

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING****1.1 Product identifier**

Trade name: **CARBOBOND® LTCA-II**

Registration number: OSPAR – Denmark: Not available  
OSPAR – Netherlands: 27068  
OSPAR – Norway: Not available  
OSPAR – United Kingdom: 27068  
REACH: Not applicable (mixture)

Synonym(s): Low-Temperature Chemical Activator

Preparation/Revision date: 9 December 2016

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses: Additive for oil and natural gas well hydraulic fracturing

Uses advised against: None known

**1.3 Details of the supplier of the safety data sheet**Manufacturer/Importer:

Company name: Univar Zwijndrecht NV  
Address: Noordweg 3  
3336 LH Zwijndrecht  
The Netherlands

Supplier:

Company name: CARBO Ceramics Inc.  
Address: 575 N. Dairy Ashford Road, Suite 300  
Houston, Texas 77079, USA  
Customer service: +1-337-367-6151

**1.4 Emergency telephone number** +31 65 394 8187

**SECTION 2: HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture**

This product has been assessed and/or tested for its physical, health and environmental hazards and the following classifications apply.


**SECTION 2: HAZARDS IDENTIFICATION (CONT'D)**

Classification according to Regulation (EC) No. 1272/2008 as amended

Classification: Flammable Liquids – Category 2  
Serious Eye Damage/Eye Irritation – Category 2  
STOT-Single – Category 3

**2.2 Label elements**

Contains: None

Hazard pictogram: 

Signal word: DANGER

Hazard statement: Highly flammable liquid and vapor. Causes mild skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness.

Precautionary statements:

- Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Keep container tightly closed.  
Ground / bond container and receiving equipment.  
Use explosion-proof electrical / ventilating / lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.  
Avoid breathing mist / vapors / spray.  
Use only outdoors or in a well-ventilated area.
- Response: Wear protective gloves / protective clothing / eye protection / face protection.  
IF ON SKIN (or hair): Remove contaminated clothing. Rinse skin with water.  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Contact a medical professional if you feel unwell.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice / attention.  
IN CASE OF FIRE: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
- Storage: Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store in a locked / secured location.
- Disposal: Dispose of contents / container in accordance with local, regional, national and international regulations.

Supplemental label information: None

**2.3 Other hazards** Possible marine pollutant. Avoid unauthorized release to the environment.

### SECTION 2: HAZARDS IDENTIFICATION (CONT'D)

#### Hazard summary

Physical hazards:	Highly flammable liquid and vapor.
Health hazards:	Causes serious eye irritation. May cause drowsiness or dizziness.
Environmental hazards:	None known.
Main symptoms:	Exposure may cause irritation of the eyes, skin, lungs and mucous membranes. Inhalation or ingestion may cause drowsiness or dizziness. Skin contact may aggravate preexisting dermatitis.

### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

#### 3.2 Mixture

Chemical Name	Percent	CAS No./EC No.	REACH Registration No.	INDEX No.	Notes
Isopropanol	40	67-63-0 200-661-7	Not applicable	603-117-00-0	#
Regulation No. 1272/2008: Flammable Liquids – Category 2 (H225), Serious Eye Damage/Eye Irritation – Category 2 (H319) STOT-Single – Category 3 (H336)					
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	60	64366-70-7 613-582-1	Not applicable	Not applicable	-
Regulation No. 1272/2008: Serious Eye Damage/Eye Irritation – Category 2 (H319)					

#: This substance has workplace exposure limit(s)

**Composition comments:** The full text for all H- phrases is displayed in Section 16. All concentrations are in percent by weight unless ingredients are a gas. Gas concentrations are in percent by volume.

### SECTION 4: FIRST AID MEASURES

#### General Information

Show this Safety Data Sheet to the medical professional in attendance. If symptoms occur, follow first aid measures as appropriate.

#### 4.1 Description of first aid measures

Inhalation:	Remove to fresh air and keep comfortable to aid breathing. Get medical attention if irritation or symptoms persist.
Skin contact:	Remove contaminated clothing immediately. Flush skin with large amounts of water. If irritation develops or persists, get medical attention.

