

Safety Data Sheet

Section 1. Identification

Product name : ALPHA® NR205 NC FLUX
Product code : 116844
Product type : Liquid.
Date of issue/Date of revision : July 16 2017.

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Section 1. Identification

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calls accepted)
Alpha Chemtrec# 5591

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
ACUTE TOXICITY (oral) - Category 5
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (Narcotic effects) - Category 3
AQUATIC HAZARD (ACUTE) - Category 2
AQUATIC HAZARD (LONG-TERM) - Category 2

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapor.
Harmful if inhaled.
May be harmful if swallowed.
Causes serious eye irritation.
Causes skin irritation.
May damage the unborn child.
May cause damage to organs.
May cause drowsiness and dizziness.
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response

: Collect spillage. IF exposed or if you feel unwell: Call a POISON CENTER or physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. If skin irritation occurs: Get medical attention. 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 attention.

Storage

: Store locked up. Store in a well-ventilated place. Keep cool.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : Prolonged or repeated contact may dry skin and cause irritation.

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Section 2. Hazards identification

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
ethanol	60-70	64-17-5
Isopropyl alcohol ester	20-30	67-63-0
methanol	1-10	-
Organic acid	1-10	67-56-1
		-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 30 minutes, keeping eyelids open. Get medical attention. If necessary, call a poison center or physician.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 15 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : May be harmful if swallowed. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Section 4. First aid measures

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that mists are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

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Section 5. Fire-fighting measures

- Special protective actions for fire-fighters** : 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- 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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not

Section 7. Handling and storage

Advice on general occupational hygiene

reuse container.

- : 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. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

- : Store in accordance with local regulations. Store in a segregated and approved area. 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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. 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.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ethanol	ACGIH TLV (United States, 4/2014). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens. STEL: 1000 ppm 15 minutes.
Isopropyl alcohol	ACGIH TLV (United States, 4/2014). Notes: Refers to Appendix A -- Carcinogens. ACGIH 2003 Adoption STEL: 400 ppm 15 minutes. TWA: 200 ppm 8 hours.
ester	ACGIH TLV (United States, 4/2014). Notes: 1998 Adoption. STEL: 200 ppm 15 minutes. TWA: 150 ppm 8 hours.
methanol	ACGIH TLV (United States, 4/2014). Absorbed through skin. Notes: Substances for which there is a Biological Exposure Index or Indices STEL: 328 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.
Organic acid	ACGIH TLV (United States, 4/2014). TWA: 5 mg/m ³ 8 hours.

Ingredient name	Exposure limits
ethanol	TW 勞委會、 勞工作業環境空氣中有害物容許濃度標準、容許濃度 (Taiwan, 6/2014). STEL: 1880 mg/m ³ 15 minutes. STEL: 1000 ppm 15 minutes. TWA: 1880 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.
Isopropyl alcohol	TW 勞委會、 勞工作業環境空氣中有害物容許濃度標準、容許濃度 (Taiwan, 6/2014). STEL: 1228.75 mg/m ³ 15 minutes. STEL: 500 ppm 15 minutes.

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Section 8. Exposure controls/personal protection

ester	TWA: 983 mg/m ³ 8 hours. TWA: 400 ppm 8 hours. TW 勞委會、 勞工作業環境空氣中有害物容許濃度標準、 容許濃度 (Taiwan, 6/2014). STEL: 890 mg/m ³ 15 minutes. STEL: 187.5 ppm 15 minutes. TWA: 712 mg/m ³ 8 hours. TWA: 150 ppm 8 hours.
methanol	TW 勞委會、 勞工作業環境空氣中有害物容許濃度標準、 容許濃度 (Taiwan, 6/2014). Absorbed through skin. Notes: 本表內註有「皮」字者， 表示該物質易從皮膚、粘膜滲入體內， 並不表示該物質對勞工會引起刺激感、 皮膚炎及敏感等特性 STEL: 327.5 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.

