

1. IDENTIFICATION

Product identifier: GLASS CLEANER

Other means of identification

SDS number: RE1000003390

Recommended restrictions

Product Use: Cleaner

Restrictions on use: Not known.

CRL PRODUCT CAT. NO. 1973

Manufacturer/Importer/Distributor Information

Manufacturer

Company Name: C.R. Laurence Co., Inc.
Address: 2503 E. Vernon Avenue
Los Angeles, CA 90058
Telephone: 1-800-421-6144
Fax:

Emergency telephone number: 1-866-836-8855

2. HAZARD IDENTIFICATION

Hazard Classification

Physical Hazards

Flammable aerosol Category 1

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Extremely flammable aerosol.

Precautionary Statements

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use.

Storage: Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

Hazard(s) not otherwise classified (HNOC): None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Ethanol, 2-butoxy-	111-76-2	5 - <10%
2-Propanol	67-63-0	1 - <5%
Propane	74-98-6	1 - <5%
Butane	106-97-8	1 - <5%
Morpholine	110-91-8	0.1 - <1%
Ammonium hydroxide (NH ₄)(OH))	1336-21-6	0 - <0.1%
Ethanol, 2-methoxy-	109-86-4	0 - <0.1%
1,2-Ethanediamine	107-15-3	0 - <0.1%
Morpholine, 4-ethyl-	100-74-3	0 - <0.1%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. FIRST-AID MEASURES

Ingestion:	Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
Inhalation:	Move to fresh air.
Skin Contact:	Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact:	Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed

Symptoms:	No data available.
Hazards:	No data available.

Indication of immediate medical attention and special treatment needed

Treatment:	No data available.
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5. FIRE-FIGHTING MEASURES

General Fire Hazards: Use water spray to keep fire-exposed containers cool. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: Vapors may travel considerable distance to a source of ignition and flash back.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: No data available.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep upwind.

Methods and material for containment and cleaning up: Stop the flow of material, if this is without risk. Absorb with sand or other inert absorbent.

Notification Procedures: ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk.

Environmental Precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water sources or sewer. Environmental manager must be informed of all major spillages.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use.

Conditions for safe storage, including any incompatibilities: Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Aerosol Level 1

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Ethanol, 2-butoxy-	TWA	20 ppm	US. ACGIH Threshold Limit Values (2008)
	TWA	25 ppm 120 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	REL	5 ppm 24 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	PEL	50 ppm 240 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA PEL	20 ppm 97 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	TWA	25 ppm 120 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	AN ESL	760 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL	3,700 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	2,900 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	600 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
2-Propanol	REL	400 ppm 980 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	STEL	400 ppm	US. ACGIH Threshold Limit Values (2008)
	STEL	500 ppm 1,225 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	500 ppm 1,225 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	TWA	400 ppm 980 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	PEL	400 ppm 980 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	400 ppm 980 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	500 ppm 1,225 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	AN ESL	200 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	2,000 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	STEL	500 ppm 1,225 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	200 ppm	US. ACGIH Threshold Limit Values (2008)
	TWA PEL	400 ppm 980 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	AN ESL	492 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
ST ESL	4,920 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)	

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

Propane	REL	1,000 ppm 1,800 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	PEL	1,000 ppm 1,800 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA PEL	1,000 ppm 1,800 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	TWA	1,000 ppm 1,800 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	TWA	1,000 ppm 1,800 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
Butane	REL	800 ppm 1,900 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	800 ppm 1,900 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	STEL	1,000 ppm	US. ACGIH Threshold Limit Values (03 2018)
	TWA	800 ppm 1,900 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	AN ESL	3,000 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL	7,100 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	TWA PEL	800 ppm 1,900 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	ST ESL	66,000 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	28,000 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
Morpholine	REL	20 ppm 70 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	20 ppm	US. ACGIH Threshold Limit Values (2008)
	ST ESL	36 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	PEL	20 ppm 70 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA PEL	20 ppm 70 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	STEL	30 ppm 105 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	AN ESL	11 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	10 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	TWA	20 ppm 70 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	30 ppm 105 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	30 ppm 105 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	STEL	30 ppm 105 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

