Number: 024

Section 1. Product and Company Identification

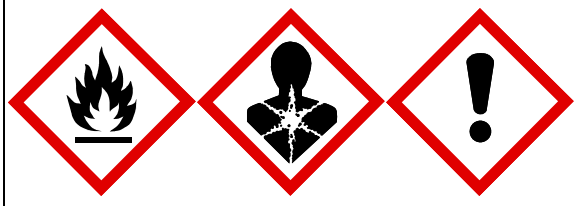
Product name: Methyl alcohol
Synonyms: -
Recommended use and Restrictions on use: Production of formaldehyde and dimethyl terephthalate; chemical synthesis (methyl amine, chloromethane, methyl α -methacrylate, motor vehicle fuel); antifreezing agents; solvents of cellulose nitrates, ethyl cellulose, polyvinyl butyl, resin, lac resin, Manila resin, dyeing; denatured alcohol; water removal agents of natural gas; communal facility factory fuel (methyl fuel); raw materials of continuous fermented synthesic protein; hydrogen sources of fuel cells; family hot-oil spreading agents.
Manufacturer, Importer, or Supplier: Shiny Chemical Industrial Co., Ltd. Address: No.5, Yeong Gong 1st Rd, Yeong An Dist., Kaohsiung 82841, Taiwan, R.O.C. Telephone: +886-7-8619171 ext. 711~714
Emergency telephone number: +886-7-8619171 ext. 711~714 Fax: +886-7-6222620

Section 2. Hazards Identification

Classification:

1. Flammable liquids, Category 2
2. Serious eye damage/eye irritation, Category 2A
3. Toxic to reproduction, Category 2
4. Specific target organ toxicity - repeated exposure, Category 1
5. Specific target organ toxicity substances - single exposure, Category 1

Label elements:



Hazard pictograms: Flame, Health hazard, Exclamation mark

Signal word: Danger

Hazard Statements:

1. Highly flammable liquid and vapour.
2. Causes serious eye irritation.
3. Suspected of damaging fertility or the unborn child.
4. Causes damage to organs through prolonged or repeated exposure.
5. Causes damage to organs.

Precautionary statements:
1. Keep containers in a well-ventilated place.
2. Keep away from sources of ignition - No Smoking.
3. Avoid long-term exposure.
4. Wear appropriate protective clothing.

Other Hazards: -

Section 3. Composition/Information on Ingredients

Pure substance

Chemical Name: Methyl alcohol

Synonyms: Methanol. Wood alcohol, Carbinol, Methylol, Methyl alcohol, Methyl hydrate, Methyl hydroxide, Monohydroxymethane, Wood spirit

CAS NO. : 67-56-1

Weight: 100%

Section 4. First Aid Procedures

Description of first aid measures:

• Inhalation:
1. Remove to fresh air.
2. If breathing stops, have trained personnel administer artificial respiration. Administer cardiopulmonary resuscitation (CPR) immediately if the heart has stopped.
3. Get medical attention immediately.

• Skin contact:
1. Wash with warm water for at least 20 minutes.
2. Remove contaminated clothing, shoes, and leather (watchstraps and belts) when washing.
3. Clean contaminated clothing, shoes, and leather thoroughly before reuse or abandon.

• Eye contact:
1. Immediately lift eyelids, flushing eyes with plenty of warm water for at least 20 minutes.
2. Get medical attention immediately.

• Ingestion:
1. Never give anything by mouth to an unconscious person.
2. Induce vomiting.
3. Have victim drink 2 teaspoons of soda into a cup of water.
4. If vomiting occurs, lean victim forward to reduce the risk of ingesting vomits.
5. Repeat administering water.

6. Get medical attention immediately.
The most Important Symptoms and Hazardous Effects: Alcoholism-like, blindness, death.
Protection for emergency personnel: Use appropriate personal protective equipment such as class C clothing to take first aid in a safety area.
Notes to Physicians: Symptoms may delay. Ethanol may inhibit the metabolism of methanol.

Section 5. Firefighting Measures

Suitable extinguishing media: Chemical dry, carbon dioxide, water mist, foam.
Special hazards during firefighting: The ignition of methanol has invisible flames in daytime.
Firefighting procedures: 1. Don't extinguish fire unless the leak can be stopped. 2. Spray water mist to disperse vapors and dilute leaks into the incombustible. 3. Use plenty of water mist to extinguish fire. Spouts are invalid. 4. Cool containers with plenty of water mist until fire stops.
Protective equipment for firefighters: Extinguishing staffs should wear coverall-type chemical protective clothing, and respirators (wear flash-resistant aluminum coats if necessary).

