Material Safety Data Sheet

MSDS Number: 5120 - 17

24 Hour Emergency Assistance: CHEMTREC - Domestic: (800) 424-9300
24 Hour Emergency Assistance: CHEMTREC - International: (703) 527-3887
General Assistance Number: (713) 241-4819

SECTION 1 MATERIAL/COMPANY IDENTIFICATION

MATERIAL IDENTITY: **Isopropyl Alcohol, 99%**

COMPANY ADDRESS: Shell Chemical Company, P.O. Box 4320, Houston, TX 77210-4320, USA

SECTION 2 COMPOSITION

COMPONENTS	CAS#	CONCENTRATION
Isopropyl Alcohol	67-63-0	> 99.7 %weight

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance & Odor: Colorless, mobile liquid. Mild odor.
Health Hazards: Can cause severe lung damage and may be fatal if swallowed. Causes eye irritation. May be harmful if swallowed. May cause CNS depression.
Physical Hazards: FLAMMABLE. Vapors are heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger.

Health Effects

Inhalation:
Breathing of high vapor concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Vapors expected to be slightly irritating.

Eye Contact:
Irritating to the eyes causing a burning sensation, redness, swelling and/or blurred vision.

Skin Contact:
May be slightly irritating to the skin.

Ingestion:
Irritating to the gastrointestinal tract, causing abdominal pain and vomiting, sometimes bloody. Ingestion may cause CNS depression, low blood pressure and rapid heart beat. May be harmful if swallowed. Liquid can

directly enter the lungs (aspiration) when swallowed or vomited. Serious lung damage and possibly fatal chemical pneumonia (chemical pneumonitis) can develop if this occurs.

SECTION 4 FIRST AID MEASURES

Inhalation:
Move victim to fresh air. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

Eye:
Flush eyes with large amounts of water for at least 15 minutes, by the clock, while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling persist, consult a physician.

Skin:
Flush exposed area with water and follow by washing with soap if available.

Ingestion:
DO NOT induce vomiting. Have victim rinse mouth out with water, then drink sips of water to remove taste from mouth. DO NOT GIVE LIQUIDS TO A DROWSY, CONVULSING OR UNCONSCIOUS PERSON. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Transport to nearest medical facility for additional treatment.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point: 53 °F / 11.67°C
Flammability in Air: 2 - 12 %volume

Extinguishing Media:
Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames.

Fire Fighting Instructions:
FLAMMABLE. Clear fire area of all non-emergency personnel. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure, NIOSH approved, self-contained breathing apparatus. Containers exposed to intense heat from fires should be cooled with large quantities of water to prevent weakening of container structure which could result in container rupture.

Unusual Fire Hazards:
Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger.

SECTION 6 ACCIDENTAL RELEASE MEASURES

FLAMMABLE. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger.

Protective Measures:
Evacuate area of unprotected personnel. Eliminate potential sources of ignition (no smoking, flares, sparks or flames in immediate area). Stay upwind and keep out of low areas. Handling equipment must be bonded and grounded to prevent sparking.

Wear appropriate personal protective equipment (refer to Section 8) when responding to spills.

Spill Management:

Shut off source of leak if safe to do so. Dike and contain spill. Use water spray (fog) to reduce vapors or divert vapor cloud drift. If vapor cloud forms, use water fog to suppress or blanket spill area with foam. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. Flush area with water to remove trace residue. Contain run-off from residue flush and dispose of properly. Prevent entry into waterways, sewer, basements or confined areas. For small spills: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

Disposal:
Proper disposal should be evaluated based on regulatory status of this material (refer to Section 13), potential contamination from subsequent use and spillage, and regulations governing disposal in the local area.

Reporting:
Notify authorities if any exposures to the general public or environment occurs or is likely to occur.

SECTION 7 HANDLING AND STORAGE

Do not taste or swallow. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Handling:
Surfaces that are sufficiently hot may ignite liquid material. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger. Do not store or handle in aluminum equipment at temperatures above 120° F (48.9° C).

Keep away from heat, sparks and flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors have dissipated. Use explosion-proof ventilation to prevent vapor accumulation while in use. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Air-dry contaminated clothing in a well-ventilated area before laundering. Static electricity may accumulate and create a fire hazard. Bond and ground handling equipment and transfer containers to prevent sparking.

Storage:
Keep containers closed when not in use.

Ground fixed equipment.

Container Warnings:
Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	TWA	STEL	Ceiling	Notation
Isopropyl Alcohol	ACGIH - TLV	400 ppm (v)	500 ppm (v)		
Isopropyl Alcohol	OSHA - PEL	400 ppm (v)	500 ppm (v)		
Isopropyl Alcohol	OSHA - PEL-Interim Standard	400 ppm (v)			

Shell has adopted as Interim Standards, the OSHA PELs that were established in 1989 and later rescinded.

Exposure Controls

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Appropriate measures include:

Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

Personal Protective Equipment

Personal protective equipment (PPE) selections vary based on potential exposure conditions such as handling practices, concentration and ventilation. Information on the selection of eye, skin and respiratory protection for use with this material is provided below.

