SAFETY DATA SHEET

SECTION 1 IDENTIFICATION

PRODUCT

Product Name: **ISOPROPYL ALCOHOL**
Product Description: Oxygenated Hydrocarbon
SDS Number: 9115

Intended Use: Solvent

COMPANY IDENTIFICATION

Supplier: **IMPERIAL OIL CHEMICAL**
P.O. Box 2480, Station M
CALGARY, ALBERTA T2P 3M9 Canada

24 Hour Emergency Telephone	(800)424-9300 or (703)527-3887 CHEMTREC
Transportation Emergency Phone Number	(800)424-9300 or (703)527-3887 CHEMTREC
Product Technical Information	1-800-663-4109

SECTION 2 HAZARD IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines.

This product has been classified in accordance with hazard criteria of the Hazardous Products Regulations (HPR) SOR/2015-17 and the SDS contains all the information required by the HPR SOR/2015-17.

CLASSIFICATION:

Flammable Liquids — Category 2
Eye Irritation — Category 2A
Specific Target Organ Toxicity — Single Exposure (Central Nervous System) — Category 3

LABEL:
Pictogram:

Signal Word: Danger

Hazard Statements:
H225: Highly flammable liquid and vapour. H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness.

Precautionary Statements:
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233: Keep container tightly closed. P240: Ground and bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating and lighting equipment. P242: Use non-sparking tools. P243: Take action to prevent static discharges. P261: Avoid breathing mist / vapours. P264: Wash skin thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves and eye protection/face protection.P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P337 + P313: If eye irritation persists: Get medical advice/attention. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish.P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Contains: ISOPROPYL ALCOHOL

Other hazard information:

Health Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

Physical Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

PHYSICAL / CHEMICAL HAZARDS
Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

HEALTH HAZARDS
Repeated exposure may cause skin dryness or cracking. May be irritating to nose, throat, and lungs. May cause central nervous system depression. If swallowed, may be aspirated and cause lung damage.

ENVIRONMENTAL HAZARDS
No significant hazards.

NFPA Hazard ID:	Health:	2	Flammability:	3	Reactivity:	0
HMIS Hazard ID:	Health:	2*	Flammability:	3	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a substance.

Hazardous Substance(s) or Complex Substance(s) in Hazardous product

Name	CAS#	Concentration*	GHS Hazard Codes
ISOPROPYL ALCOHOL	67-63-0	100 %	H225, H305, H336, H319(2A)

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST-AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

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

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Highly flammable. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger. Hazardous material.

Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Incomplete combustion products, Oxides of carbon, Smoke, Fume

FLAMMABILITY PROPERTIES

Flash Point [Method]: 12°C (54°F) [ASTM D-56]
Flammable Limits (Approximate volume % in air): LEL: 2.0 UEL: 13
Autoignition Temperature: 399°C (750°F) [ASTM E659]

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Eliminate sources of ignition. Warn other shipping. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with eyes. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Use only with adequate ventilation. Use proper bonding and/or earthing procedures.However, bonding and earthing may not eliminate the hazard from static accumulation. Peroxides may form upon prolonged storage. Exposure to light, heat or air significantly increases peroxide formation. If evaporated to a residue, the mixture of peroxides residue and material vapor may explode when exposed to heat or shock. Prevent small spills and leakage to avoid slip hazard.

Loading/Unloading Temperature: [Ambient]

Transport Temperature: [Ambient]
Transport Pressure: [Ambient]

Static Accumulator: This material is not a static accumulator.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.
Storage Temperature: [Ambient]
Storage Pressure: [Ambient]

Suitable Containers/Packing: Tankers; Tank Trucks; Drums; Barges; Tank Cars
Suitable Materials and Coatings (Chemical Compatibility): Carbon Steel; Stainless Steel; Polyester; Teflon; Polyethylene; Polypropylene; Epoxy Phenolic; Copper Bronze; Zinc; Vinyls
Unsuitable Materials and Coatings: Butyl Rubber; Natural Rubber; Ethylene-proplyene-diene monomer (EPDM); Polystyrene; Aluminium; Cast iron; Monel

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Substance Name	Form	Limit/Standard			Note	Source
ISOPROPYL ALCOHOL		STEL	400 ppm			ACGIH
ISOPROPYL ALCOHOL		TWA	200 ppm			ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face filter respirator

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

If prolonged or repeated contact is likely, chemical-resistant gloves are recommended. If contact with forearms is likely, wear gauntlet-style gloves.

Eye Protection: Chemical goggles are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Form: Clear
Colour: Colourless
Odour: Alcohol
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.79 [With respect to water] [Calculated]
Density (at 15 ºC): 790 kg/m³ (6.59 lbs/gal, 0.79 kg/dm³) [ASTM D4052]
Flammability (Solid, Gas): N/A
Flash Point [Method]: 12°C (54°F) [ASTM D-56]
Flammable Limits (Approximate volume % in air): LEL: 2.0 UEL: 13
Autoignition Temperature: 399°C (750°F) [ASTM E659]
Boiling Point / Range: 82°C (180°F) [ASTM D1078]
Decomposition Temperature: N/D
Vapour Density (Air = 1): 2 at 101 kPa [Calculated]
Vapour Pressure: 4 kPa (30 mm Hg) at 20ºC [Calculated]
Evaporation Rate (n-butyl acetate = 1): 4 [Calculated]
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): 0.3 [Estimated]
Solubility in Water: Appreciable
Viscosity: 1.8 cSt (1.8 mm2/sec) at 40ºC | 3.1 cSt (3.1 mm2/sec) at 20°C [ASTM D7042]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -88°C (-126°F)
Molecular Weight: 60 G/MOLE [Calculated]
Hygroscopic: Yes
Coefficient of Thermal Expansion: 0.00112 per Deg C [Calculated]

