

Safety Data Sheet

ISOBUTANOL

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Version: 7.0

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(30034839/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

ISOBUTANOL

Recommended use of the chemical and restriction on use

Recommended use*: Chemical

Recommended use*: for industrial use only

Unsuitable for use: Not intended for sale to or use by the general public.

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300

BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	C(4) H(10) O
Chemical family:	alcohol, aliphatic
Synonyms:	2-Methyl-1-Propanol Isobutyl Alcohol

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Flam. Liq.

3

Flammable liquids

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Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
STOT SE	3 (May cause drowsiness and dizziness.)	Specific target organ toxicity — single exposure
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

Label elements

Pictogram:



Signal Word:

Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H335	May cause respiratory irritation.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P271	Use only outdoors or in a well-ventilated area.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist or vapour or spray.
P243	Take action to prevent static discharges.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P264	Wash contaminated body parts thoroughly after handling.
P240	Ground and bond container and receiving equipment.
P242	Use non-sparking tools.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or physician.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use alcohol-resistant foam, carbon dioxide, dry powder or water spray for extinction.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

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P501 Dispose of contents/container in accordance with local regulations.

Hazards not otherwise classified

No applicable information available.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Isobutanol

CAS Number: 78-83-1
Content (W/W): >= 99.5%
Synonym: 2-Methyl-1-propanol; Isobutanol

4. First-Aid Measures

Description of first aid measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Seek medical attention.

If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: Overexposure may cause: coma, coordination disorder, headache, dizziness
Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
dry powder, water spray, carbon dioxide, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:
water jet

Additional information:
Use extinguishing measures to suit surroundings.

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
Flammable liquid Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear. Special protective equipment for firefighters

Further information:

Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Impact Sensitivity:

Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Further accidental release measures:

High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools.

Environmental precautions

Discharge into the environment must be avoided.

Methods and material for containment and cleaning up

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Pick up with suitable appliance and dispose of. Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:

Avoid all sources of ignition: heat, sparks, open flame. Ground all transfer equipment properly to prevent electrostatic discharge.

Conditions for safe storage, including any incompatibilities

No applicable information available.

Further information on storage conditions: Keep away from sources of ignition - No smoking. Keep container tightly closed in a cool, well-ventilated place. Storage containers should be grounded.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

Isobutanol	ACGIH, US:	TWA value 50 ppm ;
	OSHA Z1:	PEL 100 ppm 300 mg/m3 ;

Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:

Observe OSHA regulations for respirator use (29 CFR 1910.134). Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:

Chemical resistant protective gloves, Suitable materials, chloroprene rubber (Neoprene)

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

General safety and hygiene measures:

Work place should be equipped with a shower and an eye wash. Avoid inhalation of vapours/mists. Wear protective clothing as necessary to prevent contact.

9. Physical and Chemical Properties

Form:	liquid
Odour:	alcohol-like
Odour threshold:	not determined
Colour:	clear
pH value:	not applicable
Melting point:	< -90 °C

(ASTM D97)

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Freezing point:	No data available.	
Boiling point:	108 °C (1,013 hPa)	(OECD Guideline 103)
Boiling range:	No data available.	
Sublimation point:	No applicable information available.	
Flash point:	31 °C	(ISO 2719, closed cup)
Flammability:	Flammable liquid and vapour.	(derived from flash point)
Lower explosion limit:	1.1 %(V) (19.9 °C) The lower explosion point of the substance/mixture has been determined. The explosion point describes the temperature of a flammable liquid at which the concentration of the saturated vapour mixed with air equals the lower explosion limit.	
Upper explosion limit:	11.7 %(V) (59.4 °C) The upper explosion point of the substance/mixture has been determined. This explosion point describes the temperature of a flammable liquid at which the concentration of the saturated vapour mixed with air equals the upper explosion limit.	
Autoignition:	400 °C	(DIN 51794)
Vapour pressure:	9.5 hPa (20 °C) 70.7 hPa (50 °C)	
Density:	0.8017 g/cm ³ (20 °C)	(DIN 51757)
Relative density:	0.8017 (20 °C)	(DIN 51757)
Vapour density:	2.55 (20 °C) Heavier than air.	(calculated)
Partitioning coefficient n-octanol/water (log Pow):	1 (25 °C)	(OECD Guideline 117)
Self-ignition temperature:	not self-igniting	
Thermal decomposition:	No data available.	
Viscosity, dynamic:	3.103 mPa.s (20 °C) Literature data.	
Viscosity, kinematic:	No applicable information available.	
Particle size:	The substance / product is marketed or used in a non solid or granular form.	
Solubility in water:	70 g/l (20 °C)	
Solubility (quantitative):	No applicable information available.	

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Solubility (qualitative): soluble
solvent(s): organic solvents,
Molar mass: 74.12 g/mol
Evaporation rate: No data available.

10. Stability and Reactivity

Reactivity

No applicable information available.

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
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Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.
Reacts with strong oxidizing agents.

