


Number: 03

Section 1: Product and Company Identification

Product Name: Isopropyl alcohol
Recommended Use and Restrictions on Use: Manufacture of propanone and derivatives; manufacture of glycerin and iso-propylacetate acetate; solvents of essential oil and other oils, biological alkali, glue, the resin, etc.; possible solvents of cellulosic derivatives; painting solvents; antifreeze of liquid fuel; enamel paint; extracting process; dehydrated agents; preservative; lotion; denaturing agents.
Manufacturer or Supplier Name : Shiny Chemical Industrial Co., Ltd. Address: No.5, Yeong Gong 1st Rd., Yeong An Dist., Kaohsiung City 82841, Taiwan, R.O.C. Telephone: +886-7-861-9171 ext.711~714
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Section 2: Hazards Identification

Hazard Material Category: Flammable Liquids: Category NO.2, Acute Toxicity: Oral Category NO.5, Skin Corrosion/Irritation: Category NO.3, Serious Eye Damage/Eye Irritation: Category NO.2A.
Label Content: 
Label Statements: Flames, Warning Signal Words: Danger Hazard Statements: <ol style="list-style-type: none">1. Highly flammable liquid and vapour2. Harmful if swallowed3. Causes mild skin irritation4. Causes serious eye irritation Precautionary Statements: <ol style="list-style-type: none">1. Keep containers in a well-ventilated place.2. Keep away from sources of ignition – No Smoking.3. Avoid contact with eyes.4. Don't flush to the drainage.5. Prevent the static.
Other Hazards: -

Section 3: Composition/Information on Ingredients

Pure material

Chemical Name: Isopropyl alcohol
Synonymous: 2-Propanol, Dimethylcarbinol, sec-Propyl alcohol, Isopropanol.



CAS NO.: 67-63-0

% By Weight: 100%

Section 4: First Aid Measures**The First Aid Measures for Different Exposure Routes:****Inhalation:**

6. Remove contamination sources or move victims to fresh air.
7. If breathing stops, administer artificial respiration.
8. Get medical attention immediately.

Skin Contact:

1. Wash skin with warm water for at least 15 minutes.
2. Remove contaminated clothing or shoes when washing, and clean them thoroughly before reuse or abandon.
3. Get medical attention if irritation develops or persists.

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. Administer plenty of water to induce vomiting if victims don't lose consciousness or with the convulsion.
2. Get medical attention immediately.

The Most Important Symptoms and Hazardous Effects: Irritation. A large exposure will lead to conscious loss and death.

The Protection of First-Aides: Use appropriate personal protective equipment such as class C clothing to take first aid in a safety area.

Notes to Physicians: -

Section 5: Fire Fighting Measures

Suitable fire Extinguishing Media: Carbon dioxide, dry chemical, alcohol foam.

Specific Hazards May Be Encountered During Fire Fighting:

1. Vapors and liquids are flammable. Liquids will accumulate electric charges. Vapors heavier than air will propagate to distant places. It may cause flash back when meeting fire sources.
2. It may decompose and produce toxic gas at a high temperature. Containers may break and explode in a fire scene.

Specific Fire-Fighting Methods:

1. Evacuate and extinguish fire from safe distance or protected areas.
2. Place in windward areas to avoid dangerous vapor and poisonous decomposing materials.
3. Stop the leak first before extinguishing fire. Let it burn if leaks cannot be stopped and have on harm in surroundings. If extinguishing fire in advance without stopping leaks, vapors with the air will form explosive

- mixtures and ignite again.
4. Isolate unfired materials and protect personnel.
 5. Move containers away from the fire scene in safe condition.
 6. Cool exposed storage tanks or containers with water mist.
 7. It may be invalid to extinguish fire with water mist but can dilute leaks and flush ignition sources away.
 8. If leaks have not ignited, spray water mist to disperse vapors and protect the personnel stop spill.
 9. It is invalid to extinguish fire with spouts.
 10. Large fire of large-scale area, use auto-operated control shelf of water mist or auto-waved extinguishing water aims.
 11. Evacuate from a fire scene as possible and let the fire burn thoroughly.
 12. Keep away from storage tanks.
 13. When safety valves of storage tanks alarm or change color, evacuate immediately.
 14. Forbid personnel without special protective apparatus entering.

Specific Equipment for the Protection of Firefighters: Extinguishing staffs should wear an approved/certified respirator, splash goggles, and fire fighting coats.

Section 6: Accidental Release Measures

Personal Precautions:

1. Restrain personnel from close to spilled areas before totally cleaning out.
2. Confirm the cleaning work be responsible by trained staffs.
3. Wear appropriate personal protective equipments.

Environment Needing Attention:

1. Ventilate this area.
2. Remove all sources of ignition.
3. Report to governmental safety and hygiene institutes and related units.

