Safety Data Sheet

Section 1. Identification

Product name : **ALPHA® NR205 NC FLUX**

Product code : 116844

Product type : Liquid.

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Manufacturer - Supplier	Telephone no.:	Emergency phone:
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Alpha Assembly Solutions (Shenzhen) Co., Ltd. Tang Xia Yong Village, Songgang Town Baoan District, Shenzhen, Peoples Republic of China Postal Code: 518105	86 755 2705 1100	86 532 83889090 INTERNATIONAL, CALL Carechem 24: +65 3158 1074
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Active Components (NZ) Ltd (Distributor) 2/14 Canaveral Drive Rosedale (0632), Auckland New Zealand	Tel: +64 9 443 9500	National Poisons Centre Free Phone: 0800 764 766 (0800 POISON) INTERNATIONAL, CALL Carechem 24: +65 3158 1074

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Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
ACUTE TOXICITY (oral) - Category 5
ACUTE TOXICITY (dermal) - 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 (central nervous system (CNS), optic nerve) - Category 1
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 or in contact with skin.
Causes serious eye irritation.
Causes skin irritation.
May damage the unborn child.
Causes damage to organs. (central nervous system (CNS), optic nerve)
May cause drowsiness or 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 protective clothing. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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 concerned: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep 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. IF ON SKIN: Call a POISON CENTER or physician if you feel unwell. 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.

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 3. Composition/information on ingredients

Substance/mixture : Mixture

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

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 or dizziness.

Skin contact : May be harmful in contact with skin. Causes skin irritation. Defatting to the skin.

Ingestion : May be harmful if swallowed. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

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Section 4. First aid measures

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. Runoff to sewer may create fire or explosion hazard. 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. 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 specialized 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 reuse container.

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Section 7. Handling and storage

Advice on general occupational hygiene : 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 : Storage temperature: 5 to 30°C (41 to 86°F). 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ethanol	**ACGIH TLV (United States, 3/2017). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.** STEL: 1000 ppm 15 minutes.
Isopropyl alcohol	**ACGIH TLV (United States, 3/2017). Notes: Refers to Appendix A -- Carcinogens. ACGIH 2003 Adoption** STEL: 400 ppm 15 minutes. TWA: 200 ppm 8 hours.
Alcohol Acetate.	**ACGIH TLV (United States, 3/2017).** STEL: 150 ppm 15 minutes. TWA: 50 ppm 8 hours.
methanol	**ACGIH TLV (United States, 3/2017). Absorbed through skin. Notes: Substances for which there is a Biological Exposure Index or Indices** STEL: 328 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
Carboxylic acid	**ACGIH TLV (United States, 3/2017).** TWA: 5 mg/m³ 8 hours.

Ingredient name	Exposure limits
ethanol	**TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 6/2014).** STEL: 1880 mg/m³ 15 minutes. STEL: 1000 ppm 15 minutes. TWA: 1880 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.
Isopropyl alcohol	**TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 6/2014).** STEL: 1228.75 mg/m³ 15 minutes. STEL: 500 ppm 15 minutes. TWA: 983 mg/m³ 8 hours.

Continued on next page

Section 8. Exposure controls/personal protection

	TWA: 400 ppm 8 hours.
Alcohol Acetate.	**TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (Taiwan, 6/2014).** STEL: 890 mg/m³ 15 minutes. STEL: 187.5 ppm 15 minutes. TWA: 712 mg/m³ 8 hours. TWA: 150 ppm 8 hours.
methanol	**TW Minstry of Labor, labor permissible workplace exposure standards, allowable concentration (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/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m³ 8 hours. TWA: 200 ppm 8 hours.
Carboxylic acid	**ACGIH TLV (United States, 3/2017).** TWA: 5 mg/m³ 8 hours.