	AN ESL		40 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	TWA	20 ppm	70 mg/m ³	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Ammonium hydroxide ((NH ₄)(OH))	AN ESL		92 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL		180 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	STEL	35 ppm		US. ACGIH Threshold Limit Values (2008)
	TWA	25 ppm		US. ACGIH Threshold Limit Values (2008)
	TWA PEL	25 ppm	18 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	STEL	35 ppm	27 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	STEL	35 ppm	27 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	35 ppm	27 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	REL	25 ppm	18 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	PEL	50 ppm	35 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Ethanol, 2-methoxy-	TWA	0.1 ppm		US. ACGIH Threshold Limit Values (2008)
	REL	0.1 ppm	0.3 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	25 ppm	80 mg/m ³	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	TWA	25 ppm	80 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA PEL	5 ppm	16 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	ST ESL		50 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL		16 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	PEL	25 ppm	80 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	AN ESL		5 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL		160 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
1,2-Ethanediamine	TWA	10 ppm		US. ACGIH Threshold Limit Values (2008)
	TWA PEL	10 ppm	25 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	PEL	10 ppm	25 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	10 ppm	25 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	AN ESL		25 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL		100 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

	AN ESL	10 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	REL	10 ppm 25 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	ST ESL	250 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	TWA	10 ppm 25 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Morpholine, 4-ethyl-	REL	5 ppm 23 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	5 ppm 23 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	5 ppm 23 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	TWA PEL	5 ppm 23 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	PEL	20 ppm 94 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	AN ESL	24 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	TWA	5 ppm	US. ACGIH Threshold Limit Values (2008)
	AN ESL	5.1 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	51 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL	240 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Ethanol, 2-butoxy- (Butoxyacetic acid (BAA), with hydrolysis: Sampling time: End of shift.)	200 mg/g (Creatinine in urine)	ACGIH BEL (03 2013)
2-Propanol (acetone: Sampling time: End of shift at end of work week.)	40 mg/l (Urine)	ACGIH BEL (03 2013)
Ethanol, 2-methoxy- (2-Methoxyacetic acid: Sampling time: End of shift at end of work week.)	1 mg/g (Creatinine in urine)	ACGIH BEL (03 2013)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection: Wear goggles/face shield.

Skin Protection

Hand Protection: No data available.

Other: No data available.

Respiratory Protection: In case of inadequate ventilation use suitable respirator. Seek advice from local supervisor.

Hygiene measures: When using do not smoke. Observe good industrial hygiene practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state: liquid

Form: Spray Aerosol

Color: No data available.

Odor: No data available.

Odor threshold: No data available.

pH: No data available.

Melting point/freezing point: No data available.

Initial boiling point and boiling range: No data available.

Flash Point: -104.44 °C

Evaporation rate: No data available.

Flammability (solid, gas): No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%): No data available.

Flammability limit - lower (%): No data available.

Explosive limit - upper (%): No data available.

Explosive limit - lower (%): No data available.

Vapor pressure: 4,136.8544 - 5,515.8058 hPa (20 °C)

9. PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

Vapor density:	No data available.
Density:	No data available.
Relative density:	No data available.
Solubility(ies)	
Solubility in water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. STABILITY AND REACTIVITY

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	No data available.
Hazardous Decomposition Products:	No data available.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation:	No data available.
Skin Contact:	No data available.
Eye contact:	No data available.
Ingestion:	No data available.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	No data available.
Skin Contact:	No data available.
Eye contact:	No data available.
Ingestion:	No data available.

11. TOXICOLOGICAL INFORMATION (CONT.)

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: ATEmix: 34,883.72 mg/kg

Dermal

Product: ATEmix: 12,524.66 mg/kg

Inhalation

Product: ATEmix: 399.58 mg/l
ATEmix : 99.9 mg/l

Repeated dose toxicity

Product: No data available.

