



Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	2	Fire Hazard	3	Reactivity	0	
Health Hazard	2							
Fire Hazard	3							
Reactivity	0							
See Section 15.								

Section 1. Chemical Product and Company Identification		<i>Page Number: 1</i>
Common Name/ Trade Name	Isopropyl alcohol, 99%	Catalog Number(s). 11056, IS115
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 67-63-0
Commercial Name(s)	Not available.	RTECS NT8050000
Synonym	2-Propanol; Isopropyl alcohol 99%, USP, EP, BP, JP, FCC; Isopropyl Alcohol	TSCA TSCA 8(b) inventory: Isopropyl alcohol
Chemical Name	isopropanol	CI# Not available.
Chemical Family	Not available.	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	C3-H8-O	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
Name	CAS #	<i>Exposure Limits</i>			% by Weight
		TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	
1) Isopropyl alcohol	67-63-0	980	1225		100
Toxicological Data on Ingredients	Isopropyl alcohol: ORAL (LD50): Acute: 5045 mg/kg [Rat]. 3600 mg/kg [Mouse]. 6410 mg/kg [Rabbit]. DERMAL (LD50): Acute: 12800 mg/kg [Rabbit].				

Section 3. Hazards Identification	
Potential Acute Health Effects	Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer, permeator).
Potential Chronic Health Effects	Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Development toxin [POSSIBLE]. The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

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Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact	Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
Serious Skin Contact	Not available.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	399°C (750.2°F)
Flash Points	CLOSED CUP: 11.7°C (53.1°F). (TAG) OPEN CUP: 23°C (73.4°F) (Cleveland).
Flammable Limits	LOWER: 2% UPPER: 12.7%
Products of Combustion	These products are carbon oxides (CO, CO ₂).
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames and sparks, of heat, of oxidizing materials.
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.
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.
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 dioxygenyl tetrafluoroborate, chromium trioxide, and potassium tert-butoxide. When heated to decomposition it emits acrid smoke and fumes.
Special Remarks on Explosion Hazards	Secondary alcohols are readily autooxidized in contact with oxygen or air, forming ketones and hydrogen peroxide. It can become potentially explosive. It reacts with oxygen to form dangerously unstable peroxides which can concentrate and explode during distillation or evaporation. The presence of 2-butanone increases the reaction rate for peroxide formation. Explosive in the form of vapor when exposed to heat or flame. May form explosive mixtures with air. Isopropyl alcohol + phosgene forms isopropyl chloroformate and hydrogen chloride. In the presence of iron salts, thermal decomposition can occur, which in some cases can become explosive. A homogeneous mixture of concentrated peroxides + isopropyl alcohol are capable of detonation by shock or heat. Barium perchlorate + isopropyl alcohol gives the highly explosive alkyl perchlorates. It forms explosive mixtures with trinitromethane and hydrogen peroxide. It produces a violent explosive reaction when heated with aluminum isopropoxide + crotonaldehyde. Mixtures of isopropyl alcohol + nitroform are explosive.

Section 6. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill	Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7. Handling and Storage

Precautions	Keep locked up.. 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.
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).

Section 8. Exposure Controls/Personal Protection

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.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
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 ³) [Australia] TWA: 200 STEL: 400 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 980 STEL: 1225 (mg/m ³) from NIOSH TWA: 400 STEL: 500 (ppm) from NIOSH TWA: 400 STEL: 500 (ppm) [United Kingdom (UK)] TWA: 999 STEL: 1259 (mg/m ³) [United Kingdom (UK)] TWA: 400 STEL: 500 (ppm) from OSHA (PEL) [United States] TWA: 980 STEL: 1225 (mg/m ³) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Pleasant. Odor resembling that of a mixture of ethanol and acetone.
Molecular Weight	60.1 g/mole	Taste	Bitter. (Slight.)
pH (1% soln/water)	Not available.	Color	Colorless.
Boiling Point	82.5°C (180.5°F)		
Melting Point	-88.5°C (-127.3°F)		
Critical Temperature	235°C (455°F)		
Specific Gravity	0.78505 (Water = 1)		
Vapor Pressure	4.4 kPa (@ 20°C)		
Vapor Density	2.07 (Air = 1)		
Volatility	Not available.		
Odor Threshold	22 ppm (Sittig, 1991) 700 ppm for unadapted panelists (Verschuren, 1983).		

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Water/Oil Dist. Coeff.	The product is equally soluble in oil and water; log(oil/water) = 0.1
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, methanol, diethyl ether, n-octanol, acetone.
Solubility	Easily soluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
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 ₂ , 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.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation.
Toxicity to Animals	WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3600 mg/kg [Mouse]. Acute dermal toxicity (LD50): 12800 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 16000 8 hours [Rat].
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).
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.
Special Remarks on Chronic Effects on Humans	May cause adverse reproductive/teratogenic effects (fertility, fetotoxicity, developmental abnormalities(developmental toxin)) based on animal studies. Detected in maternal milk in human.
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

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organs, behavior or central nervous system (somnolence, generally depressed activity, irritability, headache, dizziness, drowsiness), liver, and respiratory system (breathing difficulty).

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).


Section 12. Ecological Information

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

Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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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.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations	<p>Connecticut hazardous material survey.: Isopropyl alcohol, 99%</p> <p>Illinois toxic substances disclosure to employee act: Isopropyl alcohol, 99%</p> <p>Rhode Island RTK hazardous substances: Isopropyl alcohol, 99%</p> <p>Pennsylvania RTK: Isopropyl alcohol, 99%</p> <p>Florida: Isopropyl alcohol, 99%</p> <p>Minnesota: Isopropyl alcohol, 99%</p> <p>Massachusetts RTK: Isopropyl alcohol, 99%</p> <p>New Jersey: Isopropyl alcohol, 99%</p> <p>New Jersey spill list: Isopropyl alcohol, 99%</p> <p>Director's list of Hazardous Substances: Isopropyl alcohol, 99%</p> <p>Tennessee: Isopropyl alcohol, 99%</p> <p>TSCA 8(b) inventory: Isopropyl alcohol, 99%</p> <p>TSCA 4(a) final testing order: Isopropyl alcohol, 99%</p> <p>TSCA 8(a) IUR: Isopropyl alcohol, 99%</p> <p>TSCA 8(d) H and S data reporting: Isopropyl alcohol, 99%: Effective date: 12/15/86 Sunset Date: 12/15/96</p> <p>TSCA 12(b) one time export: Isopropyl alcohol, 99%</p> <p>SARA 313 toxic chemical notification and release reporting: Isopropyl alcohol, 99%</p>
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California
Proposition 65
Warnings

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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	

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

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. Other Information**MSDS Code** P4731**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 4/24/2003.

Verified by Sonia Owen.

Printed 9/25/2003.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.