

ASTRO PRODUCT CODE # 10003

MATERIAL SAFETY DATA SHEET

ISOPROPYL ALCOHOL (99%)

MSDS No P000002-1-OSHA-AE
MSDS CLASS H
Ver. No 1
Ver. Date NOV 3 93ARCO Chemical Company
3801 West Chester Pike
Newtown Square
PA 19073 USA

IMPORTANT : Read this MSDS before handling and disposing of this product and pass this information on to the employees, customers, and users of this product. This product is covered by the OSHA Hazard Communication Rule and this document has been prepared in accord with the MSDS requirements of this rule.

1. General

Trade Name	ISOPROPYL ALCOHOL (99%)		Telephone Numbers :	
Other Company Names	None	EMERGENCY		
Synonyms	None	800/424-9300	CHEMTREC	
Other Industry Names	IPA; Isopropanol; Dimethyl Carbinol		810/353-8300	ARCO CHEM
Chemical Family	C3 Alcohol	DOT Hazardous Materials Proper Shipping Name		
Generic Name	2-Propanol	3 (flammable liquid)		DOT Reportable Quantity
CAS No.	(See Section 9 - Components)	ACC Material ID	BE104	UN/NA ID No.
				UN 1219

2. Summary of Hazards

Signal Word	DANGER
Physical Hazards	Extremely flammable liquid
Acute Health Effects (Short-Term)	Slight inhalation hazard Severe eye irritant Slight ingestion hazard No skin irritation hazard identified from data available No skin absorption hazard identified from data available
Chronic Health Effects (Long-Term)	Repeated or prolonged exposure to isopropanol can be irritating to mucosal membranes

3. Fire and Explosion

Flash Point	AP 53 °F (TCC)	Autoignition Temperature	AP 750 °F	Flammable Limits (at Normal Atmospheric Temp and Pressure)
				Lower: AP 2 (% vol in air) Upper: AP 12.7 (% vol in air)
Fire and Explosion Hazards	Releases flammable vapors below normal ambient temperatures. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Diluting with water may not suffice to raise flash point above ambient temperatures.			
Extinguishing Media	Alcohol type foam CO ₂ Dry chemical Water spray Water fog			
Extinguishing Media Use Comment	No additional information available			
Special Firefighting Procedures	Do not enter fire area without proper protection. Fight fire from a safe distance/protected location. Heat may build enough pressure to rupture closed containers/spreading fire/increasing risk of burns/injuries. Water may be ineffective in firefighting due to low flash point. Use water spray/fog for cooling. Avoid frothing/steam explosion. Burning liquid may float on water. Although water soluble, may not be practical to extinguish fire by water dilution. Notify authorities immediately if liquid enters sewer/public waters.			

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4. Health Hazards

Summary of Acute Hazards	Moderate health hazard	
Route of Exposure	SIGNS AND SYMPTOMS	PRIMARY ROUTE(S)
Inhalation	Prolonged overexposure may cause coughing, shortness of breath, dizziness and intoxication.	Yes
Eye Contact	May cause severe eye irritation.	Yes
Skin Absorption	No significant signs or symptoms indicative of any health hazard are expected to occur as a result of skin absorption exposure.	No
Skin Irritation	No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of skin exposure.	No
Ingestion	This material may be a slight health hazard if ingested in large quantities.	No
Summary of Chronic Hazards	Repeated or prolonged exposure may irritate the mucous membranes. See additional Tox information elsewhere in this document.	
Special Health Effects	This material or its emissions may affect mucous tissue and/or aggravate mucous membrane dysfunction.	

