2	Individual protection measures, such as personal protective equipment	Keep good industrial hygiene. Wear appropriate personal protective equipment, avoid direct contact. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke at the work place.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection



Wear eye protection with side protection (EN166).

Skin protection



Hand protection:

Wear suitable chemical resistant protective gloves for frequent or prolonged operations tested to EN374 with an acceptable permeation test. Contaminated gloves should be carefully rinsed with water before reuse.

Body protection: Wear dust-resistant protective clothing.

Respiratory protection



An approved dust mask should be worn if dust is generated during handling. Recommended: EN149

Thermal hazards

None anticipated

8.2.3 Environmental exposure controls Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1	Information on basic physical and chemical properties	
	Appearance	Solid Pellets, Natural Colour
	Odour	Almost odourless
	Odour threshold	Not established
	pH	Not applicable - solid
	Melting point/freezing point	Not established
	Initial boiling point and boiling range	Not established
	Flash point	Not applicable - solid
	Evaporation rate	Not applicable - solid
	Flammability (solid, gas)	Not flammable
	Upper/lower flammability or explosive limits	Not applicable - solid
	Vapour pressure	Not applicable - solid

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Vapour density	Not applicable - solid
Relative density	Not established
Solubility(ies)	Insoluble in water. Soluble in: Tetrahydrofuran (THF), methyl ethyl ketone (MEK), N,N-dimethylformamide (DMF)
Partition coefficient: n-octanol/water	Not applicable - solid
Auto-ignition temperature	Not established
Decomposition temperature	Not established
Viscosity	Not applicable - solid
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information None Known.

SECTION 10: Stability and reactivity

10.1 Reactivity	Stable under normal conditions
10.2 Chemical stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	No hazardous reactions known if used for its intended purpose.
10.4 Conditions to avoid	Avoid dust generation. Protect from direct sunlight.
10.5 Incompatible materials	Strong oxidising agents
10.6 Hazardous decomposition products	Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide, Nitrogen oxides (NOx).

SECTION 11: Toxicological information

11.1 Information on toxicological effects	
Acute Toxicity - Ingestion	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw
Acute Toxicity - Inhalation	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LC50 >5 mg/l (Dust)
Acute Toxicity - Skin contact	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw
Skin corrosion/irritation	Mixture: Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Mixture: Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitisation	Mixture: Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Mixture: Based upon the available data, the classification criteria are not met.
Carcinogenicity	Mixture: Based upon the available data, the classification criteria are not met.
Reproductive toxicity	Mixture: Based upon the available data, the classification criteria are not met.
STOT - single exposure	Mixture: Based upon the available data, the classification criteria are not met.
STOT - repeated exposure	Mixture: Based upon the available data, the classification criteria are not met.
Aspiration hazard	Mixture: Based upon the available data, the classification criteria are not met.
11.2 Other information	Dusts and vapours or fumes evolved during thermal processing may cause irritation to the respiratory system.

SECTION 12: Ecological information

12.1 Toxicity	Mixture: Based on available data, the classification criteria are not met.
12.2 Persistence and degradability	No data for the mixture as a whole.
12.3 Bioaccumulative potential	No data for the mixture as a whole.
12.4 Mobility in soil	No data for the mixture as a whole.
12.5 Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
12.6 Other adverse effects	None Known

SECTION 13: Disposal considerations

13.1 Waste treatment methods	Disposal should be in accordance with local, state or national legislation.
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SECTION 14: Transport information

Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.

	ADR/RID	IMDG	ICAO/IATA
14.1 UN number	None assigned	None assigned	None assigned
14.2 UN proper shipping name	None assigned	None assigned	None assigned
14.3 Transport hazard class(es)	None assigned	None assigned	None assigned
14.4 Packing group	None assigned	None assigned	None assigned
14.5 Environmental hazards	Not classified	Not classified as a Marine Pollutant.	Not classified
14.6 Special precautions for user	See Section: 2		
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable	Not applicable	Not applicable
14.8 Additional Information	None.		

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1 EU regulations	Authorisations and/or restrictions on use
15.1.2 National regulations	Not restricted
15.2 Chemical Safety Assessment	None Known; Not restricted A chemical safety assessment is not required under REACH.

SECTION 16: Other information

The following sections contain revisions or new statements: Not applicable - V1.0

References: Existing Safety Data Sheet (SDS).

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

Legend

ADR/RID	European Agreement concerning the International Carriage of Dangerous Goods by Road/Regulations concerning the international railway transport of dangerous goods
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
ICAO/IATA	International Civil Aviation Organization / International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal concentration at which 50% of the population is killed
LD50	Lethal dose at which 50% of the population is killed
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
vPvB	very Persistent and very Bioaccumulative

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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