**SECTION 4: FIRST AID MEASURES (CONT'D)**

Eye contact:	Rinse immediately with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation or symptoms persist.
Ingestion:	Rinse mouth. Never give anything by mouth to an unconscious or convulsing person. DO NOT induce vomiting. Get medical attention immediately.
Notes to Physician:	Skin contact may aggravate preexisting dermatitis. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

**4.2 Most important symptoms and effects, both acute and delayed**

Exposure may cause irritation of the eyes, skin, lungs and mucous membranes. Inhalation or ingestion may cause drowsiness or dizziness. Skin contact may aggravate preexisting dermatitis.

**4.3 Indication of any immediate medical attention and special treatment needed**

Provide general supportive measures and treat symptoms as needed.

**SECTION 5: FIRE FIGHTING MEASURES****General fire hazards**

This product is highly flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Do not smoke in the vicinity of this product. Keep container tightly closed. Ground and/or bond container and receiving equipment. Use explosion-proof electrical / ventilating / lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

**5.1 Extinguishing Media**

Suitable extinguishing media:	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media:	Do not use direct water stream as this may spread fire. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**SECTION 5: FIRE FIGHTING MEASURES (CONT'D)****5.3 Advice for firefighters**

Special protective equipment for firefighters:	In the event of fire, wear self-contained breathing apparatus.
Special firefighting procedures:	Mist or sprays in large (flooding) quantities are most effective. Cool affected containers with water streams. Do not direct a solid stream of water or foam into hot, burning pools as this may spread fire.
Special remarks on fire hazards:	None

**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel:	Use personal protective equipment as recommended in Section 8. Remove all sources of ignition. Ground / bond container and receiving equipment. Use explosion-proof electrical / ventilating / lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep unprotected persons away. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Wear protective gloves / protective clothing / eye protection / face protection. Spilled material may cause a slipping hazard.
For emergency responders:	Use personal protection recommended in Section 8 of the SDS.

**6.2 Environmental Precautions**

Prevent leaks and spills if safe to do so. Do not allow material to be released to the environment or to reach drains.

**6.3 Methods and materials for containing and cleaning up**

Contain spill immediately with inert material. Collect spillage. Transfer liquids and solid diking material to suitable containers for recovery or disposal. Keep away from heat / sparks / open flames / hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical / ventilating / lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not use water to flush away spills. Dispose of spilled material as indicated in Section 13. Store captured and reclaimed materials in suitable closed containers.

**6.4 Reference to other Sections:**

For personal protection, see Section 8. For waste disposal, see Section 13.

### SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking in the vicinity of this product. Keep container tightly closed. Ground and / or bond container and receiving equipment. Use explosion-proof electrical / ventilating / lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist / vapors / spray. Wear protective hand, eye and face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

#### 7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, well-ventilated place. Keep container tightly closed. Store locked up. Ground and / or bond container and receiving equipment. Use within 24 months. Product may develop cloudiness when exposed to temperatures below 46F, which is reversible when the product is warmed.

#### 7.3 Specific end use(s)

Industrial use – oil & gas well stimulation.

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

#### 8.1 Control parameters

##### Austria. MAK List:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	800 ppm (2,000 mg/m <sup>3</sup> )	N/A
		TWA	200 ppm (500 mg/m <sup>3</sup> )	N/A

##### Belgium. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	400 ppm (1,000 mg/m <sup>3</sup> )	N/A
		TWA	200 ppm (500 mg/m <sup>3</sup> )	N/A

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Bulgaria. Occupational Exposure Limits:

Regulation No. 13 of Ministry of Labor & Social Policy, with Ministry of Health on protection of workers related to exposure to chemical agents exposure at work.