5. Protective Equipment and Other Control Measures

Respiratory	If exposure exceeds the PEL/TLV, use NIOSH/MSHA approved respiratory equipment as specified in the NIOSH/OSHA 1981 Occupational Health Guidelines for Chemical Hazards.
Eye	Eye protection, including both chemical splash goggles and face shield, must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor. Contact lenses must not be worn.
Skin	Not normally considered a skin hazard. Where use can result in skin contact, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, and when leaving work.
Engineering Controls	No special ventilation is recommended under anticipated conditions of normal use beyond that needed for normal comfort control.
Other Hygienic Practices	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

6. Occupational Exposure Limits

Substance	Source	Date	Type	Value/Units	Time	Skin
Isopropyl Alcohol	ACGIH	1992	TWA	400 PPM	8 HRS	No
			STEL	500 PPM	15 MIN	No
	OSHA	1989	TWA	400 PPM	8 HRS	No
			STEL	500 PPM	15 MIN	No

Industrial Hygiene Comments: No additional Occupational Exposure Limit information available

7. Emergency and First Aid

Inhalation	If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
Eye Contact	In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.
Skin Contact	Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first.
Ingestion	If large quantity swallowed, give lukewarm water (1/2 litre/pint) if victim completely conscious/alert. DO NOT INDUCE VOMITING. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.
Emergency Medical Treatment Procedures	If pain, blinking, tears, or redness continue, patient should contact ophthalmologist.
Decontamination Procedures	Treat symptomatically.

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8. Spill and Disposal

Precautions if Material is Spilled or Released
Extremely flammable liquid. Release causes immediate fire/explosion hazard. Liquids/vapors may ignite. Evacuate/limit access. Equip responders with proper protection. Extinguish all ignition sources. Stop release. Prevent flow to sewer/public waters. Restrict water use for cleanup. Notify fire and environmental authorities. Impound/recover large land spill. Blanket with firefighting foam. Soak up small spills with inert solids. Use suitable disposal containers. On water, material is soluble and may float or sink. May biodegrade. Contain/collect rapidly to minimize dispersion. Disperse residue to reduce aquatic harm. Report per regulatory requirements.

Waste Disposal Methods
Contaminated product/soil/water may be RCRA/OSHA hazardous waste due to potentially low flash point. (See 40 CFR 261 and 29 CFR 1910). Landfill solids at permitted sites. Use registered transporters. Burn concentrated liquids in systems compatible with water soluble wastes. Avoid flame-outs. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade. Avoid overloading/poisoning plant biomass. Assure effluent complies with applicable regulations.

9. Components

(This may not be a complete list of components.) (Compositions are typical values, not specifications.)

Component Name	CAS No.	Composition Amount (Wt.)	Carcinogen ###
Isopropyl Alcohol	67-63-0	AP 99 %	N/P

1 = National Toxicology Program 2 = International Agency for Research on Cancer 3 = Occupational Health and Safety Administration 4 = Other

10. Component Health Hazards

Component	Component Health Hazards
Isopropyl Alcohol	Damages developing fetus Mucous membrane irritant Severe eye irritant

11. Additional Toxicological Information

Component Name/Comments
Isopropyl Alcohol

Isopropyl Alcohol
Isopropyl alcohol, when given to pregnant rats has been reported in one study to be toxic to the developing fetus at levels of 2.5% in drinking water. No teratogenic effects were, or have been, reported. There are no reports of adverse reproductive effects in humans exposed to this chemical.

Material
No additional toxicology information is available for this material

12. Physical and Chemical Data

Boiling Point AP 180 °F	Viscosity No Data Available	Dry Point Not Applicable
Freezing Point AP -127 °F	Vapor Pressure AP 33 MM HG (at 68° F)	Volatile Characteristics Appreciable
Specific Gravity AP .78 at 68 °F (H2O = 1.0 at 39.2° F)	Vapor Specific Gravity AP 2.1 (Air = 1.0 at 60-90° F)	Solubility in Water Complete (In All Proportions)
pH Not Applicable	Hazardous Polymerization Not expected to occur	Stability Stable
Other Chemical Reactivity	No additional information available	
Other Physical and Chemical Properties	No additional information available	

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12. Physical and Chemical Data (Cont'd)

