SAFETY DATA SHEET

lyondellbasell

ISOPROPYL ALCOHOL (ANHYDROUS)

Gen. Variant: SDS_US_GHS

Version 1.7 Revision Date 11/23/2021 Print Date 06/08/2022 SDS No.: BE104

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Trade name	:	ISOPROPYL ALCOHOL (ANHYDROUS)
CAS Number:	:	67-63-0
Chemical characterization	:	C3 Alcohol
Chemical name	:	Isopropyl Alcohol
Synonyms	:	IPA, Isopropanol, 2-Propanol, Secondary propyl alcohol
Identified uses	:	Solvent; Additive De-icing and anti-icing applications; Antifreeze/coolant.; Cosmetics, personal care products
Prohibited uses	:	Pharmaceutical excipient; Active pharmaceutical ingredient (API); Tobacco; Electronic cigarettes (E-cigarettes); Cannabis Direct Food additives

Company Address
Lyondell Chemical Company
LyondellBasell Tower, Suite 300
1221 McKinney St.
P.O. Box 2583
Houston Texas 77252-2583

Company Telephone
Customer Service 888 777-0232
product.safety@lyb.com

Emergency telephone number
CHEMTREC USA 800-424-9300
LYONDELL 800-245-4532

E-mail address : product.safety@lyb.com
Responsible/issuing person

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids	Category 2
Eye irritation	Category 2A
Specific target organ toxicity - single exposure	Category 3

Label elements

Hazard symbols :

Signal word : Danger

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

Precautionary Statements : **Prevention**
P210 Keep away from open flames/ hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Hazards Not Otherwise Classified (HNOC)
Repeated contact with neat product may dry the skin causing cracking and/or fissuring.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Components

Chemical name	CAS-No. EC-No.	Weight %	Component Type
Isopropyl Alcohol	67-63-0	>= 99.8 %	A
Ethyl alcohol	64-17-5	<=0.15 %	C

Key:
(A) Substance
(C) Impurity

4. FIRST AID MEASURES

General advice : Consult a physician/doctor if necessary.
Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If overcome by exposure, remove victim to fresh air immediately.
Give oxygen or artificial respiration as needed.
Seek medical attention if discomfort persists.

In case of skin contact : Take off contaminated clothing and wash before reuse.
Wash skin thoroughly with mild soap and water.
Flush with lukewarm water for 15 minutes.
If sticky, use waterless cleaner first.
Seek medical attention if ill effect or irritation develops.

In case of eye contact : Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention.

If swallowed : If product is ingested, do not induce vomiting and contact a physician or Poison Control Center.

Notes to physician

Symptoms : Inhalation of very high concentrations may cause asphyxia,

anesthesia, CNS depression (primarily fatigue, dizziness and loss of concentration, with collapse, coma and death in cases of severe overexposure), and possible cardiac sensitization.

Hazards : May be harmful if swallowed.
May be harmful if swallowed and enters airways.
Causes serious eye irritation.
May cause drowsiness or dizziness.

Treatment : Treat symptomatically.
Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : SMALL FIRE: Use dry chemicals, CO2, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

Unsuitable extinguishing media : WARNING - Water may be ineffective unless used under favorable conditions by experienced fire fighters trained in fighting all types of flammable liquid fires. Water can be used to cool and protect exposed material.

Specific hazards during fire fighting : Releases flammable vapors below normal ambient temperatures.
Fine sprays/mists may be combustible at temperatures below normal flash point.
Vapors may be heavier than air.
May travel long distances along the ground before igniting and flashing back to vapor source.
When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.
Diluting with water may not suffice to raise flash point above ambient temperatures.
Water may be ineffective in firefighting due to low flash point.
Although water soluble, may not be practical to extinguish fire by water dilution.
Move containers from fire area if it can be done without risk.
Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
Cool containers with flooding quantities of water until well after fire is out.
Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Always stay away from tanks engulfed in fire.
For massive fire, use unmanned hose holders or monitor

nozzles; if this is impossible, withdraw from area and let fire burn.

Special protective equipment for fire-fighters : Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighter's protective clothing will only provide limited protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Avoid direct contact with released material. Stay upwind.
Eliminate all sources of ignition.
Evacuate personnel to safe areas.
Prevent further leakage or spillage if safe to do so.

Environmental precautions : Do not allow contact with soil, surface or ground water.
Do not flush into surface water or sanitary sewer system.

Methods for containment / Methods for cleaning up : Extremely flammable liquid.
Release causes immediate fire/explosion hazard.
Liquids/vapors may ignite.
Extinguish all ignition sources.
All equipment used when handling this product must be grounded.
Do not touch or walk through spilled material.
Stop leak if you can do it without risk.
Prevent entry into waterways, sewers, basements or confined areas.
A vapor suppressing foam may be used to reduce vapors.
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Use clean non-sparking tools to collect absorbed material.
Dike large spills and place materials in salvage containers.
Water spray may reduce vapor; but may not prevent ignition in closed spaces.