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	1,225 mg/m <sup>3</sup> 980 mg/m <sup>3</sup>	N/A N/A

#### Croatia. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	500 ppm (1,250 mg/m <sup>3</sup> ) 400 ppm (999 mg/m <sup>3</sup> )	N/A N/A

#### Cyprus. Occupational Exposure Limits:

Control of factory atmosphere and dangerous substances in factories regulation, PL 311/173, as amended

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	MAC	400 ppm (980 mg/m <sup>3</sup> )	N/A

#### Czech Republic. Occupational Exposure Limits:

Government Decree 361

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	TWA Ceiling	500 mg/m <sup>3</sup> 1,000 mg/m <sup>3</sup>	N/A N/A

#### Denmark. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	TWA	200 ppm (490 mg/m <sup>3</sup> )	N/A

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Estonia. Occupational Exposure Limits:

##### Limit Values for Hazardous Substances (Minister of Social Affairs Regulation No. 57)

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	250 ppm (600 mg/m <sup>3</sup> )	N/A
		TWA	150 ppm (350 mg/m <sup>3</sup> )	N/A

#### Finland. Occupational Workplace Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	250 ppm (620 mg/m <sup>3</sup> )	N/A
		TWA	200 ppm (500 mg/m <sup>3</sup> )	N/A

#### France. Threshold Limit Values:

##### (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	400 ppm (980 mg/m <sup>3</sup> )	N/A

#### Germany. Workplace Exposure Limits:

##### TRGS 900, Limit Values in the Ambient Air at the Workplace

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	TWA	200 ppm (500 mg/m <sup>3</sup> )	N/A



### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Greece. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	500 ppm (1,225 mg/m <sup>3</sup> )	N/A
		TWA	400 ppm (980 mg/m <sup>3</sup> )	N/A

#### Hungary. Occupational Exposure Limits:

##### Joint Decree on Chemical Safety of Workplaces

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	2,000 mg/m <sup>3</sup>	N/A
		TWA	500 mg/m <sup>3</sup>	N/A

#### Iceland. Occupational Exposure Limits:

##### Regulation 154/1999 on occupational exposure limits

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	Ceiling	400 ppm (980 mg/m <sup>3</sup> )	N/A
		TWA	200 ppm (490 mg/m <sup>3</sup> )	N/A

#### Ireland. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	400 ppm	N/A
		TWA	200 ppm	N/A

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Italy. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	400 ppm (983 mg/m <sup>3</sup> ) 200 ppm (492 mg/m <sup>3</sup> )	N/A N/A

#### Latvia. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	600 mg/m <sup>3</sup> 350 mg/m <sup>3</sup>	N/A N/A

#### Lithuania. Occupational Exposure Limits:

#### Occupational Exposure Limit Values for Hazardous Chemical Substance Concentration, General Requirement (No. 645/169)

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	250 ppm (600 mg/m <sup>3</sup> ) 150 ppm (350 mg/m <sup>3</sup> )	N/A N/A

#### Luxemburg. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	N/A	N/A	N/A

#### Netherlands. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	N/A	N/A	N/A

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Norway. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	100 ppm (245 mg/m <sup>3</sup> )	N/A
		TWA	100 ppm (245 mg/m <sup>3</sup> )	N/A

#### Poland. Maximum Allowable Concentrations:

##### Minister of Labour and Social Policy

##### Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	1,200 mg/m <sup>3</sup>	N/A
		TWA	900 mg/m <sup>3</sup>	N/A

#### Portugal. Exposure Limit Values:

##### Norm on occupational exposure to chemical agents (NP1796)

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	400 ppm	N/A
		TWA	200 ppm	N/A

#### Romania. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	203 ppm (500 mg/m <sup>3</sup> )	N/A
		TWA	81 ppm (200 mg/m <sup>3</sup> )	N/A

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Slovak Republic. Occupational Exposure Limits:

Decree of the government of the Slovak Republic concerning protection of health in work with chemical agents

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	Ceiling TWA	1,000 mg/m <sup>3</sup> 200 ppm (500 mg/m <sup>3</sup> )	N/A N/A

#### Slovenia. Occupational Exposure Limits:

Regulation concerning protection of workers against risks due to exposure to chemicals while working  
(Official Gazette of the Republic of Slovenia)

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	800 ppm (2,000 mg/m <sup>3</sup> ) 200 ppm (500 mg/m <sup>3</sup> )	N/A N/A

#### Spain. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	400 ppm (1,000 mg/m <sup>3</sup> ) 200 ppm (500 mg/m <sup>3</sup> )	N/A N/A