Ingredient name	Exposure limits
ethanol	**ACGIH TLV (United States, 3/2017). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.** STEL: 1000 ppm 15 minutes.
Isopropyl alcohol	**GBZ 2.1 (China, 4/2007).** PC-STEL: 700 mg/m³ 15 minutes. PC-TWA: 350 mg/m³ 8 hours.
Alcohol Acetate.	**GBZ 2.1 (China, 4/2007).** PC-STEL: 300 mg/m³ 15 minutes. PC-TWA: 200 mg/m³ 8 hours.
methanol	**GBZ 2.1 (China, 4/2007). Absorbed through skin.** PC-STEL: 50 mg/m³ 15 minutes. PC-TWA: 25 mg/m³ 8 hours.
Carboxylic acid	**ACGIH TLV (United States, 3/2017).** TWA: 5 mg/m³ 8 hours.
4-methylpentan-2-one	**ACGIH TLV (United States, 3/2017). Notes: Substances for which there is a Biological Exposure Index or Indices** STEL: 75 ppm 15 minutes. TWA: 20 ppm 8 hours.

Ingredient name	Exposure limits
ethanol	**Ministry of Employment and Labor (Republic of Korea, 8/2016).** TWA: 1000 ppm 8 hours.
Isopropyl alcohol	**Ministry of Employment and Labor (Republic of Korea, 8/2016).** STEL: 400 ppm 15 minutes. TWA: 200 ppm 8 hours.
Alcohol Acetate.	**Ministry of Employment and Labor (Republic of Korea, 8/2016).** STEL: 200 ppm 15 minutes. TWA: 150 ppm 8 hours.
methanol	**Ministry of Employment and Labor (Republic of Korea, 8/2016). Absorbed through skin.**

Continued on next page

Section 8. Exposure controls/personal protection

	STEL: 250 ppm 15 minutes. TWA: 200 ppm 8 hours.
Carboxylic acid	**ACGIH TLV (United States, 3/2017).** TWA: 5 mg/m³ 8 hours.
4-methylpentan-2-one	**Ministry of Employment and Labor (Republic of Korea, 8/2016).** STEL: 75 ppm 15 minutes. TWA: 50 ppm 8 hours.

Ingredient name	Exposure limits
ethanol	**DOSH USECHH (Malaysia, 4/2000).** TWA: 1880 mg/m³ 8 hours. TWA: 1000 bpj 8 hours.
Isopropyl alcohol	**DOSH USECHH (Malaysia, 4/2000).** TWA: 983 mg/m³ 8 hours. TWA: 400 bpj 8 hours.
Alcohol Acetate.	**DOSH USECHH (Malaysia, 4/2000).** TWA: 713 mg/m³ 8 hours. TWA: 150 bpj 8 hours.
methanol	**DOSH USECHH (Malaysia, 4/2000).** **Absorbed through skin.** TWA: 262 mg/m³ 8 hours. TWA: 200 bpj 8 hours.
Carboxylic acid	**DOSH USECHH (Malaysia, 4/2000).** TWA: 5 mg/m³ 8 hours.

Ingredient name	Exposure limits
ethanol	**Workplace Safety and Health Act (Singapore, 2/2006).** PEL (long term): 1880 mg/m³ 8 hours. PEL (long term): 1000 ppm 8 hours.
Isopropyl alcohol	**Workplace Safety and Health Act (Singapore, 2/2006).** PEL (short term): 1230 mg/m³ 15 minutes. PEL (short term): 500 ppm 15 minutes. PEL (long term): 983 mg/m³ 8 hours. PEL (long term): 400 ppm 8 hours.
Alcohol Acetate.	**Workplace Safety and Health Act (Singapore, 2/2006).** PEL (short term): 950 mg/m³ 15 minutes. PEL (short term): 200 ppm 15 minutes. PEL (long term): 713 mg/m³ 8 hours. PEL (long term): 150 ppm 8 hours.
methanol	**Workplace Safety and Health Act (Singapore, 2/2006).** PEL (short term): 328 mg/m³ 15 minutes. PEL (short term): 250 ppm 15 minutes. PEL (long term): 262 mg/m³ 8 hours. PEL (long term): 200 ppm 8 hours.
Carboxylic acid	**Workplace Safety and Health Act (Singapore, 2/2006).** PEL (long term): 5 mg/m³ 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.