7. Handling and storage

Precautions for safe handling

Advice on safe handling : For industrial use only.
Keep container tightly closed when not in use.
Check atmosphere for explosiveness and oxygen deficiencies.
Extinguish all ignition sources.

Containers must be properly grounded before beginning transfer.
Use only non-sparking tools.
Carefully vent any internal pressure before removing closure.
Wear recommended personal protective equipment.
All equipment must conform to applicable electrical code.
Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair.
Handle empty containers with care; vapor residue may be flammable/explosive.

Fire-fighting class : OSHA/NFPA Class IB Flammable Liquid.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Steel drums are recomended for packaging.
Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents.
Store closed drums with bung in up position.
Do not store this material in aluminum containers.
Material may attack some forms of plastic, aluminum, rubber and coatings.

Specific end use(s)

: See Section 1.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Ingredients with workplace control parameters

Occupational Exposure Limits

Components	CAS-No.	Type	Limit Value	Basis Revision Date	Additional Information
Isopropyl Alcohol	67-63-0	STEL	400 ppm	US (ACGIH) 2012	
Isopropyl Alcohol	67-63-0	TWA	200 ppm	US (ACGIH) 2012	
Isopropyl Alcohol	67-63-0	IDLH	2,000 ppm	NIOSH September 2007	
	Remarks: 10% LEL				

Isopropyl Alcohol	67-63-0	TWA	400 ppm 980 mg/m3	US (OSHA) June 23, 2006	
Ethyl alcohol	64-17-5	STEL	1,000 ppm	US (ACGIH) 2012	
Ethyl alcohol	64-17-5	IDLH	3,300 ppm	NIOSH September 2007	
	Remarks: 10% LEL				
Ethyl alcohol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	US (OSHA) June 23, 2006	

Consult local authorities for acceptable exposure limits.

Biological Exposure Indices

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Concentration	Basis
Isopropyl Alcohol	67-63-0	Acetone	urine	end of shift at end of workweek	40 mg/l	ACGIH_BEI S
		Remarks: background, nonspecific.				

Exposure controls

Engineering measures

No special ventilation is recommended under anticipated conditions of normal use beyond that needed for normal comfort control.

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection : Wear chemical resistant gloves such as:
Butyl rubber.
Nitrile.
or
Viton(TM).

Eye and face protection : Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor.

Skin and body protection : Not normally considered a skin hazard.
Where use can result in skin contact, practice good personal hygiene.
The equipment must be cleaned thoroughly after each use.

Hygiene measures	:	Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	Clear, colorless.
Odor	:	Medicinal odor analogous to rubbing alcohol.
Odor Threshold	:	~ 200 ppm
Flash point	:	12 °C Method: (TCC)
Ignition temperature	:	399 °C
Lower explosion limit	:	2 vol%
Upper explosion limit	:	12 vol%
Flammability (solid, gas)	:	Not applicable
Oxidizing properties	:	Not considered an oxidizing agent.
Autoignition temperature	:	~ 399 °C
Molecular weight	:	60.09 g/mol
Decomposition temperature	:	not determined
Melting point/freezing point	:	-88 °C
Boiling point/boiling range	:	82 °C at 1,013 hPa
Vapor pressure	:	44 hPa at 20 °C

Density	:	0.79 g/cm3 at 20 °C (Water = 1.0 at 4°C (39.2°F))
Water solubility	:	Miscible
Partition coefficient: n-octanol/water	:	log Pow: 0.05 at 25 °C
Viscosity, dynamic	:	2.4 mPa.s at 20 °C
Viscosity, kinematic	:	2.6 mm2/s at 25 °C
Relative vapor density	:	2.07 at 15 - 20 °C (Air = 1.0)
Explosive properties	:	Not explosive
Other Information	:	No additional information available.

10. STABILITY AND REACTIVITY

Reactivity	:	Will not occur.
Chemical stability	:	Stable under recommended storage conditions.
Hazardous reactions	:	Will not occur.
Conditions to avoid	:	Heat, sparks, open flame, other ignition sources, and oxidizing conditions.
Materials to avoid	:	Strong oxidizing agents. Acetaldehyde. Chlorine. Ethylene Oxide. Acids Isocyanates.
Hazardous decomposition products	:	Not expected to decompose under normal conditions.
Thermal decomposition	:	Incomplete combustion will form carbon monoxide and other toxic vapors.

