

Material Safety Data Sheet

JEFFSOL® PROPYLENE CARBONATE LH (JEFFSOL® PC LH)

1 . Product and company identification

Product name : JEFFSOL® PROPYLENE CARBONATE LH (JEFFSOL® PC LH)
Material uses : Solvent.
MSDS # : 00064661
Validation date : 8/1/2013.
Supplier/Manufacturer : Huntsman International LLC
P.O. Box 4980
The Woodlands, TX 77387

Technical Information: (281) 719-7780
E-Mail: MSDS@huntsman.com

In case of emergency : Chemtrec: (800) 424-9300 or (703) 527-3887

2 . Hazards identification

Physical state : Liquid.
Odor : Faint odor.
Color : Colorless.
OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
Emergency overview : CAUTION!
MAY CAUSE EYE IRRITATION. CAN ENTER LUNGS AND CAUSE DAMAGE.
Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not ingest.
Avoid breathing vapor or mist. Avoid contact with eyes. Wash thoroughly after handling.

See toxicological information (Section 11)

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Propylene carbonate	108-32-7	60 - 100

4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

4 . First aid measures

- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Notes to physician** : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.

5 . Fire-fighting measures

- Flash point** : Closed cup: 135°C (275°F) [ASTM D 93 (Pensky-Martens Closed Cup)]
- Flammable limits** : Lower: 4.7%
Upper: 21%
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7 . Handling and storage

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Colorless.

Odor : Faint odor.

pH : 7

Boiling/condensation point : 242°C (467.6°F)

9 . Physical and chemical properties

Melting/freezing point	: -49°C (-56.2°F)		
Flash point	: Closed cup: 135°C (275°F) [ASTM D 93 (Pensky-Martens Closed Cup)]		
Flammable limits	: Lower: 4.7% Upper: 21%		
Auto-ignition temperature	: 430°C (806°F)		
Oxidizing properties	: None.		
Vapor pressure	: 0.0031 kPa (0.023 mm Hg) [room temperature]		
Specific gravity	: 1.2		
Water solubility	: 200 g/l	25	deg C
Water solubility	: Soluble		
Partition coefficient: n-octanol/water (log Kow)	: -0.5		
Viscosity	: Kinematic: 0.016 cm ² /s (1.6 cSt at 43.3°C)		
Density	: 1.2 g/cm ³ [25°C (77°F)]		
Vapor density	: 3.5 [Air = 1]		
Evaporation rate (butyl acetate = 1)	: <0.005 (butyl acetate = 1)		

10 . Stability and reactivity

Chemical stability	: The product is stable. Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Propylene carbonate	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg
	Unknown guidelines	LD50 Oral	Rat - Male, Female	33520 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Propylene carbonate	EPA OPPTS	Rabbit	Eyes - Moderate irritant
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Non-irritant.

Conclusion/Summary

Skin	: Non-irritating to the skin. Propylene carbonate Non-irritating to the skin.
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11 . Toxicological information

- Eyes** : Irritating to eyes.
Propylene carbonate Irritating to eyes.
- Respiratory** : Propylene carbonate No additional information.

Sensitizer

Product/ingredient name	Test	Route of exposure	Species	Result
Propylene carbonate	No official guidelines	skin	Human	Not sensitizing

Mutagenicity

Product/ingredient name	Test	Result
Propylene carbonate	Experiment: In vitro Subject: Mammalian-Animal	Negative
	Experiment: In vitro Subject: bacteria/yeast Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

- Conclusion/ Summary** : Not mutagenic in a standard battery of genetic toxicological tests.
Propylene carbonate Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Propylene carbonate	OECD 451 Carcinogenicity Studies	Mouse - Male	1500 to 2000 mg/kg	104 weeks; 2 days per week	Negative - Dermal - NOAEL

Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Propylene carbonate	OECD 414 Prenatal Developmental Toxicity Study	Rat	Negative	Negative	Negative

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Propylene carbonate	OECD 414 Prenatal Developmental Toxicity Study	Rat - Male, Female	Negative - Oral

Potential acute health effects

- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : Aspiration hazard if swallowed. Can enter lungs and cause damage.
- Skin contact** : No known significant effects or critical hazards.

11 . Toxicological information

Eye contact : Slightly irritating to the eyes.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
Propylene carbonate	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOEL Oral	Rat - Male, Female	>5000 mg/kg
	OECD 413 Subchronic Inhalation Toxicity: 90-day Study	Sub-chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	100 mg/m ³

General : No known significant effects or critical hazards.

Target organs : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure

None known.

12 . Ecological information

Environmental effects : Readily biodegradable This product shows a low bioaccumulation potential.

Aquatic ecotoxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result	
Propylene carbonate	DIN DIN 38412 Part 8	Acute	EC50	16 hours Static	Bacteria	25619 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute	EC50	48 hours Static	Daphnia	>1000 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute	EbC50 (biomass)	72 hours Static	Algae	>929 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute	ErC50 (growth rate)	72 hours Static	Algae	>900 mg/l
	EU EC C.1 Acute Toxicity for Fish	Acute	LC50	96 hours Semi- static	Fish	>1000 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic	NOEC	72 hours Static	Algae	900 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic	NOEC	72 hours Static	Algae	929 mg/l

Persistence and degradability

12 . Ecological information

Product/ingredient name	Test	Period	Result
Propylene carbonate	OECD 301B Ready Biodegradability - CO ₂ Evolution Test	29 days	83.5 to 87.7 %

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Propylene carbonate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Propylene carbonate	-0.5	-	low

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD₅ : Not Determined

COD : Not Determined

TOC : Not Determined

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Proper shipping name

DOT : Not regulated.

TDG : Not regulated.

IMDG : Not regulated.

IATA : Not regulated.

14 . Transport information

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-		-
TDG Classification	Not regulated.	-	-		-
IMDG Class	Not regulated.	-	-		-
IATA-DGR Class	Not regulated.	-	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

U.S. Federal regulations

TSCA 8(b) inventory : **United States inventory (TSCA 8b)**: This material is listed or exempted.

TSCA 5(a)2 final : No ingredients listed.

significant new use rule (SNUR)

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Immediate (acute) health hazard

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : No ingredients listed.

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

SARA 313 : No ingredients listed.

CERCLA Hazardous substances : No ingredients listed.

State regulations

PENNSYLVANIA - RTK : No ingredients listed.

California Prop 65 : Not available.

Ingredient name

Cancer

Reproductive

15 . Regulatory information

epoxypropane; 1, 2-epoxypropane; ethylene oxide, methyl-; methyl ethylene oxide; methyl oxirane; nci-c50099; oxirane, methyl-; oxyde de propylene (french); propane, epoxy-; propene oxide; propylene oxide; 1,2-propylene oxide; propylene oxide (dot); 1, 2-epoxy propane; methyloxidrane; 1-propen-3-ol

Yes. No.

International regulations

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

CEPA DSL : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International lists

Australia inventory (AICS): This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

16 . Other information

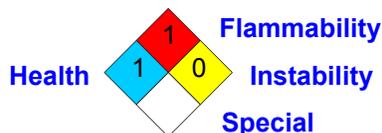
Label requirements : MAY CAUSE EYE IRRITATION. CAN ENTER LUNGS AND CAUSE DAMAGE.

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	X

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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Date of previous issue : No previous validation.

16 . Other information

Version : 1

✔ Indicates information that has changed from previously issued version.

Notice to reader

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