3711 Market Street, Philadelphia PA 19104
Website: www.biobots.com
Email: info@biobots.io

Safety Data Sheet

1. Identification

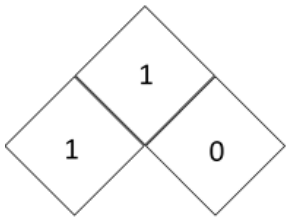
Product Name	Polycaprolactone (PCL)
Substance/Mixture	Substance
Company:	BioBots, Inc.
Address	3711 Market Street, Suite 881 Philadelphia PA, 19104
Telephone	215-588-8937
Email	support@biobots.io

2. Hazards Identification

Classification of the substance or mixture	
Physical Hazards	Not classified
Health Hazards	Not classified
Environmental Hazards	Not classified
Label Elements, including precautionary statements	
Pictograms or hazard symbols	None
Signal word	No signal word
Hazard Statements	None
Precautionary statements	None

This substance is not classified according to the Globally Harmonized System (GHS)

NFPA ratings (scale 0-4):



Health = 1

Fire = 1

Reactivity = 0

HMIS-Ratings (scale 0 -4):

Health	1	Health = 1
Fire	1	Fire = 1
Reactivity	0	Reactivity = 1

Other Hazards:
Caution – substance not yet fully tested
Due to the structure of the substance and studies made on similar products we assume that the product is unclassified.

Results of PBT and vPvB assessment:
PBT: No
vPvB: No

3. Composition/Information on Ingredients

Product Name	Polycaprolactone	
Substance/Mixture	Substance	
Chemical composition	2-oxepanone, homopolymer	≥ 99%
Chemical Formula	$(C_6H_{10}O_2)_n$	
Mean Molecular Weight	50,000	
CAS Number	24980-41-4	
Notice through Official Gazettes Reference Numbers		
ENCS	Not Listed	

No ingredients are hazardous according to OSHA criteria. No components need to be disclosed according to the applicable regulations.

4. First Aid Measure

After Inhalation:	First aid measures not required, but get fresh air for personal comfort.
After Skin Contact:	First aid measures not required, but wash exposed skin with soap and water for hygienic reasons.
After Eye Contact:	Rinse opened eye for several minutes under running water.
Ingestion	Rinse mouth with water. If a large quantity has been ingested or you feel unwell get medical advice/attention
Most important symptoms and effects, both acute and delayed	No further relevant information available
Indication of any immediate medical attention and special treatment needed	No further relevant information available

5. Fire-fighting Measures

Suitable Extinguishing Media:	Fire extinguishing powder, foam, water, carbon dioxide.
For safety reasons unsuitable extinguishing reagents	Water with full jet
Specific hazards arising from the chemical:	In case of fire, the following can be released: Carbon monoxide (CO) Monomer (2-oxepanoe, hexan-6-olide, CAS 502-44-3)
Precautions for Firefighters:	
Special Protective Equipment for Firefighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full –piece operated in positive pressure mode

6. Accidental Release Measures

Personal Precautions, Protective equipment and emergency procedures	Wear safety glasses, gloves, protective clothing and rubber boots for hygienic reasons
Environmental Precautions:	Do not allow to enter sewers/surface or ground water
Methods and materials for containment and cleaning up:	Pick up mechanically Clean the affected area carefully; suitable cleaners are: water *Reference to other sections:* See section 7 for information on safe handling See section 8 for information on personal protection equipment See section 13 for disposal information

7. Handling and Storage

Precautions for Safe Handling	
Technical Measures:	Wear personal protective equipment according to section 8 if risk of exposure. Keep away from heat and direct sunlight.
Information about protection against explosions and fires	Not applicable
Conditions for safe storage, including any incompatibilities	
Storage Conditions:	Store only in the original receptacle. Store in cool, dry conditions in well sealed receptacles.
Specific end use(s)	No further relevant information available
Packaging Material:	Comply with laws

8. Exposure Controls/Personal Protection

Components with limit values that require monitoring at the workplace.	The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Control Parameters	Not set up
Control Parameters	Not set up
Additional Information	
OSHA-Ca (Occupational Safety & Health Administration)	Substance is not listed
TLV (threshold limit value established by ACGIH)	Substance is not listed
NIOSH-Ca (National institute for occupational safety and health)	Substance is not listed.
Personal Protective Equipment	
General protective and hygienic measures:	The usual precautionary measures for handling chemicals should be followed
Breathing equipment	Not necessary if room is well ventilated Wear respiratory device with dust filter (minimum N95) in case of insufficient ventilation
Hand Protection:	Protective Gloves not really required. However, we recommend using protective gloves made of rubber.
Material of gloves	PVC gloves Chloroprene rubber, CR Butyl rubber, BR The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Penetration time of glove material	The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed
Eye Protection	Safety Glasses. A face-shield, if the situation requires
Skin and body protection:	Normal work clothes for the chemical industry (long legs and sleeves)
Limitation and supervision of exposure into the environment	Not applicable