Appearance and Odor Liquid; Medicinal odor analogous to rubbing alcohol; Odor threshold: AP 200 PPM; Clear, colorless

Conditions to Avoid Heat, sparks, open flame, other ignition sources, and oxidizing conditions

Materials to Avoid Aluminum metals, Nitroform, Strong oxidizing agents, Sulfuric acid

Hazardous Decomposition Products Incomplete combustion may produce carbon monoxide and other toxic gases

13. Hazards Rating Information**National Fire Protection Association**

Health = 1 Flammability = 3 Reactivity = 0

National Paint and Coatings Association**Hazardous Materials Information System (HMIS)**

Health = 1 Flammability = 3 Reactivity = 0 Personal Protection = X

14. Additional Precautions**Handling and Storage Procedures**

Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Use only non-sparking tools. Store closed drums with bung in up position. Carefully vent any internal pressure before removing closure. Containers must be properly grounded before beginning transfer. All equipment must conform to applicable electrical code. Handle empty containers with care; vapor residue may be flammable/explosive. Material may attack some forms of plastic, aluminum, rubber and coatings.

Decontamination Procedures

Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Remove all ignition sources. Check atmosphere for explosiveness and oxygen deficiencies. Wear recommended personal protective equipment. Observe precautions pertaining to confined space entry.

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15. Regulatory Information

FEDERAL:

Toxic Substance Control Act (TSCA)

The following is the TSCA Chemical Substance Inventory Status of the components of this material with CAS numbers listed in Section 9 - Components:

CHEMICAL	CAS NO.	STATUS
Isopropyl Alcohol	67-63-0	Listed - Non Confidential

Superfund Amendments and Reauthorization Act of 1988 (SARA), Title III**- Section 302/304**

Requires emergency planning based on 'Threshold Planning Quantities' (TPQs), and release reporting based on Reportable Quantities (RQs) of "Extremely Hazardous Substances" (EHS) listed in Appendix A of 40 CFR 355. There are no components of this material with known CAS numbers which are on the EHS list.

- Section 311 & 312

Based upon available information, this material and/or components are classified as the following health and/or physical hazards according to Section 311 & 312:

Immediate (Acute) Health Hazard
Fire Hazard

- Section 313

The material does not contain any chemical components with known CAS numbers that exceed the De Minimis reporting levels established by SARA Title III, Section 313 and 40 CFR 372.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

OSHA Regulations

'Chemical-specific' OSHA regulations (1910.1002 to 1910.1050) presented under 29 CFR 1910 do not apply to this material or its components.

Other EPA Regulations

No additional information available

Department of Transportation (DOT)

Other than the normal shipping instructions and information given in this MSDS, there are no other specific DOT regulations governing the shipment of this material.

STATE REGULATIONS:**California Safe Drinking Water and Toxic Enforcement Act of 1988 - Proposition 65**

This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

California South Coast Air Quality Management District (SCAQMD) Rule 443.1 (VOC's)

A Volatile Organic Compound (VOC) is any volatile compound of carbon excluding methane, carbon monoxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, 1,1,1-trichloroethane, methylene chloride, (FC-23), (CFC-113), (CFC-12), (CFC-11), (CFC-22), (CFC-114), and (CFC-115). By this definition, this is a VOC material.

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15. Regulatory Information (Cont'd)**Massachusetts Right-to-Know Substance List (MSL) [105 CMR670.000]**

Hazardous Substances (MSL-HS) on the MSL must be identified when present in materials at levels greater than state specified criterion. The criterion is: $\geq 1\%$. Components with CAS numbers present in this material at a level which could require reporting under the statute are:

CHEMICAL	CAS NO.
Isopropyl Alcohol	67-63-0

Extraordinarily Hazardous Substances (MSL-EHS) on the MSL must be identified when present in materials at levels greater than state specified criterion. The criterion is $\geq 0.0001\%$. Components with CAS numbers present in this material, at levels specified in Section 9 - Components, do not require reporting under the statute.