Spill Cleanup Measures:

1. Do not touch spilled material.
2. Avoid leaks flushing to sewers or confined areas.
3. Try to stop or reduce leaks in safety condition.
4. Use sand, soil, and inert absorbing agents to block leaks.
5. Small spill: Use the material, not react with spill, to absorb. Contaminated absorbing agents have same risk as spill. Place in covered and labeled containers. Spray water on spilled areas. Use plenty of water to dilute small spill.
6. Large spill: Contact fire control, urgent handling units and suppliers to seek aid.

Section 7: Handling and Storage Methods

Handling:

1. This material is flammable and toxic liquid. Engineering control should be applied and make the best use of personal protective equipments when



- handling. Educate risk of this material and use of safety.
2. Remove all ignition sources away from heat and incompatible substances.
 3. There should be a "No smoking" sign in workspace.
 4. The liquids will accumulate the electric charge. Consider extra design to increase electric conductance. All barrels, containers, and pipelines must have earth connection and contact with naked metal. While transporting and operating, reduce velocity of flow, increase operating time to elevate the time that the liquids stays in pipeline, or operate at low temperature.
 5. When the operation of allocation is not in the airtight system, insure allocating containers, received-transporting apparatus and containers connected with same electric potential.
 6. Empty tanks, containers, and pipelines may have risk residuals. Don't weld, cut, hole or do other heat work before clearing up.
 7. Use spark-resistant ventilation system in workplace. Apparatus should be the explosion-proof type.
 8. Avoid mist or vapors. Operate in well-ventilated assigned place and adopt the minimum consumption. Separate operation and storage areas.
 9. Wear appropriate personal protective equipments to avoid contacting with this chemical or contaminated apparatus if necessary.
 10. Don't use with incompatible substances (such as strong oxidants) to avoid increasing risk of fire and explosion.

Storage:

1. Keep sidewalks and exports unimpeded.
2. Storage and large operating areas are considered to install fire and spill detection system, and appropriate automatic fire-fighting system or enough and useful emergency apparatus.
3. Use storage containers made of compatible substances. Package carefully to avoid spray out.
4. Don't use air or inert gas to pressurize and transport liquids from containers.
5. Unless allocating areas isolated with the fire-resistant structure, don't allocate and work in storage areas.
6. Use approved storage containers of flammable liquids and allocating apparatus.
7. Don't pour contaminated liquids back to original storage containers.
8. Containers should be labeled, confined and prevented from damage while not using.
9. Store in shady, cool, dry, and well-ventilated place that sunshine cannot directly illuminate, and keep away from heat, ignition sources, and incompatible substances.
10. Storage apparatus should be constructed with the refractory materials.
11. The floor should be constructed with the impermeable materials to avoid absorbing from the floor.
12. Set slope, doorsill or dig grooves in an entrance to discharge spill to safe

- places.
- 13.Storage areas should be labeled clearly with no barriers. Permit assigned or trained personnel to enter.
 - 14.Keep storage areas away from workspace, lifts, building, room exits, and main passages.
 - 15.Have appropriate fire extinguisher and leak cleaning apparatus near storage areas.
 - 16.Check containers regularly whether damage or leak.
 - 17.Check all new containers whether appropriately labeled and no damage.
 - 18.Limit storage.
 - 19.Store spill in containers made of compatible substances.
 - 20.Storage tanks have earth connection and connected with other apparatus by using same electric potential.
 - 21.Install depressurizing and vacuum releasing valves in all barrels stored flammable liquids.
 - 22.Store in accordance with the storage temperature suggested by chemical manufacturers or suppliers. Install warm-detecting sirens if necessary to alarm temperature is too high or too low.
 - 23.Avoid storing large amount in room. Store in fireproofing isolating building as possible.
 - 24.Install flame-extinguishing devices in storage exhaust pipes.
 - 25.Storage tanks should be ground tanks. Seal whole area on the bottom to avoid leak surrounded with dikes, which can block the whole capacity.

Section 8: Exposure Controls and Personal Protection

Engineering Controls:

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

Guideline Information

TWA	TLV-STEL	CEILING	BEI
400ppm	500ppm	-	-

Personal Protection Equipment:

Respiratory Protection:

1. <2000ppm: Stable flow air-feed type respiratory protective equipments, dynamical air purifying type or chemical full-type with organic vapor cartridges respiratory protective equipments, portable full-type or air-feed respiratory protective equipments.
2. Unknown: Portable positive-pressure type respiratory protective equipments, positive-pressure full type and air-feed type respirator.
3. Escape: Mask with organic vapor cartridges, portable escape-type respiratory protective equipments.

Hand Protection Description: Leak-proof glove materials of Butyl rubber, rubber-like, Viton, 4H, CPF 3, and Responder.

