

Effective Date: January 2022
REF NO.:AK22/0070/ETHANOL 99% (WITH 5% METHANOL)

ETHANOL 99%

1. Chemical Product and Company Identification

Product Identification:

ETHANOL 99% (WITH 5% METHANOL)

Chemicals Name:

ETHANOL 99% (WITH 5% METHANOL)

Other Trade Name:

ABSOLUTE ALCOHOL, ABSOLUTE ETHANOL, DENATURED ABSOLUTE ALCOHOL 100 (DAA 100), DENATURED ALCOHOL 99%, ETHANOL 99%, ETHANOL 99% (WITH 5% METHANOL), ETHANOL 99.86%, ETHANOL DRAA, ETHYL ALCOHOL, ETHYL ALCOHOL 99.86%, GLASS CLEANER 99%(BP), RC 3052, rc 802239

Manufacturer/Supplier:

Aik Moh Paints & Chemicals Pte Ltd
20 TUAS STREET, SINGAPORE 638457
Tel : 6863 1993 Fax : 6863 8033
Website : www.aikmoh.com.sg

2. Hazards Identification

GHS Classification

Flammable Liquids	Category 2
Eyes Irritation	Category 2
Acute Aquatic Toxicity	Category 3

GHS Label Elements



Signal words: Danger

Physical hazards:

Hazard classification:
H225 - Highly flammable liquid and vapour

Health hazards:

Hazard classification:
H319 - Causes serious eye irritation

Environmental hazards:

Hazard classification:
H402 - Harmful to aquatic life

Precautionary Statement(s):

Prevention

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P243 - Take precautionary measures against static discharge.

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P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P370 + P378 - In case of fire: Use suitable extinguishing media for extinction. (Refer to MSDS Section 5)

Storage

P403 + P235 - Store in a well-ventilated place. Keep cool.

Disposal

P501 - Dispose of contents/container to an approved waste disposal plant.

3. Composition Information on Ingredients

Chemical Name	CAS No.	Index No.	EC No.	Contents (%W/W)	Hazard Statements
Ethanol 99%	64-17-5	603-002-00-5	200-578-6	95.00	H225 H319
Methanol	67-56-1	603-001-00-X	200-659-6	5.00	H225 H301 H331 H311 H370 H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First-Aid Measures

Description of first aid measures

General advice

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Ingestion

Rinse mouth with water. Give plenty of water to drink. DO NOT induce vomiting. Seek medical attention immediately.

Eye Contact

Flush eyes thoroughly with water for several minutes. Remove contact lenses, if present and easy to do so, and continue rinsing. Seek medical advice immediately.

Skin Contact

Wash contaminated skin with plenty of water. Remove contaminated clothing and wash before re-use. If irritation occurs, seek medical advice.

Inhalation

Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice.

Note to Physician

Treat symptomatically.

5. Fire Fighting Measures

Specific Hazards

Highly flammable liquid.

Severe fire hazard when exposed to oxidisers. May form flammable vapour mixtures with air. Avoid all ignition sources. Can be considered a severe explosive hazard when exposed heat, flame and/or oxidisers. Intrinsically safe equipment necessary in area where chemical is being used. Nearby equipment must be earthed. Vapour may travel considerable distance to source of ignition and flash back. On combustion, may emit toxic fumes of carbon monoxide (CO).

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Suitable Extinguishing Media

Water fog (or if unavailable, fine water spray), Foam, Dry agent (Carbon Dioxide), Sand, Dolomite. DO NOT extinguish fire unless flow can be stopped first.

Fire Fighting Advice

Keep upwind. Consider evacuation. Shut off all possible sources of ignition. If safe to do so, remove containers from path of fire. Keep containers cool with water spray. Heating can cause expansion or decomposition leading to a violent rupture of containers. On burning will emit toxic fumes including those of carbon monoxide and carbon dioxide. Fire fighters to wear self-contained breathing apparatus, if risk of exposure to vapour or products of combustion is present.

Special Protective Equipment for Fire-fighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. Eliminate all sources of ignition in vicinity of spill or released vapour to avoid fire explosion. Vapour explosion hazard. Keep out of sewers. or large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before re-entering area. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Spill Clean-up methods

Shut off all possible sources of ignition. Clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contamination and inhalation of vapours. DO NOT allow chemical to enter confined spaces such as sewers due to explosion risk.

Minor Spills (230 liters or less)

Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Absorb small quantities with paper towels and evaporate in safe place (fume hood). Use absorbent (soil, sand or other inert material). Collect and seal in properly labeled containers for disposal. Wash area down with excess water.

Major Spills (230 liters or more)

Clear area of personnel and move upwind. Alert Fire Brigade; explain location and nature of hazard. May be violently or explosively reactive. Wear breathing apparatus and protective clothing. Prevent spillage from entering drains or watercourse. Consider evacuation. No smoking, naked lights or ignition sources. Increase ventilation. Stop leaks if safe to do so. Water spray or fog may be used to disperse/absorb vapour. Contain spill with sand, earth or vermiculite. Use only spark-free shovels and explosion proof equipment to collect recoverable product into labeled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labeled drums for disposal. Wash area and prevent runoff into drains. If contamination of sewers, waterways or surrounding environment has occurred, notify local emergency services, local authorities and the Regional Council.