Section 6. Accidental Release Measures

Personal precautions: Restrain personnel from close to spilled areas.
Environmental precautions: 1. Supply adequate protective apparatus and ventilation equipments. 2. Remove heat sources and flames.
Methods for cleaning up: 1. Do not touch spilled materials. 2. Try to stop or reduce leaks under safety permission. 3. Avoid leaks to flush to sewer or confined space. 4. Use sand, soil, and inert absorbing agents to block leaks. 5. Recycle liquids and place in appropriate marked containers. 6. Absorb residual leaks by inert absorbing agents and place in containers with lids. 7. Spray water on spilled areas. 8. Contaminated absorbing agents have same risk as leaks.

Section 7. Handling and Storage

Handling: 1. Place in an assigned and well-ventilated area with minimum storage. 2. Away from the heat sources or naked lights.

3. Use spark resistant containers.
4. Have containers with earth connection when moving or mixing.
5. Avoid producing mist droplets when operating.
6. Wear appropriate eye and skin protective equipments against spray.

Storage:

1. Keep containers cool, dry, place and away from general workplaces and incompatible substances.
2. Independent exhaust ventilation without heat sources, naked light, and sparks.
3. Store it in the qualified safe container.
4. Cover containers when not used. Place in fire-resistant cabinets with earth connection.
5. A containment dike of storage and work area should be made up of solvent-resistant compounds.

Section 8. Exposure controls

Engineering controls:

1. Use spark-resistant and earth-connection ventilation systems separately.
2. Direct outside exhaust vents.
3. Supply adequate fresh air to replenish the exhausted air.
4. Local exhaust devices or general ventilation system.

Control parameters			
TWA	STEL	CEILING	BEIs
200 ppm (skin)	250 ppm (skin)	-	Urinary methyl alcohol 15 mg/L (B, Ns)

Personal protective equipment:

• Respiratory protection:

1. < 2,000 ppm: Air-feed or portable type respiratory protective equipments.
2. < 5,000 ppm: Stable flow, air-feed type respiratory protective equipments
3. < 10,000 ppm: Full and air-feed type, full-type portable or sealing full-mask, respiratory protective equipments.
4. < 25,000 ppm: Positive press, full and air-feed type respiratory protective equipments.

• Hand protection: Protective gloves of chloroprene rubber, butyl rubber, natural rubber, polythene, chlorinated polyethylene, fluoroelastomer (FKM), styrene-butadiene, polyvinyl chloride, and polyurethane rubber.

• Eye protection: Chemical safety splash proof and full-type goggles.

• Skin and physical protection: Above rubber coveralls, work boots.

Hygiene measures:

1. Remove contaminated clothing quickly as possible after work. Clean clothing

before reuse or abandon. Tell cleaning staffs the harmfulness. 2. Forbid smoking or eating in workplace. 3. After handling this material, wash hands thoroughly. 4. Keep workplace clean.

Section 9. Physical and Chemical Properties

Appearance: Colorless liquids	Odor: Light alcohol
Odor threshold: 1. 4.2 ~ 5,960 ppm (monitor) 2. 53 ~ 8,940 ppm (censor)	Melting point: -97.8℃
pH: -	Boiling point/Boiling range: <64.7℃
Flammability (solid, gas): -	Flash point: 12℃ Test method: close cup
Decomposition temperature: -	
Auto-ignition temperature: 385℃	Explosion limits: 6.0% ~ 36.5%
Vapor pressure: 96.61 mmHg (20℃)	Vapor density: 1.1 (air=1)
Density: 0.79 (water=1)	Solubility: Soluble in water
Partition coefficient (n-octanol/water, log K_{ow}): -0.82 ~ -0.66	Volatility rate: 4.1 (N-butyl acetate=1)

Section 10. Stability and Reactivity

Chemical stability: Stable under ordinary conditions.
Possibility of hazardous reactions: 1. Alkali 2. Acids 3. Aldehydes 4. Acid chloride
Conditions to avoid: Heat, flames, and ignition sources.
Materials to avoid: Strong oxidizing agents, alkali, acids, aldehydes, acid chloride.
Hazardous decomposition products: Carbon dioxide, carbon monoxide (combustion).