#### Sweden. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL TWA	250 ppm (600 mg/m <sup>3</sup> ) 150 ppm (350 mg/m <sup>3</sup> )	N/A N/A

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

#### Switzerland. Workplace Exposure Limits:

##### SULA Grenzwerte am Arbeitsplatz

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	400 ppm (1,000 mg/m <sup>3</sup> )	N/A
		TWA	200 ppm (500 mg/m <sup>3</sup> )	N/A

#### Turkey. Occupational Exposure Limits:

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	N/A	N/A	N/A

#### United Kingdom. Workplace Exposure Limits:

##### EH40

Component	CAS No.	Type	Value	Form
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether	64366-70-7	N/A	N/A	N/A
Isopropanol	67-63-0	STEL	500 ppm (1,250 mg/m <sup>3</sup> )	N/A
		TWA	400 ppm (999 mg/m <sup>3</sup> )	N/A

Consult local authorities for acceptable exposure limits

### 8.2 Exposure Controls

Appropriate engineering controls:

Observe occupational exposure limits and prevent exposure to vapor, mist and spray. Use good general local exhaust ventilation to keep airborne levels below applicable exposure limits (typically 10 air changes per hour). Ventilation rates should be matched to conditions. Supplemental local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances such as poorly ventilated spaces, mechanical generation of mists, sprays, etc. Provide local eye wash and safety shower stations where possible.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)****Individual Protective Measures**

General Information:	Personal protective equipment should be chosen according to applicable standards and in consultation with the supplier of the personal protective equipment.
Eye/face protection:	Wear chemical goggles. Avoid wearing contact lenses while handling.
Skin protection:	
- Hand protection:	Wear protective gloves that are chemically resistant to this material. Avoid gloves made of: Polyvinyl alcohol ("PVA").
- Other:	Avoid direct contact with skin. Wear suitable chemical-resistant clothing to prevent contact with skin. The type of protective equipment should be selected according to the concentration and amount of the substance at the specific workplace. Wash skin after handling. Launder work clothes regularly.
Respiratory protection:	Use under local exhaust ventilation. If engineering controls do not maintain airborne concentrations to an acceptable level, use an appropriate respirator.
Thermal hazards:	Not applicable
<b>Hygiene measures</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking and / or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
<b>Environmental exposure controls:</b>	Avoid release to the environment. Environmental manager must be informed of all major releases.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

<b>Form</b>	Liquid	<b>Explosive properties</b>	Not available
<b>Color</b>	Clear	<b>Explosive limit</b>	Not available
<b>Odor</b>	Alcohol-like	<b>Vapor pressure</b>	Not available
<b>Odor threshold</b>	Not available	<b>Vapor density</b>	Not available
<b>pH</b>	Not available	<b>Evaporation rate</b>	Not available
<b>Melting/freezing point</b>	Not available	<b>Relative density</b>	0.85 – 0.95 (water = 1)
<b>Boiling point, initial boiling point and boiling range</b>	Not available	<b>Partition coefficient (n-octanol/water)</b>	Not available
<b>Flash point</b>	15 °C / 59 °F	<b>Solubility (water)</b>	Soluble in water
<b>Auto-ignition temperature</b>	Not available	<b>Decomposition temperature</b>	Not available
<b>Flammability (solid, gas)</b>	Not applicable	<b>Bulk density</b>	0.85 – 0.95 kg/L (7.09 – 7.93 lb/gal)
<b>Flammability limit-lower%</b>	Not available	<b>Viscosity</b>	Not available
<b>Flammability limit-upper%</b>	Not available	<b>VOC (weight %)</b>	Not available
<b>Oxidizing properties</b>	Not applicable	<b>Percent volatile</b>	Not available

#### 9.2 Other Information

No relevant additional information available

### SECTION 10: STABILITY AND REACTIVITY

#### 10.1 Reactivity

Vapors may form explosive mixtures with air.

#### 10.2 Chemical stability

Material is stable under normal conditions.

#### 10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur under normal conditions.

#### 10.4 Conditions to avoid

Keep away from heat, sparks, open flames, hot surfaces and direct sunlight. Exposure to elevated temperatures can cause product to decompose.