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Section 8. Exposure controls/personal protection

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.

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 : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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]

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Section 9. Physical and chemical properties

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/m³	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	-
Alcohol Acetate.	LC50 Inhalation Gas.	Rat	390 ppm	4 hours
	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	1 hours
	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	-
Carboxylic 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

Continued on next page

Section 11. Toxicological information

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 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
Alcohol Acetate.	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
Carboxylic acid	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	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	-
Methanol	-	-	Positive	Mouse - Female	Oral: 4 g/kg	-
	Negative	-	Positive	Rat - Female	Oral: 5200 µg/	-

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Section 11. Toxicological information

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Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
methanol	Positive - Oral	Rat	1027 mg/kg	-

Specific target organ toxicity

Name	Category	Route of exposure	Target organs
Isopropyl alcohol Alcohol Acetate. 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

Not available.

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 or dizziness.

Skin contact : May be harmful in contact with skin. 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

Continued on next page

Section 11. Toxicological information

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

Short term exposure

Potential immediate effects : Not available.

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	4173.1 mg/kg
Inhalation (gases)	3990.3 ppm
Inhalation (vapors)	75.82 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 100 ul/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Isopropyl alcohol	Acute EC50 10100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
Alcohol Acetate.	Acute LC50 32 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 18000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
methanol	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 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours

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Section 12. Ecological information

Carboxylic acid	Acute LC50 290 mg/l Fresh water Chronic NOEC 9.96 mg/l Marine water Acute LC50 97000 µg/l Fresh water	Fish - Danio rerio - Egg Algae - Ulva pertusa Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 96 hours 96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
ethanol	-0.35	-	low
Isopropyl alcohol	0.05	-	low
Alcohol Acetate.	2.3	-	low
methanol	-0.77	<10	low
Carboxylic 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

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Section 14. Transport information

Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.
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.

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 for which manufacturing or handling is defined as "work specially hazardous to health" : This product contains substances "Specially hazardous to health": Isopropyl alcohol, Alcohol Acetate., methanol, 4-methylpentan-2-one.

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, Alcohol Acetate., methanol.

OSHA Article 29 : None of the components are listed.

OSHA Article 30 : None of the components are listed.

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.

List of Goods banned for Importing

None of the components are listed.

Inventory of Hazardous Chemicals

Ingredient name	CAS number	Status
Ethanol	64-17-5	Listed
2-Propanol	67-63-0	Listed
Methanol	67-56-1	Listed
Alcohol Acetate.	123-86-4	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.

Inventory of Highly Toxic Chemicals

None of the components are listed.

Catalogue of Hazardous Chemicals of Priority Management

Methanol; Wood alcohol Listed

Catalogue of Priority Hazardous Chemicals for Environmental Management

None of the components are listed.

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Section 15. Regulatory information

Other China Regulations

Catalogue of Hazardous Chemicals (2015)
Classification & code of dangerous goods (GB 6944-2012)
Production Safety Law of the People's Republic of China
Law of the People's Republic of China on Prevention and Control of Occupational Diseases
Environmental Protection Law of the People's Republic of China
Regulation on Work Safety Licenses
Classification of transportation packing type of dangerous goods GB/T 15098-2008
General rules for classification and hazardous communication of chemicals GB 13690-2009
List of Dangerous Goods GB12268-2012
Occupational Exposure Limits (OELs) for hazardous chemicals GBZ 2.1-2007
Hazardous Chemicals Safety Management Ordinance China (2013 revised)
Safety data sheet for chemical products: content & order of sections GB/T 16483-2008
Rules for classification and labelling of chemicals GB30000-2013
Guidance on the compilation of safety data sheet for chemical products GB/T 17519-2013

Republic of Korea

A. Regulation according to ISHA

ISHA article 37 (Harmful substances prohibited from manufacture) : None of the components are listed.