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Under normal storage conditions peroxides may accumulate and explode when subjected to heat or shock. Distillation or evaporation increases peroxide formation and increases the explosion hazard.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Aldehydes, Alkanolamines, Amines, Caustics, Chlorinated Compounds, Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: (Rat) 6 hour(s) LC50 > 25000 mg/m3 (Vapour)	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 403
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapours,

	mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Acute Toxicity (Rat): LD 50 5840 mg/kg	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 401
Skin	
Acute Toxicity (Rabbit): LD 50 13900 mg/kg	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 402
Skin Corrosion/Irritation: Data available.	May dry the skin leading to discomfort and dermatitis. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 404
Eye	
Serious Eye Damage/Irritation: Data available.	Irritating and will injure eye tissue. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 405
Sensitisation	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: Data available.	Not expected to be a skin sensitizer. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 406
Aspiration: Data available.	May be harmful if swallowed and enters airways. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: Data available.	Not expected to be a germ cell mutagen. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 471 474 476
Carcinogenicity: Data available.	Not expected to cause cancer. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 451
Reproductive Toxicity: Data available.	Not expected to be a reproductive toxicant. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 414 415 416
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	May cause drowsiness or dizziness.
Repeated Exposure: Data available.	Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 413

OTHER INFORMATION

For the product itself:

Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

CMR Status: None.

Chemical Name	CAS Number	List Citations
ISOPROPYL ALCOHOL	67-63-0	4

--REGULATORY LISTS SEARCHED--

1 = IARC 1
2 = IARC 2A
3 = IARC 2B
4 = ACGIH ALL
5 = ACGIH A1
6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Not expected to demonstrate chronic toxicity to aquatic organisms.

MOBILITY

Material -- Expected to remain in water or migrate through soil.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be readily biodegradable.

Hydrolysis:

Material -- Transformation due to hydrolysis not expected to be significant.

Photolysis:

Material -- Transformation due to photolysis not expected to be significant.

Atmospheric Oxidation:

Material -- Expected to degrade at a moderate rate in air

OTHER ECOLOGICAL INFORMATION

VOC (EPA Method 24): 6.551 lbs/gal

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	8 day(s)	Alga	LOEC 1000 mg/l: data for the material
Aquatic - Acute Toxicity	24 hour(s)	Daphnia magna	LC50 9714 mg/l: data for the material
Aquatic - Acute Toxicity	96 hour(s)	Pimephales promelas	LC50 9640 mg/l: data for the material

Persistence, Degradability and Bioaccumulation Potential

Media	Test Type	Duration	Test Results
Octanol-Water	Calculated		log Kow 0.05 : material
Water	Ready Biodegradability	5 day(s)	Percent Degraded 53 : material

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG)

Proper Shipping Name: ISOPROPANOL
Hazard Class & Division: 3
UN Number: 1219
Packing Group: II

LAND (DOT)

Proper Shipping Name: ISOPROPANOL
Hazard Class & Division: 3
ID Number: 1219
Packing Group: II
ERG Number: 129
Label(s): 3
Transport Document Name: UN1219, ISOPROPANOL, 3, PG II

SEA (IMDG)

Proper Shipping Name: ISOPROPANOL
Hazard Class & Division: 3
EMS Number: F-E, S-D
UN Number: 1219
Packing Group: II
Marine Pollutant: No
Label(s): 3
Transport Document Name: UN1219, ISOPROPANOL, 3, PG II, (12°C c.c.)

AIR (IATA)

Proper Shipping Name: ISOPROPYL ALCOHOL
Hazard Class & Division: 3
UN Number: 1219
Packing Group: II
Label(s) / Mark(s): 3
Transport Document Name: UN1219, ISOPROPYL ALCOHOL, 3, PG II

SECTION 15 REGULATORY INFORMATION

CEPA: All components of this product are either on the Domestic Substance List (DSL) or are exempt.

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA): AICS, DSL, ENCS, IECSC, KECI, PICCS, TCSI, TSCA

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
ISOPROPYL ALCOHOL	67-63-0	6

--REGULATORY LISTS SEARCHED--

1 = TSCA 4
2 = TSCA 5a2
3 = TSCA 5e
4 = TSCA 6
5 = TSCA 12b
6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H225: Highly flammable liquid and vapor; Flammable Liquid, Cat 2
H305: May be harmful if swallowed and enters airways; Aspiration, Cat 2
H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A
H336: May cause drowsiness or dizziness; Target Organ Single, Narcotic

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

The information and recommendations contained herein are, to the best of Imperial Oil's knowledge and belief, accurate

and reliable as of the date issued. Imperial Oil assumes no responsibility for accuracy of information unless the document is the most current available from an official Imperial Oil distribution system. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or retransmission of this document, in whole or in part, is not permitted.

DGN: 5007529 (1004616)

Copyright 2002 Imperial Oil Limited, All rights reserved