



# Safety Data Sheets

Revision Date: 03-Feb.-2015

## Section 1. Identification of substance

Product Name : Isopropyl alcohol (IPA)
Synonym: 2-Propanol, isopropanol
CAS Number: 67-63-0
Manufacturer/Supplier : TASCO Chemical Corporation
Plant Address : Plant Address: 1 kung-Yeh, 2nd Rd., Lin-Yuan, Kaohsiung, Taiwan
Emergency Telephone Numbers +886-07-6411122 /FAX : +886-07-6411125
e-mail: kc-lai@tascogroup.com.tw

## Section 2. Hazards identification

<b>Hazard. Classification :</b>  
<b>Signal Word : DANGER</b>
<b>Symptoms of Exposure:</b> Inhalation: May cause irritation of the respiratory tract. Ingestion: May cause nausea, vomiting and diarrhea. Eyes: May cause irritation to the eyes. Skin: May cause irritation to the skin

## Section 3. Composition/information on ingredients

Chemical Name : Isopropyl alcohol
Formula : $C_3H_8O$
Synonyms : 2-Propanol, isopropanol

## Section 4. First Aid Measures

<b>Emergency Overview :</b> Flammable (USA) Highly Flammable (EU). Irritant. Irritating to eyes, respiratory system, and skin. Risk of serious damage to eyes. Target organ(s): Nerves. Kidneys. HMIS Rating Health: 2 Flammability: 3 Reactivity: 0 NFPA Ratings Health: 2 Flammability: 3 Reactivity: 0
<b>Oral Exposure:</b> If swallowed, wash out mouth with water provided person is conscious. Call a physician. <b>Inhalation Exposure</b> If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. <b>Dermal Exposure</b> In case of contact, immediately wash skin with soap and copious amounts of water. <b>Eye Exposure</b> In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

## Section 5. Fire Fighting Measures

Flammability of the Product: Flammable. Auto-Ignition Temperature: 399°C (750.2°F) Flash Points: CLOSED CUP: 11.667°C (53°F) - 12.778 deg. C (55 deg. F) (TAG) Flammable Limits: LOWER: 2% UPPER: 12.7% Products of Combustion: These products are carbon oxides (CO, CO2).
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<p>Fire Hazards in Presence of Various Substances:  Highly flammable in presence of open flames and sparks, of heat.  Flammable in presence of oxidizing materials.  Non-flammable in presence of shocks.</p>
<p>Explosion Hazards in Presence of Various Substances:  Risks of explosion of the product in presence of mechanical impact: Not available.  Explosive in presence of open flames and sparks, of heat.</p>
<p>Fire Fighting Media and Instructions:  Flammable liquid, soluble or dispersed in water.  SMALL FIRE: Use DRY chemical powder.  LARGE FIRE: Use alcohol foam, water spray or fog.</p>
<p>Special Remarks on Fire Hazards:  Vapor may travel considerable distance to source of ignition and flash back. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME.  Hydrogen peroxide sharply reduces the autoignition temperature of Isopropyl alcohol.  After a delay, Isopropyl alcohol ignites on contact with dioxgenyl tetrafluorborate, chromium trioxide, and potassium tert-butoxide. When heated to decomposition it emits acrid smoke and fumes.</p>
<p>Extinguishing Media Suitable :  Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.  Firefighting</p>
<p>Protective Equipment :  Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.</p>
<p>Specific Hazard(s) :  Flammable liquid. Emits toxic fumes under fire conditions.</p>
<p>Specific Method(s) of Fire Fighting :  Use water spray to cool fire-exposed containers.</p>

## Section 6. Accidental Release Measures

<p>Procedure to be Followed in Case of Leak or Spill Evacuate area.  Shut off all sources of ignition. Use nonsparking tools.</p>
<p>Procedure(s) of Personal Precaution(s) :  Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.</p>
<p>Methods for Cleaning Up :  Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors.  Ventilate area and  wash spill site after material pickup is complete.</p>

## Section 7. Handling and Storage

<p>Precautions:  Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids.</p> <p>Storage:  Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).</p>
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## Section 8. Exposure Controls, Personal Protection

<p>Engineering Controls:  Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.</p>
<p>Personal Protection:  Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.</p>

Personal Protection in Case of a Large Spill:  
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 983 STEL: 1230 (mg/m<sup>3</sup>) [Australia]  
TWA: 200 STEL: 400 (ppm) from ACGIH (TLV) [United States] [1999]  
TWA: 980 STEL: 1225 (mg/m<sup>3</sup>) from NIOSH  
TWA: 400 STEL: 500 (ppm) from NIOSH  
TWA: 400 STEL: 500 (ppm) [United Kingdom (UK)]  
TWA: 999 STEL: 1259 (mg/m<sup>3</sup>) [United Kingdom (UK)]  
TWA: 400 STEL: 500 (ppm) from OSHA (PEL) [United States]  
TWA: 980 STEL: 1225 (mg/m<sup>3</sup>) from OSHA (PEL) [United States]  
Consult local authorities for acceptable exposure limits.

## Section 9. Physical /Chemical Properties

Appearance : Colorless Liquid	Molecular Weight: 60.1 g/mole
Vapor Pressure 33 mmHg @20°C	Odor:Pleasant. Odor resembling that of a mixture of ethanol and acetone.
Vapor Density 2.07	Taste: Bitter. (Slight.)
Specific Gravity: 0.7850(Water = 1)	Melting Point: -88.5°C
Explosion Limits Lower: 2.0-12 %	Boiling Point: 82.3°C
Autoignition Temp. : 399 °C	Solubility: Easily soluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone. Insoluble in salt solution. Soluble in benzene. Miscible with most organic solvents including alcohol, ethyl alcohol, chloroform.

