

JEFFSOL® ETHYLENE CARBONATE (JEFFSOL® EC)

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	08/01/2017	400001001155	Date of first issue: 08/01/2017

SECTION 1. IDENTIFICATION

Product name : JEFFSOL® ETHYLENE CARBONATE (JEFFSOL® EC)

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : TechInfo: (281) 719-7780

E-mail address of person responsible for the SDS : MSDS@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Solvent

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200**

Acute toxicity (Oral) : Category 4
Eye irritation : Category 2A
Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Kidney)

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON

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CENTER/doctor if you feel unwell. Rinse mouth.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:

Not available

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
ethylene carbonate	96-49-1	90 - 100

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice	: Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	: Wash with water and soap as a precaution.
In case of eye contact	: Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	: Induce vomiting immediately and call a physician. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

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Most important symptoms
and effects, both acute and
delayed : None known.

Notes to physician : No information available.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : No hazardous combustion products are known

Specific extinguishing methods : No data is available on the product itself.

Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.

Advice on safe handling : Avoid formation of respirable particles.

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Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Keep away from oxidizing agents.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance	: solid
Colour	: colourless
Odour	: odourless
Odour Threshold	: No data is available on the product itself.
pH	: No data is available on the product itself.
Melting point	: 36 °C
Boiling point	: 247 °C (1,013 hPa)
Flash point	: Method: No information available.
Evaporation rate	: < 0.005
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: 26.8 %(V)
Lower explosion limit / Lower flammability limit	: 4.4 %(V)
Vapour pressure	: 0.01 hPa (20 °C)
Relative vapour density	: 3.1
Relative density	: 1.32 (40 °C)
Density	: 1.32 g/cm3 (40 °C)
Solubility(ies)	
Water solubility	: 778 g/l (20 °C) Method: Water solubility
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: log Pow: 0.11 (20 °C) pH: 5.33 - 5.79 Method: Partition coefficient
Auto-ignition temperature	: The substance or mixture is not classified as pyrophoric.
Thermal decomposition	: No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.

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Viscosity	
Viscosity, kinematic	: 1.5 mm ² /s (40 °C)
Explosive properties	: No data is available on the product itself.
Oxidizing properties	: None.
Molecular weight	: 88.06 g/mol
Metal corrosion rate	: Not corrosive to metals
Particle size	: No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No hazards to be specially mentioned.
Conditions to avoid	: None known.
Incompatible materials	: Oxidizing agents
Hazardous decomposition products	: Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	: No data is available on the product itself.
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Acute toxicity

Acute oral toxicity - Product	: Method: Expert judgement Assessment: The component/mixture is moderately toxic after single ingestion.
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Acute inhalation toxicity - Product	: LC0(Rat, male and female): 730 mg/m ³ Exposure time: 8 h Test atmosphere: vapour Method: OECD Test Guideline 403
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Acute dermal toxicity - Product	: LD50 (Rat, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity
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Acute toxicity (other routes of administration)	: No data available
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Skin corrosion/irritation**Components:**

ethylene carbonate:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation**Product:**

Remarks: Irritating to eyes.

Respiratory or skin sensitisation**Product:**

Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Components:

ethylene carbonate:
Assessment: Harmful if swallowed., No skin irritation, Causes serious eye irritation.
Does not cause skin sensitisation.

Germ cell mutagenicity**Product:**

Genotoxicity in vitro : Concentration: 0 - 880 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Concentration: 100 - 10000 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Concentration: 0 - 890 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Concentration: 0 - 890 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : No data available

Components:

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ethylene carbonate:
Germ cell mutagenicity-
Assessment : Tests on bacterial or mammalian cell cultures did not show
mutagenic effects.

Germ cell mutagenicity-
Assessment : No data available

Carcinogenicity

No data available

Components:

ethylene carbonate:

Carcinogenicity -
Assessment

IARC

: Animal testing did not show any carcinogenic effects.

No component of this product present at levels greater than or
equal to 0.1% is identified as probable, possible or confirmed
human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or
equal to 0.1% is identified as a carcinogen or potential
carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or
equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or
equal to 0.1% is identified as a known or anticipated carcinogen
by NTP.

Reproductive toxicity

Effects on fertility

: No data available

Product:

Effects on foetal
development

: Species: Rat
Application Route: Oral
General Toxicity Maternal: No-observed-effect level: ca. 1,500
mg/kg body weight
Method: OECD Test Guideline 414
Result: No effects on fertility and early embryonic
development were detected.

Components:

ethylene carbonate:

Reproductive toxicity -
Assessment

: No evidence of adverse effects on sexual function and fertility,
or on development, based on animal experiments.

STOT - single exposure

No data available

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STOT - repeated exposure**Components:**

ethylene carbonate:

Exposure routes: Ingestion

Target Organs: Kidney

Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Product:**

Species: Rat, male

NOAEL: 150 mg/kg

Application Route: Ingestion

Exposure time: 1 yr

Method: Chronic toxicity

Components:

ethylene carbonate:

Repeated dose toxicity - Assessment : Harmful if swallowed., No skin irritation, Causes serious eye irritation.

Prolonged exposure may cause chronic effects.

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information**Product:**

Remarks: No data available

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxicity to fish - Product : LC50 (Pimephales promelas (fathead minnow)): 49,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates - Product : LC50 (Ceriodaphnia dubia (Water flea)): 5,900 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Toxicity to algae - Product : LC50 (Microcystis aeruginosa (blue-green algae)): > 2,000 mg/l
Exposure time: 72 h
Test Type: static test

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : No data available

M-Factor (Chronic aquatic toxicity) : No data available

Toxicity to microorganisms : No data available

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment**Components:**

ethylene carbonate:
Acute aquatic toxicity : This product has no known ecotoxicological effects.

Components:

ethylene carbonate:
Chronic aquatic toxicity : This product has no known ecotoxicological effects.

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Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability

Biodegradability - Product : Inoculum: Domestic sewage
Result: Readily biodegradable.
Biodegradation: 86.9 - 98.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Bioaccumulation - Product : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water - Product : log Pow: 0.11 (20 °C)
pH: 5.33 - 5.79
Method: Partition coefficient

Mobility in soil

Mobility : No data available

Distribution among environmental compartments - Product : Koc: 11.9

Stability in soil : No data available

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Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82
Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : No data available

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA**

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

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

Not applicable for product as supplied.

National Regulations**DOT Classification**

Not regulated as dangerous goods

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ethylene oxide	75-21-8	10	*
Ethylene glycol	107-21-1	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including ethylene oxide, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

CH INV	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

SAFETY DATA SHEET

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No substances are subject to a Significant New Use Rule.

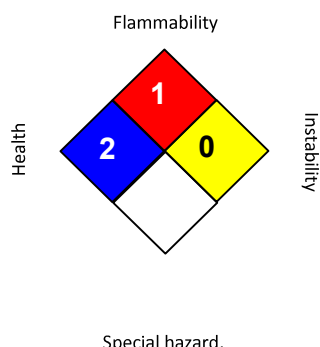
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

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The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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