Ingredient name	Exposure limits
ethanol	ACGIH TLV (United States, 4/2014). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens. STEL: 1000 ppm 15 minutes. GBZ 2.1 (China, 4/2007). PC-STEL: 700 mg/m ³ 15 minutes. PC-TWA: 350 mg/m ³ 8 hours. GBZ 2.1 (China, 4/2007). PC-STEL: 300 mg/m ³ 15 minutes. PC-TWA: 200 mg/m ³ 8 hours. GBZ 2.1 (China, 4/2007). Absorbed through skin. PC-STEL: 50 mg/m ³ 15 minutes. PC-TWA: 25 mg/m ³ 8 hours. ACGIH TLV (United States, 4/2014). TWA: 5 mg/m ³ 8 hours.
Isopropyl alcohol	
ester	
methanol	
Organic acid	

Ingredient name	Exposure limits
ethanol	Ministry of Labor (Republic of Korea, 8/2013). TWA: 1900 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours. Ministry of Labor (Republic of Korea, 8/2013). STEL: 980 mg/m ³ 15 minutes. STEL: 400 ppm 15 minutes. TWA: 480 mg/m ³ 8 hours. TWA: 200 ppm 8 hours. Ministry of Labor (Republic of Korea, 8/2013). STEL: 950 mg/m ³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 710 mg/m ³ 8 hours. TWA: 150 ppm 8 hours. Ministry of Labor (Republic of Korea, 8/2013). Absorbed through skin. STEL: 310 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 260 mg/m ³ 8 hours.
Isopropyl alcohol	
ester	
methanol	

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Section 8. Exposure controls/personal protection

Organic acid	TWA: 200 ppm 8 hours. ACGIH TLV (United States, 4/2014). TWA: 5 mg/m ³ 8 hours.
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Ingredient name	Exposure limits
ethanol	DOSH USECHH (Malaysia, 4/2000). TWA: 1880 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.
Isopropyl alcohol	DOSH USECHH (Malaysia, 4/2000). TWA: 983 mg/m ³ 8 hours. TWA: 400 ppm 8 hours.
ester	DOSH USECHH (Malaysia, 4/2000). TWA: 713 mg/m ³ 8 hours. TWA: 150 ppm 8 hours.
methanol	DOSH USECHH (Malaysia, 4/2000). Absorbed through skin. TWA: 262 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.
Organic acid	DOSH USECHH (Malaysia, 4/2000). TWA: 5 mg/m ³ 8 hours.

Ingredient name	Exposure limits
ethanol	Factories Order (PEL) (Singapore, 2/2006). PEL (long term): 1880 mg/m ³ 8 hours. PEL (long term): 1000 ppm 8 hours.
Isopropyl alcohol	Factories Order (PEL) (Singapore, 2/2006). PEL (short term): 1230 mg/m ³ 15 minutes. PEL (short term): 500 ppm 15 minutes. PEL (long term): 983 mg/m ³ 8 hours. PEL (long term): 400 ppm 8 hours.
ester	Factories Order (PEL) (Singapore, 2/2006). PEL (short term): 950 mg/m ³ 15 minutes. PEL (short term): 200 ppm 15 minutes. PEL (long term): 713 mg/m ³ 8 hours. PEL (long term): 150 ppm 8 hours.
methanol	Factories Order (PEL) (Singapore, 2/2006). PEL (short term): 328 mg/m ³ 15 minutes. PEL (short term): 250 ppm 15 minutes. PEL (long term): 262 mg/m ³ 8 hours. PEL (long term): 200 ppm 8 hours.
Organic acid	Factories Order (PEL) (Singapore, 2/2006). PEL (long term): 5 mg/m ³ 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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.

Individual protection measures

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.