Eye Protection:
Chemical goggles, if liquid contact is likely, or Safety glasses

Skin Protection:
Use protective clothing which is chemical resistant to this material. Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other items. The selection(s) should take into account such factors as job task, type of exposure and durability requirements.

Published literature, test data and/or glove and clothing manufacturers indicate protection is provided by:
Butyl, or Natural rubber, or Neoprene, or Nitrile Rubber, or Viton™

Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Types of respirator(s) to be considered in the selection process include:

Air-Purifying Respirator for Organic Vapors, Supplied-Air Respirator, Self-Contained Breathing Apparatus (SCBA) - for use in environments with unknown concentrations or emergency situations.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Colorless, mobile liquid. Mild odor.
Chemical Formula: C3H8O

Boiling Point	180 °F	**Evaporation Rate**	1.4 [vs. n-Butyl Acetate = 1]
Flammability in Air	2 - 12 %volume	**Flash Point**	53 °F [Tagliabue Closed Cup]
Melting Point	-127 °F	**Solubility (in Water)**	Completely Soluble
Specific Gravity	0.789 @ 60 °F	**Stability**	Stable

Vapor Density (Air=1)	2.1	**Vapor Pressure**	32 mmHg @ 68 °F
VOC Content	100 % 6.5 lb/gal @ 77 °F		

SECTION 10 REACTIVITY AND STABILITY

Stability:
Material is stable under normal conditions.

Conditions to Avoid:
Prevent vapor accumulation. Avoid heat, sparks, open flames and other ignition sources.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

Material Tested	Effects	Test Results
Isopropyl Alcohol	Dermal - LD50	12.87 g/kg (Rabbit)
Isopropyl Alcohol	Inhalation - LC50	19000 ppm (v) (Rat) 8 hour(s)
Isopropyl Alcohol	Oral - LD50	4.7 g/kg (Rat)

Eye Irritation:
Moderate irritation [Rabbit]

Skin Irritation:
Mild irritation [Rabbit]

Repeat Dose Testing:
In subchronic testing of IPA via the inhalation route, rats and mice exhibited reversible CNS effects, increases in mortality rate, increases in body weight, and effects of the liver and kidney. The organ effects were likely normal physiologic adaptive changes (liver) or unique rodent pathologic responses (kidney) to the high dose of IPA.

Reproductive and Developmental Toxicity:
IPA was not a primary reproductive or developmental toxicant in animal studies, but pregnant rabbits seemed more susceptible to IPA toxicity than non-pregnant animals.

Other Information:
Laboratory animals administered high doses of IPA in combination with known hepatotoxic chemicals exhibited enhanced liver toxicity.

SECTION 12 ENVIRONMENTAL FATE AND EFFECTS

This section will be updated as ecological reviews are completed.

SECTION 13 DISPOSAL CONSIDERATIONS

Product Disposal:
Under EPA RCRA (40 CFR 261) if this material becomes a waste material, it would be an ignitable hazardous waste, hazardous waste number D001. Refer to the latest EPA or state regulations regarding proper disposal.

SECTION 14 TRANSPORT INFORMATION

US Department of Transportation Classification:

Proper Shipping Name: Isopropanol
Identification Number: UN1219
Hazard Class/Division: 3 (Flammable Liquid)
Packing Group: II
Emergency Response Guide # 129

International Air Transportation Association Classification:

Proper Shipping Name: Isopropanol
Identification Number: UN1219
Hazard Class/Division: 3 (Flammable Liquid)
Packing Group: II

International Maritime Organization:

Proper Shipping Name: Isopropanol
Identification Number: UN1219
Hazard Class/Division: 3.2 (Flammable Liquid)
Packing Group: II

SECTION 15 REGULATORY INFORMATION

The regulatory information provided is not intended to be comprehensive. Other federal, state and local regulations may apply to this material.

Federal Regulatory Status

Resource Conservation & Recovery Act (RCRA) Classification:
D001 (Ignitable Hazardous Waste).

Superfund Amendment & Reauthorization Act (SARA) Title III:

SARA Hazard Categories(311/312):
Fire Hazard. Immediate (Acute) Health Hazard.

SARA Toxic Release Inventory(TRI) (313):

Isopropyl Alcohol (67-63-0)	> 99.7 %weight

Toxic Substances Control Act (TSCA) Inventory Status:
This material is listed on the EPA TSCA Inventory of Chemical Substances.

State Regulatory Status

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

New Jersey Right-To-Know Chemical List:

Isopropyl Alcohol (67-63-0)	> 99.7	%weight

Pennsylvania Right-To-Know Chemical List:

Isopropyl Alcohol (67-63-0)	> 99.7	%weight	Environmental Hazard

SECTION 16 OTHER INFORMATION

NFPA Rating (Health, Fire, Reactivity): 1, 3, 0

Revision#: 17
Revision Date: 01/26/2001
Revisions since last change (discussion): Changes made in Sections 1, 2, and 14.

Product Codes: S1140

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.
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