

ISOPROPYL ALCOHOL (ANHYDROUS)

Gen. Variant: SDS_US_GHS

Version 1.4

Revision Date 04/14/2016

Print Date 11/07/2016

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)
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

CHEMTREC USA 800-424-9300
LYONDELL 800-245-4532

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

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

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

GHS Classification Scale (1= severe hazard; 4= slight hazard)

Label elements

Hazard symbols :



Signal Word : Danger

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Hazard Statements

- : H225 Highly flammable liquid and vapor.
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/ vapors/ spray.
P264 Wash hands thoroughly after handling.
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 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 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.
P362 Take off contaminated clothing and wash before reuse.

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**

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Ingredients

Chemical name	CAS-No. EC-No.	Weight %	Component Type
Isopropyl Alcohol	67-63-0	>= 99.8 %	A
Ethyl alcohol	64-17-5	<=0.1 %	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 : Causes serious eye irritation.

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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.

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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.

SECTION 7. HANDLING AND STORAGE**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.

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StorageRequirements for storage
areas and containers

: Steel drums are recommended 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.

8. Exposure controls/personal protection**Control parameters****Ingredients with workplace control parameters****Occupational Exposure Limits**

Ingredients	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/m ³	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/m ³	US (OSHA) June 23, 2006	

Consult local authorities for acceptable exposure limits.

Biological Exposure Indices

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Ingredients	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, 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.
- 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

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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	: 90.09 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/cm ³ 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 mm ² /s at 25 °C
Relative vapor density	: 2.07 at 15 - 20 °C (Air = 1.0)

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Explosive properties : Not explosive

Other Information : No additional information available.

SECTION 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.

SECTION 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.

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: 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 sensitization

: Respiratory sensitization
Not classified
No study available.

: Skin sensitization
Not classified
No adverse effect observed.

Chronic toxicity

Component Name	NTP	IARC	OSHA
Ethyl alcohol		1	Present

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

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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.

: Routes of exposure: Ingestion, Inhalation
Target Organs: Central nervous system

Target Organ Systemic Toxicant - Repeated exposure : Based on repeated exposure toxicity values, not classified.

Aspiration hazard : Based on physico-chemical values or lack of human evidence, not classified.

12. ECOLOGICAL INFORMATION**Ecotoxicology Assessment**

Acute aquatic toxicity : Based on acute aquatic toxicity values, not classified.

Chronic aquatic toxicity : Not classified, based on readily biodegradability and low acute toxicity.

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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 : 86 - 94 %
Rapidly degradable.
(After two weeks in a ready biodegradability test)

Bioaccumulative potential

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

Mobility in soil

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

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

Additional advice : No additional information available.
Environmental fate and pathways

Results of PBT and vPvB assessment

Not applicable.

Other adverse effects

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Additional ecological information : No additional information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Further information : 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.

SECTION 14. TRANSPORT INFORMATION**CFR_ROAD**

UN number : 1219
Description of the goods : Isopropanol
: (ISOPROPYL ALCOHOL)
Class : 3
Packing group : II
Labels : 3

CFR_RAIL

UN number : 1219
Description of the goods : Isopropanol
: (ISOPROPYL ALCOHOL)
Class : 3
Packing group : II
Labels : 3

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
Environmentally hazardous : no

IATA

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

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Packing instruction (cargo aircraft) : 307

Packing instruction (passenger aircraft) : 305

Packing instruction (passenger aircraft) : Y305

SECTION 15. REGULATORY INFORMATION

If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

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:

Fire Hazard.

Immediate (Acute) Health Hazard.

SARA 313

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

<u>Component</u>	<u>Reporting Threshold</u>
Isopropyl Alcohol	1.0%

State Reporting

This material is not known to contain a chemical substance known to the State of California to cause cancer, reproductive, or developmental toxicity under California Proposition 65. 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
64-17-5 Ethyl alcohol

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

67-63-0 Isopropyl Alcohol

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64-17-5 Ethyl 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

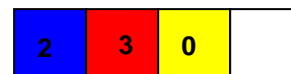
REACH status

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 pre-registered or, where required under REACH, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACH. (Regulation (EU) No. 1907/2006)

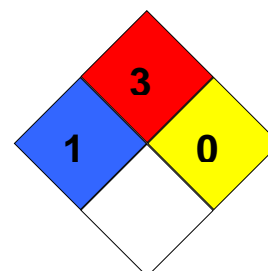
Contact product.safety@lyb.com for additional global inventory information.

SECTION 16. OTHER INFORMATION**Further information****HMIS Classification**

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

**NFPA Classification**

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



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Other Information

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

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

Material safety datasheet sections which have been updated:

Revised Section(s): 1 2 14 16 Revision Date April 13 2016

Disclaimer

This document is generated for the purpose of distributing health, safety, and environmental data.

Information is correct to the best of our knowledge at the date of the SDS publication.

It is not a specification sheet nor should any displayed data be construed as a specification.

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

SELLER MAKES NO WARRANTY; EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY WARRANTY) OTHER THAN AS SEPARATELY AGREED TO BY THE PARTIES IN A CONTRACT.

Users should review the applicable Safety Data Sheet before handling the product.

This product(s) may not be used in the manufacture of any of the following, without prior written approval by Seller for each specific product and application:

- (i) U.S. FDA Class I or II Medical Devices; Health Canada Class I, II or III Medical Devices; European Union Class I or II Medical Devices;
- (ii) film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices;
- (iii) packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration;
- (iv) tobacco related products and applications, electronic cigarettes and similar devices.

The product(s) may not be used in:

- (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices;
- (ii) applications involving permanent implantation into the body;
- (iii) life-sustaining medical applications.

All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

In addition to the above, LyondellBasell may further prohibit or restrict the use of its products in certain applications. For further information, please contact a LyondellBasell representative.

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Language Translations

The information presented in this document has been translated from English by a vendor

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