Specified substance(s):

Ethanol, 2-butoxy-	NOAEL (Rabbit(Female, Male), Dermal, 90 d): > 150 mg/kg Dermal Experimental result, Key study NOAEL (Rat(Female), Oral, 90 d): < 82 mg/kg Oral Experimental result, Key study NOAEL (Rat(Female), Inhalation, 2 yr): < 31 ppm(m) Inhalation Experimental result, Key study
2-Propanol	NOAEL (Rat, Inhalation, >= 104 Weeks): 5,000 ppm(m) Inhalation Experimental result, Key study
Propane	NOAEL (Rat(Female, Male), Inhalation, >= 28 d): 4,000 ppm(m) Inhalation Experimental result, Key study LOAEL (Rat(Female, Male), Inhalation, >= 28 d): 12,000 ppm(m) Inhalation Experimental result, Key study
Butane	NOAEL (Rat(Female, Male), Inhalation, >= 28 d): 4,000 ppm(m) Inhalation Experimental result, Key study LOAEL (Rat(Female, Male), Inhalation, >= 28 d): 12,000 ppm(m) Inhalation Experimental result, Key study
Morpholine	NOAEL (Rat(Female, Male), Inhalation): 36 ppm(m) Inhalation Experimental result, Key study LOAEL (Rat(Female), Oral, 56 d): 500 mg/kg Oral Experimental result, Key study
Ethanol, 2-methoxy-	LOAEL (Rat(Male), Oral, 90 d): 71 mg/kg Oral Experimental result, Key study NOAEL (Rabbit(Female, Male), Inhalation, 13 Weeks): 100 ppm(m) Inhalation Experimental result, Key study LOAEL (Rat(Female), Inhalation, 13 Weeks): 100 ppm(m) Inhalation Experimental result, Supporting study
1,2-Ethanediamine	NOAEL (Rat(Female, Male), Inhalation, 6 Weeks): 59 ppm(m) Inhalation Experimental result, Key study LOAEL (Rat(Female, Male), Oral, 3 Months): 114 mg/kg Oral Experimental result, Key study

11. TOXICOLOGICAL INFORMATION (CONT.)

Skin Corrosion/Irritation

Product: No data available.

Specified substance(s):

Ethanol, 2-butoxy-	in vivo (Rabbit): Irritating	Experimental result, Key study
2-Propanol	in vivo (Rabbit): Not Classified	Experimental result, Key study
Morpholine	in vivo (Rabbit): Corrosive	Experimental result, Key study
Ethanol, 2-methoxy-	in vivo (Rabbit): Not irritant	Experimental result, Key study
1,2-Ethanediamine	in vivo (Rabbit): Corrosive	Experimental result, Key study
Morpholine, 4-ethyl-	Assessment (Various): Corrosive	Expert judgment

Serious Eye Damage/Eye Irritation

Product: No data available.

Specified substance(s):

Ethanol, 2-butoxy-	Rabbit, 24 - 72 hrs: Irritating
2-Propanol	Rabbit, 1 d: Irritating.
1,2-Ethanediamine	Rabbit, 24 - 72 hrs: Corrosive
Morpholine, 4-ethyl-	Corrosive

Respiratory or Skin Sensitization

Product: No data available.

Specified substance(s):

Ethanol, 2-butoxy-	Skin sensitization:, in vivo (Guinea pig): Non sensitising
2-Propanol	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Morpholine	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Ethanol, 2-methoxy-	Skin sensitization:, in vivo (Guinea pig): Non sensitising
1,2-Ethanediamine	May cause sensitization by inhalation and skin contact.

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

11. TOXICOLOGICAL INFORMATION (CONT.)

Germ Cell Mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specified substance(s):

Ethanol, 2-methoxy- May cause adverse reproductive effects - such as infertility based on animal data.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

