

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-methylpropan-2-ol

1.2 Other means of identification

Product number -

Other names 2-Propanol, 2-methyl-; 2-Propanol, 2-methyl; Trimethyl methanol

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.

Uses advised against no data available

1.4 Supplier's details

Company Shanghai Baishun Biotechnology Co., Ltd
Address No. 26, Lane 918, Lianye Road, Zhelin Town, Fengxian District, Shanghai, 201400, China
Telephone +86-21-37581181

1.5 Emergency phone number

Emergency phone number +86-21-37581181

Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 2

Eye irritation, Category 2

Acute toxicity - Category 4, Inhalation

Specific target organ toxicity – single exposure, Category 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour
H319 Causes serious eye irritation

	H332 Harmful if inhaled H335 May cause respiratory irritation
Precautionary statement(s)	
Prevention	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/lighting/...] equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P264 Wash ... thoroughly after handling. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P317 Get medical help. P319 Get medical help if you feel unwell.
Storage	P403+P235 Store in a well-ventilated place. Keep cool. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-methylpropan-2-ol	2-methylpropan-2-ol	75-65-0	200-889-7	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Vapor is narcotic in action and irritating to respiratory passages. Liquid is irritating to skin and eyes. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Higher alcohols (>3 carbons) and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Flash back possible over considerable distance.

5.2 Specific hazards arising from the chemical

This chemical is flammable. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, alcohol-resistant foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Wash away remainder with plenty of water.

6.2 Environmental precautions

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Wash away remainder with plenty of water.

6.3 Methods and materials for containment and cleaning up

Personal precautions: 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. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants and strong acids. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 100 ppm as TWA; A4 (not classifiable as a human carcinogen). MAK: 62 mg/m³, 20 ppm; peak limitation category: II(4); pregnancy risk group: C

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Off-white solid block or clear colourless liquid, depending on temperature.
Odour	Camphor-like odor
Melting point/freezing point	25.7 °C. Atm. press.:101.3 kPa. Remarks:STP conditions assumed.
Boiling point or initial boiling point and boiling range	82.41 °C. Atm. press.:101.3 kPa. Remarks:STP conditions assumed.
Flammability	Combustible Solid Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 2.4% by volume; Upper flammable limit: 8.0% by volume
Flash point	< 23 °C. Atm. press.:Preliminary test.;15 °C. Atm. press.:STP conditions assumed.
Auto-ignition temperature	470 °C. Atm. press.:STP conditions assumed.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	kinematic viscosity (in mm ² /s) = 5.72. Temperature:25.0°C.;kinematic viscosity (in mm ² /s) = 2.23. Temperature:45.0°C.
Solubility	Miscible with water

Partition coefficient n-octanol/water	Pow = 2.08. Temperature: 22.5 °C.; log Pow = 0.317. Temperature: 22.5 °C.
Vapour pressure	5 413 Pa. Temperature: 25 °C.
Density and/or relative density	0.79. Temperature: 20 °C.
Relative vapour density	2.55 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on contact with strong mineral acids or strong oxidants. This generates fire and explosion hazard.

10.2 Chemical stability

Heat contributes to instability

10.3 Possibility of hazardous reactions

Highly flammable liquid and vapor. The vapour mixes well with air, explosive mixtures are easily formed. Attacks plastics. [Handling Chemicals Safely 1980, p. 236]. Acetyl bromide reacts violently with alcohols or water [Merck 11th ed. 1989]. Mixtures of alcohols with concentrated sulfuric acid and strong hydrogen peroxide can cause explosions. Example: an explosion will occur if dimethylbenzylcarbinol is added to 90% hydrogen peroxide then acidified with concentrated sulfuric acid. Mixtures of ethyl alcohol with concentrated hydrogen peroxide form powerful explosives. Mixtures of hydrogen peroxide and 1-phenyl-2-methyl propyl alcohol tend to explode if acidified with 70% sulfuric acid [Chem. Eng. News 45(43):73 1967; J. Org. Chem. 28:1893 1963]. Alkyl hypochlorites are violently explosive. They are readily obtained by reacting hypochlorous acid and alcohols either in aqueous solution or mixed aqueous-carbon tetrachloride solutions. Chlorine plus alcohols would similarly yield alkyl hypochlorites. They decompose in the cold and explode on exposure to sunlight or heat. Tertiary hypochlorites are less unstable than secondary or primary hypochlorites [NFPA 491 M 1991]. Base-catalysed reactions of isocyanates with alcohols should be carried out in inert solvents. Such reactions in the absence of solvents often occur with explosive violence [Wischmeyer 1969].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with oxidizing materials, H₂O₂.

10.6 Hazardous decomposition products

Toxic gases & vapors (e.g., carbon monoxide & isobutylene) may be released in a fire involving tert-butyl alcohol.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD₅₀ - rat (male) - 3 384 mg/kg bw.
- Inhalation: LC₅₀ - rat (male/female) - > 10 000 ppm.
- Dermal: LD₅₀ - rabbit (male/female) - > 2 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

A4; Not classifiable as a human carcinogen.

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause lowering of consciousness.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information**12.1 Toxicity**

- Toxicity to fish: LC50 - *Pimephales promelas* - > 961 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 933 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - > 976 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - *Pseudomonas putida* - > 10 g/L - 16 h.

12.2 Persistence and degradability

AEROBIC: t-Butyl alcohol, present at 100 mg/L, achieved 2.5% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). The biodegradation half-life of t-butyl alcohol was reported to range from about 28 to 180 days in aerobic water and 100 to 500 days in anaerobic water(2). t-Butyl alcohol reached 1% of its theoretical BOD using a sewage sludge during a 5 day incubation period(3). Using a river die-away test, t-butyl alcohol achieved 4% of its theoretical BOD in 12 days(4). t-Butyl alcohol, present at 50 mg/L, achieved 7% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(5). Approximately 96% dissolved organic carbon was removed over a 6 day incubation period using the Zahn-Wellens test, meant to simulate degradation at an industrial sewage treatment plant(5). Using an activated sludge in a prolonged closed bottle biodegradation test, t-butyl alcohol was degraded 10, 63 and 67% in 28, 42 and 56 days, respectively(6). Biodegradation of t-butyl alcohol in unamended soils collected at different depths had rates of <0.01 to 0.15 mg/L/day/gram dry soil(7).

12.3 Bioaccumulative potential

BCF values of <5 were reported for carp exposed to 6 ug/L of t-butyl alcohol during a 6 week incubation period(1). According to a classification scheme(2), this BCF suggests bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of t-butyl alcohol has been reported as 37 (log Koc 1.57)(1-2). According to a classification scheme(3), this Koc value suggests that t-butyl alcohol is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1120 (For reference only, please check.)

IMDG: UN1120 (For reference only, please check.)

IATA: UN1120 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: BUTANOLS (For reference only, please check.)

IMDG: BUTANOLS (For reference only, please check.)

IATA: BUTANOLS (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2-methylpropan-2-ol	2-methylpropan-2-ol	75-65-0	200-889-7
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances			Listed.

(China IECSC)	
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

The odour warning when the exposure limit value is exceeded is insufficient.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

Disclaimer: 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. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.