

MATERIAL SAFETY DATA SHEET

PRODUCT NAME : ISOPROPANOL ANHYDROUS

1. Product and Company Identification

Product name: Isopropanol Anhydrous
Synonyms: Isopropanol; Dimethylcarbinol; sec-Propyl alcohol; Rubbing alcohol; Petrohol;
1-Methylethanol; 1-Methylethyl alcohol; 2-Hydroxypropane; 2-Propyl alcohol;
Isopropyl alcohol; Propan-2-ol; IPA; 2-Propanol.
Item Numbers: E48010600

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2. Hazards Identification

EMERGENCY OVERVIEW

Highly flammable hygroscopic liquid. Irritating to eyes. Vapours may cause drowsiness and dizziness. Vapours may form explosive mixtures with air. Flash back may occur from vapours to a source of ignition. The product may become highly dangerous if peroxide crystals have formed.

For short and long term exposure effects see Section 11 Toxicological data.

Eye Effects: Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause transient corneal injury.

Skin Effects: May cause irritation with pain and stinging, especially if the skin is abraded. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. May be absorbed through intact skin. Prolonged or repeated skin contact may cause defatting and dermatitis.

Ingestion/Oral Effects: Causes gastrointestinal irritation with nausea, vomiting and diarrhoea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Inhalation Effects: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation. Inhalation of vapours may cause drowsiness and dizziness.

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MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: May aggravate pre-existing skin disorders.

NFPA Hazard codes		HMIS Hazard codes		Rating System
Health	1	Health	1	0 = No Hazard
Flammability	3	Flammability	3	1 = Slight Hazard
Instability	0	Reactivity	0	2 = Moderate Hazard
				3 = Serious Hazard
				4 = Severe Hazard

3. Composition/Information on Ingredients

Ingredient	% Weight	CAS No	Hazard class*	Risk phrase*
Isopropanol Anhydrous	>99.5	67-63-0	3	R11, R36, R67

*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive No 1272/2008 (as amended) and are present in sufficient concentration to make the overall substance hazardous. In all other situations, the column will be completed as "Not applicable".

4. First Aid Measures

- Eyes:** Immediately flush the eyes with plenty of water for at least 15 minutes. Seek medical attention.
- Skin:** Flush skin with plenty of water. Remove contaminated clothing and shoes. Seek medical attention if irritation develops and persists. Wash clothing before re-use.
- Ingestion/Oral:** Seek medical attention immediately.
Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs naturally, have victim lean forward. Never give anything by mouth to an unconscious person. Note that there is the potential for aspiration of the product if it has been swallowed.
- Inhalation:** Remove the victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.
- Other Information:** Notes to Physicians: A urine acetone test may be helpful in diagnosis. Haemodialysis should be considered in cases of severe intoxication. Treat symptomatically and supportively.

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5. Fire Fighting Measures

- Extinguishing Media: Water may be ineffective. Do not use straight streams of water. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after the fire is out.
- Fire and Explosion Hazard: Vapours may form an explosive mixture with air. Flammable liquid and vapour. May form explosive peroxides. Vapours are heavier than air and may travel to a source of ignition and flash back. Vapours can spread along the ground and collect in low or confined areas.
- Special Protective Equipment for Fire Fighters: Use MSHA/NIOSH (approved or equivalent) self-contained breathing apparatus in pressure-demand mode, and full protective gear. During a fire, irritating, corrosive and toxic gases may be generated by thermal decomposition or combustion of the product. Wear the appropriate protective clothing to prevent contact with skin and eyes.

For Flammability Properties - see Section 9.

6. Accidental Release Measures

Do not walk through or otherwise scatter or spread any spilled product. Put on the appropriate protective equipment (See Section 8) and clean up spills immediately. Use spark-proof tools. Isolate the area of the spill and dike well ahead of large spills for later recycling or disposal.

Ventilate enclosed areas. Use a suppressing foam to reduce vapours. (Water spray may reduce vapour but may not prevent ignition in closed spaces).