7. Handling and Storage

Handling

Keep away from sources of ignition. Avoid spilling on skin and eye. Ventilate well. Avoid breathing vapours. Use approved respirator if air contamination is above the acceptable level. It is advisable not to use contact lenses unless using tight tilting goggles or full face respirator is worn. Wear protective clothing when risk of exposure occurs. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Vapour may ignite on pumping or pouring due to static electricity. Earth and secure metal containers when dispensing or pouring product. Use spark-free tools when handling.

Storage

Store in well-ventilated area and away from sources of ignition and heat. Store in cool, dry place and out of direct sunlight. Store away from oxidizing agents, such as alkali metals, acids, acid chlorides, ammonia and potassium tert-butoxide. In case of flexible tubing usage, check with manufacturer to find product compatibility. Aluminium is not a suitable container for storage. Ground the container and transfer equipment to eliminate static electric sparks. Keep containers closed at all times – check regularly for leaks.

8. Exposure Controls/Personal Protection

Exposure Standards

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Threshold Limit Value - Time Weighted Average (TLV-TWA): 1000ppm (1880 mg/m³) (As published by New Zealand Occupational Safety and Health Service - OSH) Odour Threshold: 350ppm

Engineering Controls

Ensure ventilation is adequate to maintain air concentrations below exposure standards. Use with local exhaust ventilation or while wearing organic vapour respirator. Vapour heavier than air. Prevent concentrations in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use. Earth all containers to reduce the possibility of sparks from static electricity. Flame-proof equipment to be used with this product. (Refer SAA HB 13/NEETC 1992 Electrical for Hazardous Areas).

Personal Protection

Wear appropriate clothing to prevent repeated or prolonged skin contact. Gloves made of butyl rubber, Nitrile + PVC or PVC. Where eye exposure is reasonably probable, always wear approved chemical safety goggles or safety glasses with side shields. It would be advisable not to use contact lenses when working with this chemical as soft lenses may absorb irritants, and all lenses will concentrate vapours on the surface of the eye. If inhalation risk exists, wear organic vapour respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

9. Physical and Chemical Properties

Appearance	: Clear colourless liquid
Odour	: Characteristic odour
Solubility	: Miscible with water, methanol, ether, chloroform and acetone
Specific Gravity	: 0.7904 @ 20°C
Boiling Point	: 78.32 °C
Freezing Point	: -114.1°C
Melting Point	: -112.3°C
Vapour Pressure	: 5.9 kPa @ 20°C
Vapour Density	: 1.59 (air=1)
Coefficient of Cubic Expansion	: 0.0011 per °C
Relative Vapour Density	: 1.59
Decomposition Point	: Not available
Viscosity	: 1.08 cP @ 25°C or 1.2 mPa.s @ 20°C
Flash Point	: 13 °C <i>closed cup</i>
Electrostatic Generation	: None
Auto-ignition Temperature	: 363 °C approx.
% Volatile by volume	: 100
Flammable Limits	
Lowest Flammable Level (LFL)	: 3.3 % v/v
Upper Flammable Level (UFL)	: 19.0 % v/v
pH	: Neutral
Evaporation Rate	: 2.4 (n-Butyl acetate=1)
Explosion Hazard	: Moderate/severe in a confined space in the presence of a source of ignition
Formula	: C ₂ H ₅ OH

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Molecular Weight	: 46.07
Chemical Family	: Alcohol (primary aliphatic)
Other	: Is hygroscopic. A stable compound
Oxidizing Agents	: It can react vigorously with these
Acids	: Concentrated nitric acid – violent reaction Sulphuric acids – the mixture may become warm Other acids – no dangerous reaction
Alkalis	: No dangerous reaction
Salt or Fresh water	: No dangerous reaction
Exposure Standards (TLV-TWA)	: 1000 ppm (1880 mg/m ³)
Engineering controls	: All must be intrinsically safe

10. Stability and Reactivity

Stability

Hygroscopic

Incompatible Materials

Ethanol is incompatible with oxidizing agents, alkali metals, acids, acid chlorides, ammonia and potassium tert- butoxide.

Conditions to Avoid

Aluminium containers should be avoided as aluminium alcoholates may be formed under certain conditions.

Hazardous Polymerization

Hazardous polymerization will not occur.

11. Toxicological Information

General

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label.

Acute Effects

Ingestion

Swallowing can result in nausea, vomiting, dizziness, fatigue, headache and central nervous system depression. If the victim is uncoordinated, there is a greater likelihood of vomit entering the lungs and causing subsequent complications.

Eye Contact

Is an eye irritant.

HSNO classification, 6.4A – Eye irritant

Skin Contact

Contact with skin will result on mild irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis.

Inhalation

Vapour may be irritating to mucous membranes and respiratory tract. Inhalation of vapour can result in headaches, dizziness, fatigue and possible nausea. Inhalation of high concentrations can produce central nervous system depression, which can contribute to loss of co-ordination, impaired judgment and/or prolonged unconsciousness.