11. TOXICOLOGICAL INFORMATION

Product Summary	:	The below given information is based on the assessment of the product including impurities.
Acute toxicity		
Acute oral toxicity	:	Based on acute toxicity values, not classified.
	:	LD50: 4,396 mg/kg Species: Rat
	:	Ingestion may cause gastrointestinal effects (pain, nausea, vomiting, hemorrhage), hypothermia, cardiac effects (low blood pressure, shock and cardiac arrest), liver changes, kidney damage, and CNS effects (headache, dizziness, sleepiness, coma and death).
Acute inhalation toxicity	:	Based on acute toxicity values, not classified.
	:	LC50: 46.6 mg/l Exposure time: 8 HOURS Species: Rat
	:	High vapor concentrations may cause irritation of the eyes, nose, and/or throat, changes to the liver, lung, spleen, and brain, and central nervous system depression (ataxia, dizziness, narcosis, and muscle relaxation, with respiratory arrest and death in cases of severe over exposure).
Acute dermal toxicity	:	Based on acute toxicity values, not classified.
	:	LD50: 12,870 mg/kg Species: Rabbit.
	:	High exposures may cause systemic toxicity (CNS depression and death).
Skin corrosion/irritation	:	Based on skin irritation values, not classified. Liquid may cause slight skin irritation. Exposure of liquid to the underdeveloped skin of premature infants may cause severe irritation.
Serious eye damage/eye irritation	:	Classified Causes serious eye irritation.
Respiratory or skin	:	Respiratory sensitization

sensitization		Not classified No study available.
	:	Skin sensitization Not classified No adverse effect observed.

Chronic toxicity

Carcinogenicity	:	Not classified Ethanol possesses properties that indicate a carcinogenicity hazard for human health but these are manifest only at doses associated with consumption of alcoholic beverages. In the context of an industrial chemical, these hazards do not warrant concern as these are not likely to result from the manufacture and use of ethanol and ethanol containing products.
Germ cell mutagenicity	:	Not classified No adverse effect observed.

Reproductive toxicity

Effects on fertility / Effects on or via lactation	:	Not classified Ethanol possesses properties that indicate a lactation hazard for human health but these are manifest only at doses associated with consumption of alcoholic beverages. In the context of an industrial chemical, these hazards do not warrant concern as these are not likely to result from the manufacture and use of ethanol and ethanol containing products.
Effects on Development	:	Not classified Ethanol possesses properties that indicate a developmental hazard for human health but these are manifest only at doses associated with consumption of alcoholic beverages. In the context of an industrial chemical, these hazards do not warrant concern as these are not likely to result from the manufacture and use of ethanol and ethanol containing products.
Target Organ Systemic Toxicant - Single exposure	:	Classified, May cause drowsiness or dizziness.
	:	Exposure routes: Inhalation, Oral, Dermal Target Organs: Central nervous system
Target Organ Systemic Toxicant - Repeated	:	Based on repeated exposure toxicity values, not classified.

exposure

Aspiration hazard : Not classified
May be harmful if swallowed and enters airways.

12. Ecological information

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Based on acute aquatic toxicity values, not classified.

Long-term (chronic) aquatic hazard : Not classified, based on readily biodegradability and low acute toxicity.

Toxicity to fish : Low acute toxicity to fish

Toxicity to daphnia and other aquatic invertebrates : Low acute toxicity to aquatic invertebrates.

Toxicity to algae : Low toxicity to algae.

Toxicity to bacteria : Low toxicity to sewage microbes.

Toxicity to fish (Chronic toxicity) : Chronic toxicity to fish is expected to be low.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Chronic toxicity expected to be low.

Persistence and degradability

Biodegradability : Biodegradation: 86 - 94 %
Exposure time: 14 d
Rapidly degradable.
(After two weeks in a ready biodegradability test)

Stability in soil
ethyl alcohol : Low potential for soil adsorption expected

Bioaccumulative potential

Bioaccumulation : Bioconcentration factor (BCF): 3.16
This material is not expected to bioaccumulate.

Mobility in soil

Distribution among environmental compartments : Type: Stability in water
Initially partitioning mainly to water and air.

: Type: Stability in soil
Volatilization from water or soil surfaces is expected to be limited.

Other adverse effects

Environmental fate and pathways : No additional information available.

Other information

Additional ecological information : No additional information available.

13. Disposal considerations

Waste treatment methods

Product : Contaminated product/soil/water may be U.S. Resource Conservation and Recovery Act (RCRA)/U.S. Occupational Safety and Health Administration (OSHA) hazardous waste due to potentially low flash point.
(See 40 U.S. Code of Federal Regulations (CFR) 261 and 29 CFR 1910).
Comply with federal, state, or local regulations for disposal.