#### 10.5 Incompatible materials

Oxidizing agents, acids, bases, acetaldehyde, chlorine, ethylene oxide, isocyanates.

#### 10.6 Hazardous decompositions products

Thermal decomposition may produce oxides of carbon and other hazardous decomposition products.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### General information on likely routes of exposure

Ingestion:	May cause drowsiness or dizziness.
Inhalation:	May cause respiratory irritation. Vapors may cause drowsiness or dizziness.
Skin contact:	May cause skin irritation.
Eye contact:	Causes serious eye irritation.
Symptoms:	Exposure may cause irritation of the eyes, skin, lungs and mucous membranes. Inhalation or ingestion may cause drowsiness or dizziness. Skin contact may aggravate preexisting dermatitis.

#### 11.1 Information on toxicological effects

Acute Toxicity: No data were identified for the product as a whole. Data are for constituents:

Product / ingredient name	Result	Species	Dose	Exposure
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether*	LD <sub>50</sub>	Rat	>2,000 mg/kg	Oral
	LD <sub>50</sub>	Rat	>2,000 mg/kg	Dermal
	No data	No data	No data	Inhalation
Isopropanol	LD <sub>50</sub>	Rat	5.84 g/kg	Oral
	LD <sub>50</sub>	Rabbit	12,956 mg/kg	Dermal
	6h LC <sub>50</sub>	Rat	>10,000 ppm	Inhalation (Vapor)

\* Data based on a similar material.

Serious Eye Damage/Irritation: No data were identified for this product as a whole. Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether may cause moderate eye irritation and moderate corneal injury. Ocular instillation of isopropanol into the eyes of rabbits elicited conjunctival, corneal and iridial responses that were not fully reversible after 14 days.

Skin corrosion/Irritation: No data were identified for this product as a whole. Brief contact with oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether may cause slight skin irritation with local redness and may cause drying and flaking of the skin. Isopropanol was not found to be irritating to the skin of rabbits *in vivo*.

Respiratory/Skin Sensitization: No data were identified for this product as a whole. A material similar to oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether did not cause allergic skin reactions when tested in guinea pigs. Isopropanol did not induce skin sensitization in the guinea pig model. No data were identified related to respiratory sensitization.



### SECTION 11: TOXICOLOGICAL INFORMATION (CONT'D)

Germ Cell Mutagenicity:	No data were identified for this product as a whole. A material similar to oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether was negative in the Ames test. Isopropanol was negative <i>in vitro</i> (Ames test, gene mutation assay with and without activation) and <i>in vivo</i> in a micronucleus assay.
Carcinogenicity:	No data were identified for this product as a whole. Isopropanol is not a known carcinogen and has a NOEL for carcinogenicity of 5,000 ppm. None of the components of this product are listed as a carcinogen by OSHA, IARC or NTP.
Reproductive Toxicity:	No data were identified for this product as a whole. Isopropanol did not exhibit reproductive or developmental toxicity when tested in animals.
Developmental Effects:	No data were identified for this product as a whole. Isopropanol did not exhibit reproductive or developmental toxicity when tested in animals.
STOT – Single Exposure:	No data were identified for this product as a whole. Isopropanol produced clinical signs of toxicity to the nervous system (including ataxia, narcosis, lack of a startle reflex, and/or hypoactivity) in rats dosed with 1,500 – 5,000 ppm via inhalation.
STOT – Repeated Exposure:	No data were identified for this product as a whole. After at least 104 weeks of exposure to isopropanol, a NOEC of 500 ppm and NOAEC of 5000 ppm were derived. No substance specific adverse exposure related effects were observed. Repeated exposure to Isopropanol for 98 days produced toxic effects only at the highest concentration (5000 ppm) and a kidney change of unknown biological significance.
Aspiration Hazard:	No data were identified for this product or its constituents.
<b>Conclusion/Summary</b>	Causes serious eye irritation. May cause drowsiness or dizziness.