Section 11. Toxicological Information

Exposure Route: Skin, inhalation, ingestion, eyes.
Symptoms: Cough headaches, dizziness, faintness, tiredness, lightheadedness, nausea, vomiting, drunkenness, blurred vision, unconsciousness, blindness, euphoria, babble, short breath, severe upper abdominal pain, dermatitis, and erythema.
Acute toxicity: • Inhalation: 1. It may cause to cough, headaches, dizziness, faintness, tiredness,

lightheadedness, nausea, vomiting, drunkenness, and blurred vision.
2. Unconsciousness, blindness, and death follow massive exposure to methanol.
• Skin: This material can be absorbed in toxic amounts through the skin.
• Eyes:
1. Vapors can irritate eyes.
2. Cornea damage of surface tissue from contact with liquids is reversible.
• Ingestion:
1. The initial symptoms are similar to like alcoholism (euphoria, loss of judgment, babble, and attacks).
2. May be followed by short breath, severe upper abdominal pain, blurred vision, and permanent blindness.
3. Sever as long-term coma and death.
4. Symptoms appear after 1 ~ 30 days of delay (generally 12 ~ 18 hours).
• LD_{50} (animal test, entry): 5,628 mg/kg (rat, swallow)
• LC_{50} (animal test, entry): 64,000 ppm/4 hour(s) (rat, inhalation)
• 20 mg/24 hour(s) (rabbit, skin): cause middle irritation.

Chronic / Long-term toxicity:
1. It may cause dermatitis, erythema, and skin peeling.
2. Long term exposure to 1,200 ~ 8,300 ppm may damage vision, sometimes blindness.
3. It may damage kidney, heart, and other organs.
4. The dose of 60~250 mL can be lethal.
5. 7,500 mg/Kg (pregnant rats 17 ~ 19 days, swallow) may cause newborn toxicity.

Section 12. Ecological Information

Ecological toxicity:
1. LC_{50} (fish): 11 ~ 15 mg/L/96 hour(s)
2. EC_{50} (aquatic invertebrates): -
3. Bioconcentration factor (BCF): 0. 2 ~10

Persistence and degradability:
1. When released into water, this material may evaporate and biodegrade.
2. When released into the air, this material may react with photo chemically produced hydroxyl radicals and have a half-life of about 17.8 days.
• Half-life (Air): 427 hours
• Half-life (Water surface): 53 ~ 64 hours
• Half-life (Groundwater): -
• Half-life (Soil): -

Bioaccumulative potential: -

Mobility in soil: When released into the soil, this material may biodegrade, evaporate

and permeate through soil.
Other adverse effects: -

Section 13. Disposal Considerations

Waste disposal: 1. Incinerate in an approved area. 2. Use plenty of water to flush to sewer at small amount. 3. Waste must be disposed of in accordance with environmental regulations.

Section 14. Transport Information

United Nations Number (UN No.): 1230
UN Proper Shipping Name: Methyl Alcohol
Transport Hazard classes: 3, 6.1
Packaging Group: II
Marine pollutant (Yes/No): No
Specific Transport Measures and Precautionary Conditions: The classification is based on human experience and does not meet application of the classification criterion.

Section 15. Regulatory Information

Applicable Regulations: 1. Labor Safety and Health Law. 2. Regulation of Labeling and Hazard Communication of Dangerous and Harmful Materials. 3. Organic solvent poisoning prevention rules. 4. Harmful substances concentration permission standards in the labor working environment. 5. Road Traffic Safety Rules. 6. Industrial waste storage and disposal facilities standard. 7. Public dangerous goods and High-pressure flammable gas setting standards & Safety management approach.

Section 16. Other Information

References	1. CHEMINFO database, CCINFO CD-RAW, 2005-3. 2. HAZARDTEXT database, TOMES PLUS CD-RAW, Vol.65, 2005. 3. RTECS database, TOMES PLUS CD-RAW, Vol.65, 2005. 4. HSDB database, TOMES PLUS CD-RAW, Vol.65, 2005. 5. ChemWatch database, 2005-1.
Created by	Shiny Chemical Industrial Co., Ltd.
	Address: No.5, Yeong Gong 1st Rd., Yeong An Dist., Kaohsiung City Telephone: +886-7-8619171 ext. 711~714

Revision Date	2022/09/01
Notes	The symbol " - " in this sheet indicates no available information; the symbol " / " indicates the information is not applicable to the substance.