Use inert material (for example, vermiculite, dry sand or earth) to absorb the spilled product, and then place it into a chemical waste container. Do not use combustible materials such as sawdust to absorb the product. Safely dispose of the recovered spilled product (See Section 13).

Avoid run-off into storm sewers, drains and ditches that lead to waterways.

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7. Handling and Storage

- Handling:** Wear appropriate protective equipment. Use only in a well-ventilated area. Do not inhale fumes or vapours from the product. Do not allow the product to evaporate to near-dryness. Earth (ground) and bond containers when transferring product. Use spark-proof tools and explosion proof equipment. Keep away from incompatible materials (See Section 10).
- Empty containers retain product residue (liquid and/or vapour) and can be dangerous. Take precautionary measures against static discharges. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
- Do not get the product in eyes, on skin, or on clothing. Do not ingest the product. Do not eat, drink, or smoke in areas where this product is used. Wash thoroughly after handling. Immediately remove contaminated clothing and wash before reuse.
- Storage:** Store in tightly closed containers, in a dedicated flammables area. Store in a cool, dry, well-ventilated area away from incompatible materials (See Section 10). Keep away from heat, sparks, flames, and sources of ignition. Do not store in direct sunlight. After opening, purge containers with nitrogen before re-closing and storage.
- Containers should be dated when opened and be tested periodically for the presence of peroxides. Add water or appropriate reducing materials as necessary to lessen peroxide formation.
- Should crystals form, peroxidation may have occurred and the product should be considered to be extremely dangerous. In this instance, the containers should only be opened remotely by professionals.

8. Exposure Controls/Personal Protection

Exposure Limits:

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
Isopropanol	999 mg/m ³ - 8 hr TWA 1250 mg/m ³ - 15 min STEL	980 mg/m ³ - 8 hr TWA	999 mg/m ³ - 8 hr TWA 1250 mg/m ³ - 15 min STEL

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Personal Protection:

- Engineering Measures: Use explosion proof ventilation equipment. Provide eyewash facilities and safety showers. Ensure adequate ventilation in areas where the product is used, to keep airborne concentrations below the permissible exposure limits.
- Respiratory Protection: A respiratory protection program, that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149, must be followed whenever workplace conditions are such that the use of a respirator is necessary.
- Hand/Skin Protection: Wear appropriate protective and chemical-resistant gloves, clothing and splash protection, or fully encapsulating vapour protective clothing, as necessary to prevent exposure.
- Eye/Face Protection: Wear appropriate chemical safety goggles with full face shield.
- Hygiene Measures: Do not eat, drink or smoke while using the product. Wash hands after using the product and before eating, drinking or smoking. Immediately change contaminated clothing.
- Other/General Protection: Overalls should be laundered regularly.

9. Physical and Chemical Properties

Appearance and Odour	Colourless liquid, alcohol like odour	Boiling point	82 / 179	°C/°F
pH (as supplied)	No data available	Freezing Point	-88 / -126	°C/°F
Solubility in Water	Miscible	Auto Ignition	>350 / 662	°C/°F
Volatile Content by Volume	100%	Flash Point	11 / 53	°C/°F
Specific Gravity	0.785			
Vapour Pressure (mbar)	44 @ 20 °C	Vapour Pressure (Torr)	33 @ 68 °F	

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10. Stability and Reactivity

- Stability:** Under normal storage conditions, this product can form and accumulate peroxides, which may explode when subjected to heat or shock. The product is most hazardous when peroxide levels are concentrated by distillation or evaporation. Isopropanol is susceptible to autoxidation and therefore should be classified as peroxidizable.
- Material/Conditions to Avoid:** Avoid light, ignition sources, excess heat, moist air and water. Keep away from strong oxidizing agents, strong acids, strong bases, amines, ammonia, ethylene oxide, isocyanates, acetaldehyde, chlorine and carbonyl dichloride (phosgene).
- The product attacks some forms of plastics, rubbers, and coatings and aluminium at high temperatures.
- Hazardous Decomposition:** Carbon monoxide and carbon dioxide are evolved during combustion.
- Hazardous Polymerisation:** Will not occur.

11. Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation refer to Section 2 Hazards Identification.

Animal data:

- LD50 value:** Oral: 3600 mg/kg (mouse); 6410 mg/kg (rabbit); 5045 mg/kg (rat).
Dermal: 12800 mg/kg (rabbit).
- LC50 value:** Inhalation: 53000 mg/m³ (mouse); 16000 ppm/8H (rat).

Carcinogenicity:

No known carcinogenic effects. (IARC Group 3: not classifiable).

12. Ecological Information

- Ecotoxicity - LC50 values:** Fathead minnow: >1000 ppm (96 hr); Daphnia: > 1000 ppm (96 hr);
Gold orfe: 8970-9280 ppm (48 hr).

Isopropanol anhydrous has a high biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism, a low potential to affect the germination of some plants.

13. Disposal Considerations

If recycling is not practicable, dispose of the product and used containers in accordance with all local and national requirements.

Empty containers must be decontaminated before recycling.

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14. Transport Information

This product is classified as dangerous under transport regulations.

PARAMETER	EUROPEAN	CANADIAN TDG	UNITED STATES DOT
Proper Shipping Name	ISOPROPANOL	ISOPROPANOL	ISOPROPANOL
Hazard Class	3	3	3
Identification Number	UN 1219	UN 1219	UN 1219
Shipping Label	FLAMMABLE LIQUID	FLAMMABLE LIQUID	FLAMMABLE LIQUID

Packing Group: II.

15. Regulatory Information

European Regulatory Information

This product has been classified in accordance with EU Regulation No 1272/2008 (as amended) on the Classification, Labelling and Packaging of Substances and Mixtures.

Classified as dangerous to supply : Yes

Risk Phrases : R11 Highly Flammable.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.

Safety Phrases : 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.

Symbols : XI F Irritant, Highly Flammable.

United States Regulatory Information

All materials contained in this product are on the U.S. Toxic Substances Control Act (TSCA).

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and 40 CFR Part 372.

California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Canadian Regulatory Information

WHMIS Classification: D2B, B2.

All ingredients contained in this product are included on the Canadian DSL.

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16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Sources of information for this data sheet:

- Fisher Scientific UK "Isopropanol" Material Safety Data Sheet.MSDS# 95533 Revision # 17 Date 2/18/2008.

Glossary:

ACGIH - American Conference of Governmental Industrial Hygienists; **ANSI** - American National Standards Institute; **Canadian TDG** - Canadian Transportation of Dangerous Goods; **CAS** - Chemical Abstracts Service; **Chemtrec** - Chemical Transportation Emergency Center (US); **CFR** - Code of Federal Regulations; **DSL** - Domestic Substances List; **EH40 (UK)** - HSE Guidance Note EH40 Occupational exposure limits; **EPCRA** - Emergency Planning and Community Right-to-Know Act; **HMIS** - Hazardous Material Information Service; **IARC** - International Agency for Research on Cancer; **LC** - Lethal Concentration; **LD** - Lethal Dose; **MSHA** - Mine Safety and Health Administration; **NFPA** - National Fire Protection Association; **NIOSH** - National Institute for Occupational Safety and Health; **OSHA** - Occupational Safety and Health Administration, US department of Labour; **PEL** - Permissible exposure limit; **SARA (Title III)** - Superfund Amendments and Reauthorization Act; **SARA 313** - Superfund Amendments and Reauthorization Act, Section 313; **STEL** - Short Time Exposure Limit; **TLV** - threshold limit value; **TSCA** - Toxic Substances Control Act Public Law 94-469; **US DOT** - US Department of Transportation; **WHMIS** - Workplace Hazardous Materials Information System.

Revisions:

October 2010 - Data Sheet updated to reflect the latest regulatory and supplier safety information.

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