### SECTION 12: ECOLOGICAL INFORMATION

**12.1 Toxicity / Aquatic ecotoxicity** No data were identified for this product as a whole. Data are for constituents:

Product / ingredient name	Test	Result (mg/L)	Species	Exposure
Oxirane, 2-methyl-, polymer with oxirane, mono(2-ethylhexyl) ether*	EC <sub>50</sub>	36.6 mg/L	<i>Daphnia magna</i>	48 hour
	EC <sub>50</sub> /LC <sub>50</sub>	10 – 100 mg/L	Most sensitive species tested	No data
	ErC <sub>50</sub>	31.9 – 97.7 mg/L	<i>Desmodesmus subspicatus</i> (green algae)	72 hour
Isopropanol	EC <sub>50</sub>	>10,000 mg/L	<i>Daphnia Magna</i>	24 hour
	LC <sub>50</sub>	9,640 – 10,000 mg/L	<i>Pimephales promelas</i>	96 hour

\* Data based on a similar material.

**SECTION 12: ECOLOGICAL INFORMATION (CONT'D)**

<b>12.2 Persistence and degradability</b>	No data available for this mixture. The constituents of this mixture are expected to degrade in the environment.
<b>12.3 Bioaccumulative potential</b>	No data available for this product or its constituents.
<b>12.4 Mobility</b>	No data available for this product or its constituents.
<b>12.5 Results of PBT and vPvB assessment</b>	Not a PBT or vPvB material.
<b>12.6 Other adverse effects</b>	None known.
<b>Conclusion/Summary</b>	Possible marine pollutant. Avoid unauthorized release to the environment.

**SECTION 13: DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods**

Residual waste:	Dispose of in accordance with all applicable regulations. Contact a licensed waste disposal company to ensure proper handling.
Contaminated packaging:	Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU Waste Code:	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information:	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents / container in accordance with local, regional, national, international regulations.

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

**SECTION 14: TRANSPORT INFORMATION**

<b>14.1 UN Number</b>	UN1219
<b>14.2 UN proper shipping name</b>	Isopropanol solution
<b>14.3 Transport hazard class(es)</b>	3

### SECTION 14: TRANSPORT INFORMATION (CONT'D)

<b>14.4 Packing group</b>	II
<b>14.5 Environmental hazards</b>	Not applicable
<b>14.6 Special precautions for user</b>	None known
<b>14.7 Transport in bulk according to Annex II MARPOL73/78 and the IBC Code</b>	No data

### SECTION 15: REGULATORY INFORMATION

#### **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

##### **EU Regulations**

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I:	Not listed
Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II:	Not listed
Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V:	Not listed
Directive 96/61/EC concerning integrated pollution prevention and control (IPPC): Article 15, European Pollution Emission Registry (EPER):	Not listed
Regulation (EC) No. 1907/2006, REACH Article 59(1).	Not listed

##### **Other Regulations**

This Safety Data Sheet complies with the requirements of the Regulation (EC) No. 1907/2006. The product is classified and labeled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended and respective national laws implementing EC directives.

##### **Other National Regulations**

Follow national regulations for work with chemical agents.

#### **15.2 Chemical Safety Assessment**

No Chemical Safety Assessment has been carried out.

**SECTION 16: OTHER INFORMATION****Label Requirements**

This product has been classified as hazardous and requires labeling.

**List of abbreviations**

CAS	Chemical Abstract Service
CLP	Classification, Labelling and Packaging Regulation (Europe)
EC50	Effective Concentration (median)
IARC	International Agency for Research on Cancer
LC50/90	Lethal Concentration (median / 90th percentile)
NOEC	No Observed Effect Concentration
NTP	National Toxicology Program
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation and Authorization of Chemicals (Europe)
SDS	Safety Data Sheet
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
vPvB	Very Persistent and Very Bioaccumulative

**References**

ChemAdvisor List of Lists (LOLI)  
ECHA Dissemination Portal  
Supplier SDS

**Information on evaluation method leading to the classification of mixture**

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details refer to Sections 9, 11 and 12.

**Full test of any statements and H-phrases under Section 2 to 12**

H225: Highly flammable liquid and vapor  
H319: Causes serious eye irritation  
H336: May cause drowsiness or dizziness

**Training information**

Follow training instructions when handling this material.

**SDS Revisions**

SDS prepared on 9 December 2016.

**Disclaimer**

The information in the sheet was written based on the best knowledge and experience currently available.