



Safety Data Sheet

PC1

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1. Identification

Product identifier used on the label

PC1

Recommended use of the chemical and restriction on use

Recommended use*: cleaning agent for 3D printed models

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
EnvisionTEC

15162 S. Commerce Dr.

Dearborn, MI 48120

(313)436-4300

Other means of identification

Molecular formula: C(4)H(6)O(3)
Chemical family: No data available.

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Eye Dam./Irrit. 2A Serious eye damage/eye irritation

Label elements

Pictogram:

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Signal Word:
Warning

Hazard Statement:
H319 Causes serious eye irritation.

Precautionary Statements (Prevention):
P280 Wear eye/face protection.
P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
108-32-7	> 75.0 - <= 100.0%	Propylene carbonate

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas thoroughly with soap and water. Remove contaminated clothing. If irritation develops, seek medical attention.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Seek medical attention.

If swallowed:
Rinse mouth and then drink plenty of water. Induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

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Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, carbon dioxide

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
gases/vapours
Evolution of fumes/fog.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Impact Sensitivity:

Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

Environmental precautions

This product is not regulated by RCRA. This product is not regulated by CERCLA ('Superfund').

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas.

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Protection against fire and explosion:

Keep away from sources of ignition - No smoking. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities

Unsuitable materials for containers: Paper/Fibreboard

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

Storage stability:

Storage duration: 24 Months

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

8. Exposure Controls/Personal Protection

No occupational exposure limits known.

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:

Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Store work clothing separately.

9. Physical and Chemical Properties

Form: liquid

Odour: fruity

Odour threshold: Not determined due to potential health hazard by inhalation.

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Colour:	colourless to yellowish	
pH value:	7	
	(200 g/l, 20 °C)	
Melting point:	-48.8 °C	
	(1,013 hPa)	
	Literature data.	
Boiling point:	241.8 °C	
	(1,013 hPa)	
	Literature data.	
Flash point:	116 °C	(DIN 51758, closed cup)
Flammability:	not flammable	
Lower explosion limit:	For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Autoignition:	430 °C	
	Literature data.	
SADT:	Study scientifically not justified.	
Vapour pressure:	0.04 hPa	
	(20 °C)	
	0.06 hPa	
	(25 °C)	
	Literature data.	
Density:	1.2047 g/cm ³	
	(20 °C)	
	Literature data.	
Relative density:	1.2024	(pycnometer)
	(20 °C, 1,013 hPa)	
Vapour density:	not determined	
Partitioning coefficient n-octanol/water (log Pow):	-0.41	(measured)
	Literature data.	
Self-ignition temperature:	Based on its structural properties the product is not classified as self-igniting.	
Thermal decomposition:	350 °C, 240 kJ/kg (DSC (DIN 51007))	
	Thermal decomposition above the indicated temperature is possible. It is not a self-decomposable substance.	
Viscosity, dynamic:	2.76 mPa.s	
	(20 °C)	
	Literature data.	
Particle size:	The substance / product is marketed or used in a non solid or granular form.	
Solubility in water:	175 g/l	
	(25 °C, 1,013 hPa)	
Solubility (qualitative):	soluble	
	solvent(s): organic solvents,	
Molar mass:	102.09 g/mol	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	

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10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
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Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.

Conditions to avoid

Avoid heat. Avoid sources of ignition.

Incompatible materials

acids, Alkalines, substances with an acid reaction

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon dioxide

Thermal decomposition:

350 °C (DSC (DIN 51007))

Thermal decomposition above the indicated temperature is possible. It is not a self-decomposable substance.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard.

Oral

Type of value: LD50

Species: rat (male/female)

Value: > 5,000 mg/kg (OECD Guideline 401)

Limit concentration test only (LIMIT test). No mortality was observed.

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Inhalation

Species: rat (no data)

Value: (IRT)

Exposure time: 8 h

No mortality within the stated exposition time as shown in animal studies.

Dermal

Type of value: LD50

Species: rabbit (male/female)

Value: > 2,000 mg/kg (OECD Guideline 402)

Limit concentration test only (LIMIT test). No mortality was observed.

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion

Assessment of irritating effects: Not irritating to the skin. Eye contact causes irritation.

Skin

Species: rabbit

Result: non-irritant

Method: Draize test

Eye

Species: rabbit

Result: Irritant.

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: The substance did not cause skin sensitization in humans.

Patch-Test

Species: human

Result: Non-sensitizing.

Method: Human patch test

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Repeated oral uptake of the substance did not cause substance-related effects. No adverse effects were observed after repeated inhalative exposure in animal studies. After repeated exposure the prominent effect is local irritation.

Genetic toxicity

Assessment of mutagenicity: No mutagenic effect was found in various tests with microorganisms and mammalian cell culture. The substance was not mutagenic in a test with mammals.

Carcinogenicity

Assessment of carcinogenicity: Dermal exposure is not expected to be carcinogenic.

Reproductive toxicity

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Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The results of animal studies gave no indication of a fertility impairing effect. No effects have been reported in reproductive organs in long term animal studies.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) > 1,000 mg/l, Cyprinus carpio (Directive 92/69/EEC, C.1, semistatic)

The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates

EC50 (48 h) > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

The details of the toxic effect relate to the nominal concentration.

Aquatic plants

EC50 (72 h) > 900 mg/l (growth rate), Desmodium subspicatus (OECD Guideline 201, static)

The statement of the toxic effect relates to the analytically determined concentration.

Chronic toxicity to fish

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates

Study scientifically not justified.

Assessment of terrestrial toxicity

No data available.

Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

DIN 38412 Part 8 aquatic

bacterium/EC10 (16 h): 7,400 mg/l

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Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

90 - 100 % DOC reduction (14 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic)

Assessment of stability in water

Substance is readily biodegradable, therefore hydrolysis is not expected to be relevant.

Study scientifically not justified.

Information on Stability in Water (Hydrolysis)

No data available.

Bioaccumulative potential

Assessment bioaccumulation potential

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments

The substance will slowly evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Other ecotoxicological advice:

Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:

Incinerate in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

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Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

<u>CERCLA RQ</u>	<u>CAS Number</u>	<u>Chemical name</u>
100 LBS	75-56-9	Propylene oxide

Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:

WARNING: This product can expose you to chemicals including PROPYLENE OXIDE, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

NFPA Hazard codes:

Health: 2 Fire: 1 Reactivity: 0 Special:

HMIS III rating

Health: 2 Flammability: 1 Physical hazard: 1

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
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16. Other Information

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