New Jersey Registration

The New Jersey, Registry 3, Registration law does not apply to this material, as none of its components are trade secrets.

Pennsylvania Right-to-Know Hazardous Substances Lists

Environmental Hazards (PA-EH) must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 0.01\%$. Components with CAS numbers in this material at a level which could require reporting under the statute are:

CHEMICAL	CAS NO.
Isopropyl Alcohol	67-63-0

Hazardous Substances (PA-HS) must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 1\%$. Components with CAS numbers in this material at a level which could require reporting under the statute are:

CHEMICAL	CAS NO.
Isopropyl Alcohol	67-63-0

Special Hazardous Substances (PA-SHS) must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 0.01\%$. Components with CAS numbers present in this material, at levels specified in Section 9 - Components, do not require reporting under the statute.

Regulatory Advisory

If you reformulate or further process this material, you should consider re-evaluation of the regulatory status of the components listed in Section 9, based on the final composition of your product.

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16. Label Information

Manufacturer:

ARCO Chemical Company
3801 West Chester Pike
Newtown Square
PA 19073 USA

Telephone Numbers :

EMERGENCY
800/424-8300 CHEMTREC
810/353-8300 ARCO CHEM
CUSTOMER SERVICE
800/321-7000 INFO ONLY

Other Company Names None

Signal Word DANGER

Use Statement For industrial use only
Keep out of reach of children

Physical Hazards
Extremely flammable

Health Hazards
Severe eye irritant
Inhalation hazard
Ingestion hazard
Prolonged exposure may affect mucous membranes

Precautionary Measures

Do not handle near heat, sparks, or open flame
Do not store near combustible materials
Avoid contact with eyes
Avoid prolonged or repeated breathing of gases, vapors, or mists
Use with adequate ventilation
Prevent contact with food, chewing, or smoking materials
Do not take internally
Keep container tightly closed when not in use
Do not store this material in aluminum containers

DOT Information: UN/NA ID No. UN 1219 DOT Hazard Class 3 (flammable liquid) DOT Reportable Quantity Not Applicable

DOT Hazardous Materials Proper Shipping Name Isopropanol

Component Name
Isopropyl Alcohol

CAS No.	Composition Amount (Wt)	RQ
87-83-0	AP 99 %	Not Applicable

Instructions: In case of fire, use: Alcohol type foam; CO₂; Dry chemical; Water spray; Water fog

First Aid: Inhalation If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

Eye Contact In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.

Skin Contact Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first.

Ingestion If large quantity swallowed, give lukewarm water (1/2 liter/pint) if victim completely conscious/alert. DO NOT INDUCE VOMITING. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

In case of spill, Extremely flammable liquid. Release causes immediate fire/explosion hazard. Extinguish all ignition sources. Impound/recover large land spill; soak up small spill with inert solids. On water, may biodegrade. Contain/collect rapidly to minimize dispersion. Report per regulatory requirements.

Protective Equipment

Respiratory Use only NIOSH/MSHA approved respiratory protection equipment per 1981 NIOSH/OSHA Guidelines for Chemical Hazards.

Eye Chemical splash goggles and/or face shield should be worn.

Skin No special clothing normally required. Where use can result in skin contact, wash thoroughly before eating, drinking, smoking, or leaving work.

Label No.: LP000002 Version No.: 1 Date: SEP 1 1993

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17. General Comments**General Comments**

No additional information available.

Other Comments

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the material itself.

Note Qualifications:	EQ=Equal	AP=Approximately	N/P=No applicable information found
	LT=Less Than	UK=Unknown	N/AP=Not applicable
	GT=Greater Than	TR=Trace	N/DA=No Data Available

Disclaimer of Liability

The information in the MSDS was obtained from sources which we believe are reliable. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

This MSDS was prepared and is to be used only for this product.

If the product is used as a component in another product, this MSDS information may not be applicable.

Print Date

8 February 1995