Conditions to avoid

Avoid extreme heat. Avoid sources of ignition. Avoid electro-static discharge.

Incompatible materials

strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No data available.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of low toxicity after single ingestion. Of low toxicity after short-term skin contact. Virtually nontoxic by inhalation.

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If used as intended, this product is not expected to present a physical or health hazard.

Oral

Type of value: LD50

Species: rat (male/female)

Value: > 2,830 - 3,350 mg/kg (OECD Guideline 401)

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: > 18.18 mg/l (similar to OECD guideline 403)

Exposure time: 6 h

The vapour was tested.

Dermal

Type of value: LD50

Species: rabbit (male/female)

Value: > 2,000 - 2,460 mg/kg (OECD Guideline 402)

Assessment other acute effects

Assessment of STOT single:

Possible narcotic effects (drowsiness or dizziness). Causes temporary irritation of the respiratory tract.

Irritation / corrosion

Assessment of irritating effects: May cause severe damage to the eyes. Skin contact causes irritation.

Skin

Species: rabbit

Result: Irritant.

Method: OECD Guideline 404

Eye

Species: rabbit

Result: Risk of serious damage to eyes.

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Guinea pig maximization test

Species: guinea pig

Result: Non-sensitizing.

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration Hazard

Some authorities consider isobutyl alcohol, n-primary alcohols and ketones with C3-C13 as "May be harmful if swallowed and enters airways"

Chronic Toxicity/Effects

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Repeated dose toxicity

Assessment of repeated dose toxicity: No substance-specific organotoxicity was observed after repeated administration to animals.
No known chronic effects.

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity

Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect.

Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Experiences in humans

High concentrations have a narcotizing effect.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) 1,430 mg/l, *Pimephales promelas* (Fish test acute, Flow through.)

The statement of the toxic effect relates to the analytically determined concentration.

Aquatic invertebrates

EC50 (48 h) 1,100 mg/l, *Daphnia pulex* (ASTM E1193-97, static)

Nominal concentration.

Aquatic plants

EC50 (72 h) 1,799 mg/l (growth rate), *Pseudokirchneriella subcapitata* (OECD Guideline 201, static)

The statement of the toxic effect relates to the analytically determined concentration.

Chronic toxicity to fish

No data available regarding toxicity to fish.

Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) 20 mg/l, *Daphnia magna* (Daphnia test chronic, semistatic)

Nominal concentration.

Assessment of terrestrial toxicity

No data available concerning terrestrial toxicity.

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Microorganisms/Effect on activated sludge

Toxicity to microorganisms

DIN 38412 Part 8 aquatic
bacterium/Toxic limit concentration (16 h): 280 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

70 - 80 % BOD of the ThOD (28 d) (OECD 301D; 92/69/EWG, C.4-E) (aerobic, other)

Assessment of stability in water

According to structural properties, hydrolysis is not expected/probable.

Information on Stability in Water (Hydrolysis)

No data available.

No data available.

Bioaccumulative potential

Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.

Bioaccumulation potential

No data available.

Mobility in soil

Assessment transport between environmental compartments

The substance will slowly evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen(AOX):
This product contains no organically-bound halogen.

13. Disposal considerations

Waste disposal of substance:

Dispose of in accordance with national, state and local regulations.

Container disposal:

Disposal must be made according to official regulations.

RCRA: U140

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14. Transport Information

Land transport

USDOT

Hazard class: 3
Packing group: III
ID number: UN 1212
Hazard label: 3
Proper shipping name: ISOBUTANOL

Sea transport

IMDG

Hazard class: 3
Packing group: III
ID number: UN 1212
Hazard label: 3
Marine pollutant: NO
Proper shipping name: ISOBUTANOL (ISOBUTYL ALCOHOL)

Air transport

IATA/ICAO

Hazard class: 3
Packing group: III
ID number: UN 1212
Hazard label: 3
Proper shipping name: ISOBUTANOL

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

CERCLA RQ

5000 LBS
100 LBS

CAS Number

78-83-1
123-72-8; 71-23-8;
78-84-2; 142-96-1

Chemical name

Isobutanol
butyraldehyde; 1-Propanol; isobutyraldehyde; dibutyl
ether

State regulations

State RTK

NJ
PA

CAS Number

78-83-1
78-83-1

Chemical name

Isobutanol
Isobutanol

NFPA Hazard codes:

Health: 2 Fire: 3 Reactivity: 0 Special:

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HMIS III rating

Health: 2 Flammability: 3 Physical hazard: 0

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Flam. Liq.	3	Flammable liquids
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Skin Corr./Irrit.	2	Skin corrosion/irritation
STOT SE	3 (May cause drowsiness and dizziness.)	Specific target organ toxicity — single exposure
Acute Tox.	5 (oral)	Acute toxicity
Acute Tox.	5 (dermal)	Acute toxicity
Asp. Tox.	2	Aspiration hazard

16. Other Information

SDS Prepared by:

BASF NA Product Regulations
SDS Prepared on: 2023/10/25

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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