## Section 10. Stability and Reactivity

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability:
Heat, Ignition sources, incompatible materials
Incompatibility with various substances:
Reactive with oxidizing agents, acids, alkalis.
Corrosivity:
Non-corrosive in presence of glass.
Special Remarks on Reactivity:
Reacts violently with hydrogen + palladium combination, nitroform, oleum, COCl <sub>2</sub> , aluminum triisopropoxide, oxidants
Incompatible with acetaldehyde, chlorine, ethylene oxide, isocyanates, acids, alkaline earth, alkali metals, caustics, amines, crotonaldehyde, phosgene, ammonia.
Isopropyl alcohol reacts with metallic aluminum at high temperatures.
Isopropyl alcohol attacks some plastics, rubber, and coatings.
Vigorous reaction with sodium dichromate + sulfuric acid.
Special Remarks on Corrosivity:
May attack some forms of plastic, rubber and coating
Polymerization:
Will not occur.

## Section11. Toxicological Information

Toxicity to Animals:
WARNING: THE LC <sub>50</sub> VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD <sub>50</sub> ): 4710 mg/kg [Mouse].
Acute toxicity of the vapor (LC <sub>50</sub> ): 16000 8 hours [Mouse].
Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Development toxin [POSSIBLE].
May cause damage to the following organs: kidneys, liver, skin, central nervous system (CNS).

<p>Other Toxic Effects on Humans:  Hazardous in case of ingestion, of inhalation.  Slightly hazardous in case of skin contact (irritant, sensitizer, permeator).  Special Remarks on Toxicity to Animals: Not available.</p>
<p>Special Remarks on other Toxic Effects on Humans:  Acute Potential Health Effects:  Skin:  May cause mild skin irritation, and sensitization.  Eyes:  Can cause eye irritation.  Inhalation:  Breathing in small amounts of this material during normal handling is not likely to cause harmful effects. However, breathing large amounts may be harmful and may affect the respiratory system and mucous membranes (irritation), behavior and brain (Central nervous system depression - headache, dizziness, drowsiness, stupor, incoordination, unconsciousness, coma and possible death), peripheral nerve and sensation, blood, urinary system, and liver.  Ingestion:  Swallowing small amounts during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Swallowing large amounts may cause gastrointestinal tract irritation with nausea, vomiting and diarrhea, abdominal pain. It also may affect the urinary system, cardiovascular system, sense organs, behavior or central nervous system (somnolence, generally depressed activity, irritability, headache, dizziness, drowsiness), liver, and respiratory system (breathing difficulty).</p>
<p>Chronic Potential Health Effects:  May cause defatting of the skin and dermatitis and allergic reaction. May cause adverse reproductive effects based on animal data (studies).</p>

## Section 12. Ecological Information

<p>Ecotoxicity:  Ecotoxicity in water (LC50): 100000 mg/l 96 hours [Fathead Minnow]. 64000 mg/l 96 hours [Fathead Minnow].</p>
<p>BOD5 and COD:  Not available.</p>
<p>Products of Biodegradation:  Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.</p>
<p>Toxicity of the Products of Biodegradation:  The product itself and its products of degradation are not toxic.</p>
<p>Special Remarks on the Products of Biodegradation:  Not available.</p>

## Section 13. Disposal Considerations

<p>Waste Disposal:  Waste must be disposed of in accordance with federal, state and local environmental control regulations.</p>
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## Section 14. Transport Information

DOT Classification: CLASS 3: Flammable liquid.
Identification: : Isopropyl Alcohol UNNA: 1219 PG: II
Special Provisions for Transport: Not available.

## Section 15. Regulatory Information

<p>Federal and State Regulations:  Connecticut hazardous material survey.: Isopropyl alcohol   Illinois toxic substances disclosure to employee act: Isopropyl alcohol   Rhode Island RTK hazardous substances: Isopropyl alcohol  Pennsylvania RTK: Isopropyl alcohol  Florida: Isopropyl alcohol  Minnesota: Isopropyl alcohol   Massachusetts RTK: Isopropyl alcohol  New Jersey: Isopropyl alcohol  New Jersey spill list: Isopropyl alcohol</p>
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Director's list of Hazardous Substances: Isopropyl alcohol  
Tennessee: Isopropyl alcohol  
TSCA 8(b) inventory: Isopropyl alcohol  
TSCA 4(a) final testing order: Isopropyl alcohol  
TSCA 8(a) IUR: Isopropyl alcohol  
TSCA 8(d) H and S data reporting: Isopropyl alcohol: Effective date: 12/15/86 Sunset Date: 12/15/96  
TSCA 12(b) one time export: Isopropyl alcohol  
SARA 313 toxic chemical notification and release reporting: Isopropyl alcohol

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R11- Highly flammable.

R36- Irritating to eyes.

S7- Keep container tightly closed.

S16- Keep away from sources of ignition – No smoking.

S24/25- Avoid contact with skin and eyes.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.

Lab coat.

Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16. Additional Information

Remark	" - " means no data , and " / " means not suitable.
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✘ This information is only suitable for this product, and It does not suit that if this product is to be a additive agent or mixed with other chemicals.

✘ The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.