12. ECOLOGICAL INFORMATION (CONT.)

Ethanol, 2-butoxy-	LC 50 (Oncorhynchus mykiss, 96 h): 1,474 mg/l Experimental result, Key study
2-Propanol	LC 50 (Pimephales promelas, 96 h): 9,640 mg/l Experimental result, Key study
Propane	LC 50 (Various, 96 h): 147.54 mg/l QSAR QSAR, Key study
Butane	LC 50 (Various, 96 h): 147.54 mg/l QSAR QSAR, Key study
Morpholine	LC 50 (Oncorhynchus mykiss, 96 h): 180 mg/l Experimental result, Key study
Ammonium hydroxide ((NH ₄)(OH))	LC 50 (Western mosquitofish (Gambusia affinis), 96 h): 15 mg/l Mortality LC 50 (Fathead minnow (Pimephales promelas), 48 h): 7 mg/l Mortality
Ethanol, 2-methoxy-	LC 50 (Rainbow trout,donaldson trout (Oncorhynchus mykiss), 96 h): 14,000 - 18,000 mg/l Mortality
1,2-Ethanediamine	LC 50 (Poecilia reticulata, 96 h): 640 mg/l Experimental result, Key study

Aquatic Invertebrates

Product:

No data available.

Specified substance(s):

Ethanol, 2-butoxy-	EC 50 (Daphnia magna, 48 h): 1,550 mg/l Experimental result, Key study
2-Propanol	LC 50 (Daphnia magna, 24 h): > 10,000 mg/l Experimental result, Key study
Butane	LC 50 (Daphnia sp., 48 h): 69.43 mg/l QSAR QSAR, Key study
Morpholine	EC 50 (Daphnia magna, 48 h): 45 mg/l Experimental result, Key study
Ammonium hydroxide ((NH ₄)(OH))	LC 50 (Water flea (Ceriodaphnia dubia), 48 h): > 0 - 10 mg/l Mortality
Ethanol, 2-methoxy-	EC 50 (Daphnia magna, 48 h): 27,000 mg/l Experimental result, Key study
1,2-Ethanediamine	EC 50 (Daphnia magna, 48 h): 16.7 mg/l Experimental result, Key study

Chronic hazards to the aquatic environment:

Fish

Product:

No data available.

Specified substance(s):

Ethanol, 2-butoxy-	NOAEL (Danio rerio): > 100 mg/l Experimental result, Key study
1,2-Ethanediamine	NOAEL (Gasterosteus aculeatus): > 10 mg/l Experimental result, Key study

Aquatic Invertebrates

Product:

No data available.

12. ECOLOGICAL INFORMATION (CONT.)

Specified substance(s):

Ethanol, 2-butoxy- EC 50 (Daphnia magna): 297 mg/l Experimental result, Key study
 EC 10 (Daphnia magna): 134 mg/l Experimental result, Key study

Morpholine EC 50 (Daphnia magna): 12 mg/l Experimental result, Key study
 NOAEL (Daphnia magna): 5 mg/l Experimental result, Key study

Ethanol, 2-methoxy- NOAEL (Daphnia magna): > 500 mg/l Experimental result, Key study
 1,2-Ethanediamine NOAEL (Daphnia magna): 0.16 mg/l Experimental result, Key study

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: No data available.

Specified substance(s):

Ethanol, 2-butoxy- 90.4 % Detected in water. Experimental result, Key study

2-Propanol 53 % (5 d) Detected in water. Experimental result, Key study

Propane 100 % (385.5 h) Detected in water. Experimental result, Key study
 50 % (3.19 d) Detected in water. QSAR, Weight of Evidence study

Butane 100 % (385.5 h) Detected in water. Experimental result, Key study
 50 % (3.19 d) Detected in water. QSAR, Weight of Evidence study

Morpholine > 90 % (24 h) Sediment Experimental result, Key study
 80 - 94 % (24 h) Sediment Experimental result, Key study
 34.1 % Detected in water. Experimental result, Key study
 > 99 % (24 h) Sediment Experimental result, Key study

Ethanol, 2-methoxy- 82 % (14 d) Detected in water. Experimental result, Supporting study
 74 % Detected in water. Experimental result, Key study

1,2-Ethanediamine 88 % Detected in water. Experimental result, Key study

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Specified substance(s):

Morpholine Cyprinus carpio, Bioconcentration Factor (BCF): < 2.8 Aquatic sediment
 Experimental result, Key study

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

12. ECOLOGICAL INFORMATION (CONT.)

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Ethanol, 2-butoxy-	No data available.
2-Propanol	No data available.
Propane	No data available.
Butane	No data available.
Morpholine	No data available.
Ammonium hydroxide ((NH ₄)(OH))	No data available.
Ethanol, 2-methoxy-	No data available.
1,2-Ethanediamine	No data available.
Morpholine, 4-ethyl-	No data available.

Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Disposal instructions: Wash before disposal. Dispose to controlled facilities.

Contaminated Packaging: No data available.

14. TRANSPORT INFORMATION

DOT

UN Number:	UN 1950
UN Proper Shipping Name:	Aerosols, flammable
Transport Hazard Class(es)	
Class:	2.1
Label(s):	–
Packing Group:	II
Marine Pollutant:	No
Environmental Hazards:	No
Marine Pollutant	No
Special precautions for user:	Not regulated.

IMDG

UN Number:	UN 1950
UN Proper Shipping Name:	Aerosols, flammable
Transport Hazard Class(es)	
Class:	2
Label(s):	–
EmS No.:	
Packing Group:	–

14. TRANSPORT INFORMATION (CONT.)

Environmental Hazards:	No
Marine Pollutant	No
Special precautions for user:	Not regulated.

IATA

UN Number:	UN 1950
Proper Shipping Name:	Aerosols, flammable
Transport Hazard Class(es):	
Class:	2.1
Label(s):	–
Packing Group:	–
Environmental Hazards:	No
Marine Pollutant	No
Special precautions for user:	Not regulated.

15. REGULATORY INFORMATION

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

<u>Chemical Identity</u>	<u>Reportable quantity</u>
2-Propanol	lbs. 100
Propane	lbs. 100
Butane	lbs. 100
Morpholine	lbs. 100
Ammonium hydroxide ((NH ₄)(OH))	lbs. 1000
1,2-Ethanediamine	lbs. 5000
Morpholine, 4-ethyl-	lbs. 100

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Fire Hazard
Flammable aerosol

SARA 302 Extremely Hazardous Substance

<u>Chemical Identity</u>	<u>Reportable quantity</u>	<u>Threshold Planning Quantity</u>
1,2-Ethanediamine	lbs. 5000	lbs. 10000

15. REGULATORY INFORMATION (CONT.)

SARA 304 Emergency Release Notification

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Ethanol, 2-butoxy-	
2-Propanol	lbs. 100
Propane	lbs. 100
Butane	lbs. 100
Morpholine	lbs. 100
Ammonium hydroxide ((NH ₄)(OH))	lbs. 1000
Ethanol, 2-methoxy-	
1,2-Ethanediamine	lbs. 5000
Morpholine, 4-ethyl-	lbs. 100

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
1,2-Ethanediamine	lbs
Ethanol, 2-butoxy-	10000 lbs
2-Propanol	10000 lbs
Propane	10000 lbs
Butane	10000 lbs
Morpholine	10000 lbs
Ammonium hydroxide ((NH ₄)(OH))	10000 lbs
Ethanol, 2-methoxy-	10000 lbs
Morpholine, 4-ethyl-	10000 lbs

SARA 313 (TRI Reporting)

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
Ethanol, 2-butoxy-	N230 lbs	N230 lbs.
2-Propanol	lbs	lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

US State Regulations

US. California Proposition 65

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

Ethanol, 2-methoxy-	Developmental toxin. 03 2008
Ethanol, 2-methoxy-	Male reproductive toxin. 03 2008

US. New Jersey Worker and Community Right-to-Know Act

<u>Chemical Identity</u>
Ethanol, 2-butoxy-
2-Propanol
Propane
Butane

US. Massachusetts RTK - Substance List

15. REGULATORY INFORMATION (CONT.)**Chemical Identity**

1,2-Ethanediamine

US. Pennsylvania RTK - Hazardous Substances**Chemical Identity**

Ethanol, 2-butoxy-

2-Propanol

Propane

Butane

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

International regulations**Montreal protocol**

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory

15. REGULATORY INFORMATION (CONT.)

Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.
Mexico INSQ:	Not in compliance with the inventory.
Ontario Inventory:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Issue Date:	06/06/2019
Revision Information:	No data available.
Version #:	1.0
Further Information:	No data available.
Disclaimer:	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.
	Version: 1.0 Revision Date: 06/06/2019