9. Physical and Chemical Properties

Physical State (20 °C)	Solid

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Color	White
Odor	Odorless
Form	Granulate
pH	No data available
Melting point/freezing point	58 – 60 °C (136 – 140 °F)
Boiling point/range	No data available.
Flash point	275 ° C (527 ° F)
Flammability or explosive limits:	
Lower	No data available
Upper	No data available
Relative Density	No data available
Ignition temperature	
Decomposition temperature	200 °C (392 ° F)
Danger of explosion	Not explosive
Explosion limits	Not applicable
Oxidizing properties	Not oxidizing
Vapor pressure	Not determined
Density at 60 °C (140 °F)	1.1 g/cm^3 (9.18 lbs/gal)
Solubility(ies)	
Water	Insoluble
Segregation coefficient (n-octanol/water)	No data available
Viscosity:	Not applicable
Other information	No further relevant information available

9. Stability and Reactivity

Reactivity	There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter.
Chemical Stability	Stable under proper conditions
Possibility of hazardous reactions	No special reactivity has been reported
Incompatible materials	Avoid contacts with acids Avoid contact with bases
Hazardous decomposition products	Possible decomposition and release of monomer at temperatures above 200°C (392 °F)

10. Toxicological Information

Acute toxicity:	No data available
LD/LC50 values	No information available The polymer is not bioavailable because of its molecular size.
Skin corrosion/irritation:	No data available
Serious eye damage/irritation:	No data available
Sensitization	No sensitizing effects known
Germ cell mutagenicity:	No data available
Carcinogenicity:	
IARC =	No data available
NTP =	No data available
Reproductive toxicity:	No data available
Remark	Caution – substance not yet fully tested Due to the structure of the substance and studies made on similar products we assume that the product is unclassified.

11. Ecological Information

Ecotoxicity	
Aquatic Toxicity	No data available. The polymer is not bioavailable because of its molecular size.
Persistence/degradability:	No data available
Bioaccumulative Potential:	No information available
Mobility in Soil	No information available
Results of PBT and vBvB assessment	
PBT	No
vPvB	No
Other adverse effects	No further information available
Remark:	Caution – substance not yet fully tested. Due to the structure of the substance and studies made on similar products we assume that the product is unclassified.

12. Disposal Considerations

Waste Treatment methods	The product is not classified as hazardous waste
Uncleaned packagings	Contaminated packaging materials must be disposed of in the same manner as the product.
Recommendation	Disposal must be made according to official regulations
Recommened cleansing agent	Water, if necessary with cleansing agents

13. Transport Information

UN Number DOT,ADR,AND,IMDG,IATA	-
Proper shipping name (technical name) DOT,ADR,AND,IMDG,IATA	-
Transport hazard class(es) DOT,ADR,AND,IMDG,IATA Class	-
Packing group DOT,ADR, AND,IMDG, IATA	-
Environmental Hazards	Not applicable
Special precautions for user	Not applicable
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable
Transport/Additional Information	Not dangerous according to the above specifications.

14. Regulatory information

Sara	
Section 355 (extremely hazardous substances):	Substance is not listed
Section 313 (specific toxic chemical listings):	Substance is not listed
Carcinogenic Categories	
EPA (Environmental Protection Agency)	Substance is not listed
IARC (International Agency for Research on Cancer)	Substance is not listed
NTP (National Toxicology Program)	Substance is not listed
Inventory Status	
Australian Inventory of Chemical Substances (AICS)	Substance is listed
Canadian Domestic Substance List (DSL)	Substance is listed

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Canadian Non Domestic Substance List (NDSL)	Substance is not listed
Chinese Chemical Inventory of Existing Chemical Substances (CIECS)	Substance is listed
European EINECS/ELINCS Listing	Exempt, polymer Substance is not listed
Japanese Existing and New Chemical Substance List (ENCS)	Substance is listed
Korea Existing Chemical Inventory (KECI)	Substance is listed
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Substance is listed
TSCA Listing	Substance is listed
Other regulations, limitations and prohibitive regulations State of California, Proposition 65	
Chemicals known to cause cancer	Substance is not listed
Chemicals known to cause reproductive toxicity for females	Substance is not listed
Chemicals known to cause reproductive toxicity for males:	Substance is not listed
Chemicals known to cause developmental toxicity	Substance is not listed

Additional Information:
TSCA IUR/CDR, Chemicals Exempt from Update Reporting [flagged XU on TSCA Inventory] (January 2015)

15. Other Information

This information is based on our present knowledge. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility. BioBots, Inc. and its affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. This document and information shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.