ISHA article 38 (Harmful substances requiring permission) : 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
Alcohol Acetate.
Methyl alcohol
Carboxylic acid
4-methylpentan-2-one

ISHA Enforcement Regs Annex 11-3 (Exposure standards established for harmful factors) : None of the components are listed.

ISHA Enforcement Regs Annex 11-4 (Harmful factors subject to Work Environment Measurement) : The following components are listed: Isopropyl alcohol; Methyl alcohol; Alcohol Acetate.

ISHA Enforcement Regs Annex 12-2 (Harmful Factors Subject to Special Health Check-up) : The following components are listed: Isopropyl alcohol; Methyl alcohol

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control) : The following components are listed: Isopropyl alcohol; Methyl alcohol; Alcohol Acetate.

B. Regulation according to Chemicals Control Act

Continued on next page

Section 15. Regulatory information

K-Reach Article 20 (Toxic chemicals) : Not applicable

K-Reach Article 27 (Prohibited) : None of the components are listed.

K-Reach Article 27 (Restricted) : None of the components are listed.

Existing Chemical Substances Subject to Registration : The following components are listed: Methanol; Methyl alcohol

CSCA Article 11 (TRI) : The following components are listed: 2-Propanol; Methyl alcohol

CSCA Article 39 (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 - hazardous chemicals under government control

None.

Japan

Fire Service Law

Category	Substance name/Type	Danger category	Signal word	Designated quantity
Category IV	Class I petroleums	II	Flammable - Keep Fire Away	200 L

Fire Service Law - Obstructive materials : Not listed

Designated combustibles : Not available. **Designated quantity** : Not available.

Maritime Safety Law

Notification Regulating Transportation of Dangerous Materials by Sea

None of the components are listed.

Container class

None of the components are listed.

ISHL

Use of specified chemical substances

None of the components are listed.

Label requirements

Ingredient name	%	Status
Ethanol	≥50 - ≤75	Listed
Propyl alcohol	≥25 - ≤50	Listed
Methanol	≤3.0	Listed
Alcohol Acetate.	≤10	Listed
Carboxylic acid	≤3.0	Listed

Chemicals requiring notification

Continued on next page

Section 15. Regulatory information

Ingredient name	%	Status
Ethanol	≥50 - ≤75	Listed
Propyl alcohol	≥25 - ≤50	Listed
Methanol	≤3.0	Listed
Methyl isobutyl ketone	<1.0	Listed
Alcohol Acetate.	≤10	Listed
Carboxylic acid	≤3.0	Listed

Carcinogen

None of the components are listed.

Mutagen

None of the components are listed.

Corrosive liquid : Not listed

ISHL Appendix 1 : Flammable liquid Class 3

Lead regulation : Not listed

Prevention of Tetraalkyl Lead Poisoning : Not listed

Harmful Substances Subject to Obtaining Permission for Manufacturing : Not listed

Harmful Substances, Prohibited for Manufacturing : Not listed

Dangerous Substances : Inflammable

Organic solvents poisoning prevention : Class 2

Chemical Substances Control Law (CSCL)

Ingredient name	%	Status	
Isopropyl alcohol; 2-Propanol	20-30	Priority assessment	
Methanol	1-10	Priority assessment	

Poisonous and Deleterious Substances

None of the components are listed.

Pollutant Release and Transfer Registers (PRTR)

None of the components are listed.

JSOH Carcinogen : Group 2B

Law Concerning Prevention of Pollution of the Ocean and Maritime Disaster : Not available.

Road law : Not available.

List of Specially Controlled Industrial Waste : Not listed

Occupational Safety and Health Law : Flammable liquid Class 3

Explosives Control Law

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Section 15. Regulatory information

None of the components are listed.

High Pressure Gas Control Law : Not available.

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

International lists

National inventory

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: All components are listed or exempted.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

History

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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 = 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

Continued on next page

Section 16. Other information

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Acute Tox. 5, H303	Calculation method
Acute Tox. 5, H313	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 1, H370 (central nervous system (CNS), optic nerve)	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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