

SAFETY DATA SHEET

Version: v1

Revision Date: 2023-12-05

Print Date: 2023-12-06

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Isobutanol
Product Number : I434187
Brand : aladdin
CAS-No. : 78-83-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances.

1.3 Company

Company : ALADDIN SCIENTIFIC CORPORATION
Address : 14078 Meridian Parkway,
Riverside, CA. 92518
Telephone : +1 (833) 552-7181
Fax : no data available

1.4 Emergency telephone number

CHEMTREC®, Inside the USA : 1-800-424-9300
CHEMTREC®, Outside the USA :

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226

Acute toxicity, oral (category 5), H303

Acute toxicity, Dermal (Category 5), H313

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H335, H336

2.2 GHS Label elements, including precautionary statements

Pictogram



Danger

Signal word

Hazard statement(s)

H226

Flammable liquid and vapor

H315

Causes skin irritation

H318

Causes serious eye damage

H335

May cause respiratory irritation

H336

May cause drowsiness or dizziness

H303+H313

May be harmful if swallowed or in contact with skin

Precautionary statement(s)

P210

Keep away from heat, hot surface, sparks, open flames and other ignition sources. - 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 [and ...] thoroughly after handling.

P271

Use only outdoors or in a well-ventilated area.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P312

Call a POISON CENTER or doctor/... if you feel unwell.

P303+P361+P353

IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].

P332+P313

IF SKIN irritation occurs: Get medical advice/attention.

P370+P378

In case of fire: Use ... to extinguish.

P405

Store locked up.

P403+P233

Store in a well-ventilated place. Keep container tightly closed.

P403+P235

Store in a well-ventilated place. Keep cool.

P501

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

P304+P340+P312

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. if you feel unwell.

P305+P351+P338+P310

IF IN EYES: Rinse cautiously with water for several minutes. If contact lenses are worn and can be easily removed, remove Contact lenses. Continue rinsing. Immediately call an emergency center/doctor.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

SECTION 3: Composition/information on ingredients

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

3.1 Substances

Synonyms	: Isobutanol, Isobutylalcohol, 2-Methyl-1-propanol, Iso-Butanol
Formula	: C ₄ H ₁₀ O
Molecular weight	: 74.12
CAS No.	: 78-83-1
EC-NO.	: 201-148-0

Component	Classification	Concentration
Isobutanol	Flam. Liq. 3; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H226,	(isobutyl alcohol) Basic-Grade Reagents , for Preparation

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. .

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂) Foam Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities

Moisture sensitive. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a fullface respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

If safety requires, prevent further leakage or spillage. Do not let the product enter the sewer.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	form: liquid color: Colorless
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	-108°C
f) Initial boiling point and boiling range	108°C
g) Flash point	28°C
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

m) Relative density	0.802g/cm ³ at 20°C
n) Water solubility	87 g/l
o) Partition coefficient: n-octanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties N	no data available
t) Oxidizing properties N	no data available

9.2 Other safety information

no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Exothermic reaction with: Acid chlorides strong reducing agents Risk of ignition or formation of inflammable gases or vapours with: chromium(VI) oxide Strong oxidizing agents Aluminum Violent reactions possible with: Alkali metals Alkaline earth metals

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - female - 3,350 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 6 h - > 18.18 mg/l - vapor Remarks: (ECHA)

LD50 Dermal - Rabbit - female - 2,460 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation

Remarks: Causes skin irritation. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation

Eyes - Rabbit Result: Corrosive - 24 h (OECD Test Guideline 405) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster fibroblasts Metabolic activation: with and without metabolic activation Result: negative Remarks: (ECHA) Test Type: Micronucleus test Test system: Chinese hamster fibroblasts Metabolic activation: without metabolic activation Result: negative Remarks: (ECHA) Test Type: Ames test Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vivo micronucleus test Species: Mouse Cell type: Red blood cells (erythrocytes) Application Route: Oral Method: OECD Test Guideline 474 Result: negative

Carcinogenicity

no data available

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

May cause respiratory irritation. - Respiratory Tract Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) May cause drowsiness or dizziness. - Central nervous system Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead minnow) - 1,430 mg/l - 96 h Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia pulex (Water flea) - 1,100 mg/l - 48 h Remarks: (ECHA)

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - 1,799 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) NOEC - Daphnia magna (Water flea) - 20 mg/l - 21 d Remarks: (ECHA)

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d Result: 70 - 80 % - Readily biodegradable. (OECD Test Guideline 301D)

Chemical Oxygen Demand (COD) 2,600 mg/g Remarks: (External MSDS) Theoretical oxygen demand 2,600 mg/g

Remarks: (Lit.) Ratio BOD/ThBOD 64 % Remarks: (Lit.)

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

no data available

SECTION 13:

13.1 Disposal considerations

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number: 1212

Proper shipping name: Isobutanol

Environmental Hazards: no

IMDG

UN number: 1212

Proper shipping name: Isobutanol

IATA

UN number: 1212

Proper shipping name: Isobutanol

Packing group: III

Reportable Quantity(RQ): no data available

Packing group: III

Packing group: III

Class: 3

Poison Inhalation Hazard: no data available

EMS-No: no data available

Class: 3

SECTION 15: Regulatory information

Phone: +1 (833) 552-7181 Email: QualityAssurance@aladdinsci.com Website: <https://www.aladdinsci.com/>

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

SECTION 16: Other information

Prepared By

Regulatory Affairs

ALADDIN SCIENTIFIC CORPORATION

Email: QualityAssurance@aladdinsci.com

Creation Date

28-Nov-2023

Revision Date

05-Dec-2023

Print Date

06-Dec-2023

Revision Summary

SDS sections updated v1

Disclaimer

Copyright Aladdin Co. Ltd. License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Aladdin Co. Ltd. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.