14. TRANSPORT INFORMATION

CFR_ROAD

UN number	: 1219
Description of the goods	: ISOPROPANOL
	: (ISOPROPYL ALCOHOL)
Class	: 3
Packing group	: II
Labels	: 3
Marine pollutant	: no

CFR_RAIL

UN number	: 1219
Description of the goods	: ISOPROPANOL
	: (ISOPROPYL ALCOHOL)

Class	:	3
Packing group	:	II
Labels	:	3
Marine pollutant	:	no

IMDG

UN number	:	1219
Description of the goods	:	ISOPROPANOL
Class	:	3
Packing group	:	II
Labels	:	3
EmS Number 1	:	F-E
EmS Number 2	:	S-D
Marine pollutant	:	no

BLG (MARPOL Annex II)

Description of the goods	:	ISOPROPYL ALCOHOL
Pollution category	:	Z
Ship type	:	NONE

IATA

UN number	:	1219
Description of the goods	:	ISOPROPANOL
Class	:	3
Packing group	:	II
Labels	:	3

15. REGULATORY INFORMATION

TSCA 12b

No substances are subject to TSCA 12(b) export notification requirements.

Significant New Use Rules (SNUR)

No substances are subject to a Significant New Use Rule.

SARA 302/304

This product contains no known chemicals regulated under SARA 302/304.

SARA 311/312

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

Flammable (gases, aerosols, liquids, or solids) Serious eye damage or eye irritation Specific target organ toxicity (single or repeated exposure) Hazard not otherwise classified (health hazards)

SARA 313

This product contains the following chemicals subject to the reporting requirements of SARA Title III, Section 313 and 40 CFR 372:

Component	CASRN	Reporting Threshold
Isopropyl Alcohol	67-63-0	1.0%

State Reporting

This material does not contain listed substance(s) known to the State of California to cause cancer, birth defects, or other reproductive harm that would require warning under the California Proposition 65 State Drinking Water and Toxic Enforcement Act.
However, LyondellBasell has not tested for the presence of listed chemical substances.

This product contains the following chemicals regulated by New Jersey's Worker and Community Right to Know Act:

67-63-0 Isopropyl Alcohol
64-17-5 Ethyl alcohol

This product contains the following chemicals regulated by Massachusetts' Right to Know Law:

67-63-0 Isopropyl Alcohol

This product contains the following chemicals regulated by Pennsylvania's Right to Know Act:

67-63-0 Isopropyl Alcohol

Other international regulations

Global Inventory Status
The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.
*Additional Explanatory Status Statements follow the table, as necessary.

Country/Region	Inventory	Status Description
Australia	AICS	Compliant
Canada	DSL	Compliant
China	IECSC	Compliant
Europe	REACH	See REACH Compliance Statement

Japan	ENCS	Compliant
Korea	KECI	Compliant
New Zealand	NZIoC	Compliant
Philippines	PICCS	Compliant
United States of America	TSCA	Compliant
Taiwan	TCSCA	Compliant

REACh status

If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been registered under REACh, in accordance with the deadlines set forth in REACh. (Regulation (EU) No. 1907/2006)

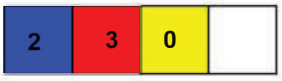
Contact product.safety@lyb.com for additional global inventory information.

16. OTHER INFORMATION

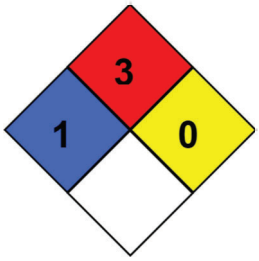
Material safety datasheet sections which have been updated:

Revised Section(s): 1

HMIS Classification : Health Hazard: 2
Flammability: 3
Physical hazards: 0



NFPA Classification : Health Hazard: 1
Fire Hazard: 3
Instability: 0



Further information

HMIS rating scale (0 = minimal hazard; 4 = severe hazard)
NFPA rating scale (0 = minimal hazard; 4 = severe hazard)

Disclaimer

Disclaimer

Information in this document is accurate to the best of our knowledge at the date of publication. The document is designed to provide users general information for safe handling, use, processing, storage, transportation, disposal and release and does not constitute any warranty or quality specification, either express or implied, including any warranty of merchantability or fitness for any particular purpose. Users shall determine whether the product is suitable for their use and can be used safely and legally.

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The Trade Name referenced in section 1 is a trademark owned or used by the LyondellBasell family of companies.

Numerical Data Presentation

The presentation of numerical data, such as that used for physical and chemical properties and toxicological values, is expressed using a comma (,) to separate digits into groups of three and a period (.) as the decimal marker. For example, 1,234.56 mg/kg = 1 234,56 mg/kg.

Language Translations

The information presented in this document has been translated from English by a vendor LyondellBasell believes to be reliable. LyondellBasell and its vendor have made a good-faith effort to verify the accuracy of the translation, but assume no liability or other responsibility for any errors that may have occurred. Please refer to our web site (www.lyondellbasell.com) for the original document written in English.

End of Material Safety Data Sheet