Long Term Effects

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Evidence from animal tests and studies on exposed humans indicate that repeated or prolonged exposure to this chemical by inhalation or ingestion could result in liver damage.

Acute Toxicity/Chronic Toxicity

Oral LD50 (rat): 7060 mg/kg
Inhalation LC50 (rat): 20,000 ppm/10hr
Estimated fatal dose (human): 300-400 ml of Pure Ethanol
Eyes (rabbit): Mild to severe irritant
Skin (rabbit): Mild irritant

A study of the effects of ethanol inhalation in humans found that between 5,000 - 10,000 ppm, subjects experience coughing and smarting of the eyes and nose with the symptoms disappearing within endnotes. People exposed at 15,000 ppm experienced continuous lacrimation and coughing. Irritation of the eyes and respiratory tract were not noted at concentrations below 5,000 ppm. There is no clear evidence that ethanol is carcinogenic to laboratory animals; it is however a tumor promoter. Ethanol is typically inactive in genotoxic assays, but on some occasions, a week response has been noted. Oral exposure to ethanol produces malformations and development toxicity in rats and mice at maternally toxic doses.

No developmental effects were observed in rats from inhalation at doses up to 20,000 ppm.

12. Ecological Information

Environmental Effects

Ethanol has a low potential for bioaccumulation and is substantially biodegradable in water.
LC50 (rainbow trout, 24hr, flow through): 11, 200 mg/L
n-Octanol/water partition coefficient: -0.3
HSNO Classification, 9.1D - Harmful to aquatic life
Avoid contamination of waterways

13. Disposal Considerations

Can be disposed of in a sewage treatment facility provided it is first diluted with sufficient water to bring the mixture below the flammable threshold (less than 3% ethanol by volume), i.e. to raise the flash point to above 93°C. This requirement is included to ensure that flammable substances do not collect in pockets of sewage collection system with resultant fires or vapour explosions. Large volumes may be suitable for re-distillation by solvent contractors.

Container Disposal

Empty containers may contain hazardous residues. Labels should not be removed from containers until they have been appropriately cleaned. Do not cut, puncture or weld near to the containers. Containers should be cleaned by approved methods before re-use or disposed of by landfill. After cleaning, existing labels should be removed. Do not incinerate closed containers.

14. Transport Information

Road and Rail

UN No. : UN1170

Dangerous Goods Class : 3 Flammable Liquid

Hazchem Code : 2[Y]E

Packing Group : II

Proper Shipping Name : Ethanol or Ethyl Alcohol

Segregation : Not to be loaded with explosives (Class 1), flammable gases (Class 2.1). If both are in bulk, toxic gases (Class 2.3), spontaneously combustible substances (Class 4.2), oxidizing agents (Class 5.1), organic peroxides (Class 5.2) or radioactive substances (Class 7), however exemptions may apply. Ethanol is classified as dangerous goods and must comply with the Land Transport Rule: Dangerous Goods 2005, and NZS 5433: Transport of Dangerous Goods on land.

Marine

Classified as Dangerous Goods by International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Packing Group : II

Proper Shipping Name : Ethanol or Ethyl Alcohol

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Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

UN No. : UN1170

Class : 3 Flammable Liquid

Packing Group : II

Proper Shipping Name : Ethanol or Ethyl Alcohol

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

ERMA Registration Number : HSR: 001144

HSNO Classifications :

3.1B (Highly Flammable Liquid)

6.4A (Eye Irritant)

9.1D (Harmful to Aquatic Life)

HSNO Controls :

Trigger quantities for this substance by itself in a place

1) Approved Handler Test Certificate:

250 Liters (when in containers >5L)

500 Liters (when in containers ≤ 5L)

2) Hazardous Substance Location: 50 Liters

3) Location Test Certificate:

50 Liters (open container)

100 Liters (closed container >5L)

250 Liters (closed container <5L)

4) Notify a Transport Depot: Not required for a place

5) Hazardous atmosphere zone:

1 Liter (open continuously)

5 Liters (open occasionally)

25 Liters (decanting)

100 Liters (closed containers)

6) Signage: 250 Liters

7) Emergency Plan: 1000 Liters

8) Tracking: Not applicable

HSNO Approved Codes of Practice

1) Signage for premises storing hazardous substances and dangerous goods (NZCIC)

2) Refer to Anchor Ethanol for current information on new HSNO approved codes

All regulatory requirements relevant to the mode of transport are covered in Section 14.

16. Other Information

Legend

N/A : Not available

W/W : Weight/Weight

OEL : Occupational Exposure Limit

STEL : Short Term Exposure Limit

TWA : Time Weighted Average

ACGIH : American Conference of Governmental Industrial Hygienists, Inc.

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WEEL : Workplace Environmental Exposure Level
HAZ_DES : Hazard Designation

Disclaimer

This information is based on our current knowledge and is intended to describe the product for the only. It should not therefore be construed as guaranteeing any specific property of the product.