Eye/Face Protection: Chemical safety goggles, full-type masks.
Skin and Body Protection Description: Leak-proof gloves of Butyl rubber, rubber-like, Viton, 4H.
Hygiene Practices:
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

Physical State/Appearance: Colorless liquid.	Odor: Rubber alcohol smell.
Odor Threshold: 3.3-610ppm (monitor), 7.6-49ppm (censor).	Melting Point: -88.5°C
pH: -	Boiling Point: 82.3°C
Flammability: -	Flash Point: 12°C
Decompose Temperature: -	Test Method: close cup
Auto-ignition Temperature: 399°C	Explosion limits: 2.0%~12%
Vapors Pressure: 33 mmHg @ 20°C	Vapors Density: 2.07 (air=1)
Density: 0.785 (water=1)	Solubility: Totally soluble in water.
Log Kow: 0.05	Evaporation Rate: 1.5 (N-butyl acetate=1)

Section 10: Stability and Reactivity

Chemical Stability: Stable under ordinary conditions. May produce peroxides very slowly.
Possible Danger Reacts Under the Special State:
1. Oxidizing agents (nitrate, perchlorate, peroxidative substances): Increase fire and explosion risk.
2. Phosgene: produce isopropyl chlorocarbonate and hydrochloric acid.
3. Molysite: explosive heat decomposition reaction.
4. Hydrogen-Palladium: mixing in the air may catch fire.
5. Strong acid: Possible vigorous reaction.
6. Alkaline metal or alkaline earth metal: May release flammable toxic gas.
Conditions to Avoid: Heat, spark, static, ignition sources, light.
Incompatible with Other Materials: Molysite, Hydrogen-Palladium, strong oxidant, phosgene.
Hazardous Decomposition Products: -

Section 11: Toxicological Information

Exposure Route: Skin, inhalation, ingestion, eye.
Signs/Symptoms: Irritation, dizziness, anesthesia, nausea, vomiting, diarrhea.
Acute Toxicity: Skin Contact: Short-term exposures don't irritate skin. Inhalation: 1. 400ppm will irritate upper respiratory tracts slightly. 2. High concentrations will cause dizziness, in coordination (coordination function loss) and deeply conscious loss. Ingestion: 1. May cause dizziness, gastrointestinal pain, aching convulsion, nausea, vomiting, and diarrhea. 2. Large exposures may cause conscious loss and death. 3. Human lethal dose is estimated 131g. Eyes Contact: 1. 400ppm will cause slight irritation. 2. It will cause serious irritation if contacting with liquids directly. LD50: 4710 mg/kg (rat, oral) LC50: 16000ppm/8H (rat, ingestion)
Chronic Toxicity or Long Term Effects on Humans: 1. Skin: long-term or frequent exposure may cause skin dry and peeling. 2. Ingestion: After six weeks of 6.4mg/kg/day isopropyl alcohol ingestion, there are no special changes in blood, urine, chemical or cell components among exposed people. 3500ppm/7H (pregnant rats of 1-19 days, inhalation) cause embryo hyperplasia. This material is classified by the IARC as Group 3: not classifiable as to its carcinogenicity to humans.

Section 12: Ecological Information

Eco toxicity: LC50 (fish): - EC50 (aquatic invertebrate): - BCF: -
The Persistence and Degradability: 1. Four experimental results reveal isopropyl alcohol in the sewage for 5 days (20 20°C) may decompose 58% of BOD theoretical value. 2. When released into the water, this material is expected to evaporate (an estimated half-life of 5.4 days) and biodegrade (Though it will be decomposed in the lab, but there are still no relevant data in natural water sources). 3. When released into the air, this material is expected to process photolysis (about 1 to several days) in half-life). Because of solubility in water, it may be eroded by the rainwater.



Half-life (Air): 6.2~72 hours
Half-life (Water surface): 24~168 hours
Half-life (Groundwater): 48~336 hours
Half-life (Soil): 24~168 hours
Bio-accumulative Potential: Not accumulate in the body.
Mobility in Soil: When released into the soil, this material is expected to evaporate and permeate through soil due to high vapor pressure and low absorption of soil.
Other Adverse Effects: Highly toxic to aquatic organism.

Section 13: Disposal Considerations

Methods of waste Disposal:
1. Bury in a specific landfill or incinerate in an approved solvent incinerator.
2. If a small amount flows into sewers or drains, wash with a large amount of water to avoid flammable vapors accumulating.
3. If fluxing, report to the environmental protection agency.

Section 14: Transport Information

United Nations Number (UN No): 1219
UN Proper Shipping Name: Isopropyl alcohol
Transport Hazard Classes: CLASS 3: Flammable liquid.
Packaging Group: II
Marine pollutants (Yes/No): No
Specific Transport Measures and Precautionary Conditions: -

Section 15: Regulatory Information

Applicable regulation:
1. Waste storage and disposal methods and facilities setup standard.
2. General rules of hazardous materials and harmful substances.
3. Road and Traffic Safety Rules.

Section 16: Additional Information

References	<ol style="list-style-type: none"> 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. Hazardous Substances Data Bank, EPA 6. ChemWatch database, 2005-1
SDS Author	Shiny Chemical Industrial Co., Ltd .

安全資料表

(Safety Data Sheet)



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SDS Revision Date	2016/09/01
Notes	"-" indicates data is not available at present. "/" indicates such column is not applicable.