Section 8. Exposure controls/personal protection

- Eye/face protection** : 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, gases 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 protection**
- Hand protection** : 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.
- Body protection** : 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Colorless.
- Odor** : Alcohol-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Closed cup: 12°C (53.6°F) [Tag Closed Cup]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : >1 [Air = 1]
- Relative density** : 0.7965
- Solubility** : Easily soluble in the following materials: cold water.
- VOC** : 777.8 g/l
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : 399°C (750.2°F)
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Other Hazardous decomposition products	: carbon oxides (CO, CO ₂)

Section 11. Toxicological information

Routes of entry : Eye contact. Inhalation. Ingestion.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Rat	10600 mg/kg	-
	TDLo Oral	Man - Male	0.8 g/kg	-
	TDLo Oral	Mouse	4 g/kg	-
Isopropyl alcohol	LD50 Dermal	Rabbit	6290 mg/kg	-
	LD50 Oral	Rat	4.7 g/kg	-
	ester	Rat	390 ppm	4 hours
ester	LC50 Inhalation Vapor	Rat	1087 ppm	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
	LD50 Oral	Mammal	4300 mg/kg	-
	LD50 Oral	Rat	10768 mg/kg	-
	methanol	LC50 Inhalation Gas.	Rat	145000 ppm
LC50 Inhalation Gas.		Rat	64000 ppm	4 hours
LC50 Inhalation Vapor		Rat	64000 ppm	4 hours
LD50 Oral		Rat	5600 mg/kg	-
LDLo Oral		Man - Male	6422 mg/kg	-
TDLo Oral		Man - Male	9450 uL/kg	-
TDLo Oral		Man - Male	3571 uL/kg	-
Organic acid		LD50 Dermal	Rabbit	>7940 mg/kg
	LD50 Oral	Rabbit	>11000 mg/kg	-
	LD50 Oral	Rat	5050 mg/kg	-
	LD50 Oral	Rat	>11000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
Isopropyl alcohol	Eyes - Moderate irritant	Rabbit	-	24 hours 100	-

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Section 11. Toxicological information

	Eyes - Moderate irritant	Rabbit	-	milligrams	-
	Eyes - Severe irritant	Rabbit	-	10 milligrams	-
ester	Skin - Mild irritant	Rabbit	-	100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	500 milligrams	-
methanol	Skin - Moderate irritant	Rabbit	-	100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
Organic acid	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	40 milligrams	-
	Eyes - Mild irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 20 milligrams	-
		Rabbit	-	0.25 Grams	-

Sensitization

Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
ethanol	-	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Equivocal
	-	Experiment: In vitro Subject: Mammalian-Human Cell: Somatic	Equivocal

Carcinogenicity

Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
ethanol	-	-	Equivocal	Woman	Oral: 41 g/kg	-
	-	-	Equivocal	Woman	Oral: 250 mg/kg	-
Isopropyl alcohol	Negative	Positive	Positive	Rat	Oral: 1000 mg/kg	-
	Positive	Negative	Positive	Rat - Female	Oral: 1242 mg/kg Continuous Fixed dose	24 hours per day
Methanol	-	-	Positive	Mouse - Female	Oral: 4 g/kg	-
	Negative	-	Positive	Rat - Female	Oral: 5200 µg/kg	-

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Isopropyl alcohol ester methanol	Category 3 Category 3 Category 1	Not applicable. Not applicable. Not determined	Narcotic effects Narcotic effects central nervous system (CNS) and optic nerve

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
Isopropyl alcohol	ASPIRATION HAZARD - Category 2

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : May be harmful if swallowed. Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Continued on next page



Section 11. Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	2945.3 mg/kg
Dermal	10585.6 mg/kg
Inhalation (gases)	5571.2 ppm
Inhalation (vapors)	105.9 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Isopropyl alcohol ester	Acute LC50 1400000 to 1950000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
methanol	Acute LC50 32000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 62000 µg/l	Fish - Danio rerio	96 hours
	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 3289 to 4395 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Organic acid	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 97000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours

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Section 12. Ecological information

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
ethanol	-0.35	-	low
Isopropyl alcohol	0.05	-	low
ester	2.3	-	low
methanol	-0.77	<10	low
Organic acid	0.093	3.162	low

Mobility in soil





Soil/water partition coefficient (K_{oc}) : Not available.

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

Section 13. Disposal considerations

Disposal methods : 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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	UN1993	UN1993	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (ethanol, Isopropyl alcohol)	Flammable liquid, n.o.s. (ethanol, Isopropyl alcohol)	Flammable liquid, n.o.s. (ethanol, Isopropyl alcohol)
Transport hazard class(es)	3 	3  	3 
Packing group	II	II	II
Environmental hazards	No.	Yes.	No.

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Section 14. Transport information

Additional information	-	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.	The environmentally hazardous substance mark may appear if required by other transportation regulations.
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Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Taiwan

SDS complies with the Regulation of Labeling and Hazard Communication of Hazardous Chemicals

List of chemicals reputed to be a "threat of imminent danger" : This product contains substances considered to be a "Threat of imminent danger": Isopropyl alcohol, ester, methanol, 4-methylpentan-2-one.

Safety, health and environmental regulations specific for the product : No known specific national and/or regional regulations applicable to this product (including its ingredients).

Taiwan inventory (CSNN) : All components are listed or exempted.

China

SDS complies with the General Rules for Classification and Hazardous Communication of Chemicals GB-13690-2009, GB-30000 series, and GB/T 16438-2008.

China inventory (IECSC) : All components are listed or exempted.

List of Goods banned for Importing

None of the components are listed.

List of Goods banned for Exporting

None of the components are listed.

List of Toxic Chemicals Severely Restricted for Importing & Exporting by China

None of the components are listed.

Republic of Korea

A. Regulation according to ISHA

ISHA Article 37 : None of the components are listed.

ISHA Article 38 : None of the components are listed.

Article 2 of Youth Protection Act on Substances Hazardous to Youth : Not applicable.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:

ethanol

Isopropyl alcohol

ester

methanol

Organic acid

Exposure Standards established for Harmful Factors : None of the components are listed.



Section 15. Regulatory information

Harmful Factors Subject to Work Environment Measurement : The following components are listed: Isopropyl alcohol; Methyl alcohol; ester

Harmful Factors Subject to Special Health Check-up : The following components are listed: Isopropyl alcohol; Methyl alcohol

Hazardous Substances Subject to Control : The following components are listed: Isopropyl alcohol; Methyl alcohol; ester

B. Regulation according to TCCA

TCCA Toxic chemicals : Not applicable

TCCA Observational chemicals : None of the components are listed.

TCCA Article 32 (Banned) : None of the components are listed.

TCCA Article 32 (Restricted) : None of the components are listed.

TCCA Article 17 (TRI) : The following components are listed: 2-Propanol; Methyl alcohol

Korea inventory : All components are listed or exempted.

Accident Precaution chemicals : None of the components are listed.

C. Dangerous Materials Safety Management Act : Class: Class 4 - Flammable Liquid
Item: 2. Class 1 petroleums - Water-insoluble liquid
Threshold: 200 L
Danger category: II
Signal word: Contact with sources of ignition prohibited

D. Wastes regulation : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Singapore

Singapore - hazardous chemicals under government control

None.

International lists

National inventory

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

Europe : All components are listed or exempted.

Japan : All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

United States : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : July 16 2017.

Date of previous issue : May 20 2015.

Version : 1.01



Section 16. Other information

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Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations

Procedure used to derive the classification

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Acute Tox. 5, H303	Calculation method
Acute Tox. 4, H332	Calculation method
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2A, H319	Calculation method
Repr. 1B, H360 (Unborn child)	Calculation method
STOT SE 2, H371	Calculation method
STOT SE 3, H336	Calculation method
Aquatic Acute 2, H401	Calculation method
Aquatic Chronic 2, H411	Calculation method

References : Not available.

✔ Indicates information that has changed from previously issued version.

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