

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 3-methylbutan-1-ol

1.2 Other means of identification

Product number -
Other names 3-Methyl-1-butanol; Isopentyl 3-methyl-2-butenolate; Isoamyl senecioate

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 Yansheng Internet Technology Co., Ltd
Address 513, A3 / F, green space future center, Fengxian District, Shanghai, 201400, China
Telephone +86-4000-6969-66

1.5 Emergency phone number

Emergency phone number +86-4000-6969-66
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 3
Skin irritation, Category 2
Serious eye damage, Category 1
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) H226 Flammable liquid and vapour
H315 Causes skin irritation
H318 Causes serious eye damage
H332 Harmful if inhaled

	H335 May cause respiratory irritation
Precautionary statement(s)	
Prevention	<p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P233 Keep container tightly closed.</p> <p>P240 Ground and bond container and receiving equipment.</p> <p>P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.</p> <p>P242 Use non-sparking tools.</p> <p>P243 Take action to prevent static discharges.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...</p> <p>P264 Wash ... thoroughly after handling.</p> <p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p>
Response	<p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].</p> <p>P370+P378 In case of fire: Use ... to extinguish.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water/...</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P332+P317 If skin irritation occurs: Get medical help.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P317 Get medical help.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P319 Get medical help if you feel unwell.</p>
Storage	<p>P403+P235 Store in a well-ventilated place. Keep cool.</p> <p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405 Store locked up.</p>
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
3-methylbutan-1-ol	3-methylbutan-1-ol	123-51-3	204-633-5	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 nothing to drink. Do NOT induce vomiting. Refer immediately for medical attention.

4.2 Most important symptoms/effects, acute and delayed

Very high vapor concentrations irritate eyes and upper respiratory tract. Continued contact with skin may cause irritation. (USCG, 1999)

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

Minimum/Potential Fatal Human Dose

Near borderline between toxicity classes 3 & 4. 4=very toxic: probable oral lethal dose (human) 50-500 mg/kg, between 1 teaspoon & 1 oz for 70 kg person (150 lb). 3=moderately toxic: probable oral lethal dose (human) 0.5-5.0 g/kg, between 1 oz & 1 pint (or 1 lb) .

Absorption, Distribution and Excretion

3-Methyl-1-butanol, following serial (four 15-minute intervals) ip injections in the rat, is very rapidly metabolized . Only 1-1.5% of the administered doses of 3-methyl-1-butanol were excreted in the expired air plus urine as the pentanol. The blood concentration of 3-methyl-1-butanol decreased from 37 mg/100 ml at 1 hr (ie, 15 min after the last pentanol injection) to <1 mg/100 ml at 5 hr. In the rabbit, limited amounts of 3-methyl-1-butanol and the other primary pentanols are conjugated to yield the glucuronide, and 7-10% of the administered dose is excreted as the urinary glucuronide.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water, powder, "alcohol" foam or carbon tetrachloride. Water spray is effective for cooling fire-exposed containers, dispersing spills before burning, and protection from heat those persons engaged to stop leakage during the fire.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

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

Personal protection: protective clothing, safety goggles and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable non-plastic containers as far as possible. Absorb liquid in sand or inert absorbent. Wash away remainder with plenty of water.

6.2 Environmental precautions

Personal protection: protective clothing, safety goggles and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable non-plastic containers as far as possible. Absorb liquid in sand or inert absorbent. Wash away remainder with plenty of water.

6.3 Methods and materials for containment and cleaning up

1. Remove all ignition sources. 2. Ventilate area of spill or leak. 3. For small quantities, absorb on paper towels. Evaporate in a safe place (such as a fume hood). Allow sufficient time for evaporating vapors to completely clear the hood ductwork. Burn the paper in a suitable location away from combustible materials. ... Isoamyl alcohol should not be allowed to enter a confined space, such as a sewer, because of the possibility of an explosion.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 42°C use a closed system, ventilation and explosion-proof electrical equipment. 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 reducing agents. IN GENERAL, MATERIALS WHICH ARE TOXIC AS STORED OR WHICH CAN DECOMP INTO TOXIC COMPONENTS ... SHOULD BE STORED IN A COOL, WELL-VENTILATED PLACE, OUT OF DIRECT RAYS OF THE SUN, AWAY FROM AREAS OF HIGH FIRE HAZARD, & SHOULD BE PERIODICALLY INSPECTED ... INCOMPATIBLE MATERIALS SHOULD BE ISOLATED FROM EACH OTHER.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 100 ppm as TWA; 125 ppm as STEL. MAK: 73 mg/m³, 20 ppm; peak limitation category: I(2); 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 spectacles, face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

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	Colourless.
Odour	CHARACTERISTIC, DISAGREEABLE ODOR
Melting point/freezing	-147 °C. Atm. press.: 1 013 hPa. Remarks: Glass Point.

point	
Boiling point or initial boiling point and boiling range	130.7 °C. Atm. press.: 1 013.25 hPa. Remarks: Value was obtained by intrapolation from the vapour pressure curve.
Flammability	Class II Combustible Liquid: Fl.P. at or above 100°F and below 140°F.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 1.2% by volume; Upper flammable limit: 9.0% (at 212 deg F) by volume
Flash point	43.5 °C. Atm. press.: 1 013 hPa.
Auto-ignition temperature	335 °C. Atm. press.: 1 013 - 1 017 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 4.3. Temperature: 20°C.; kinematic viscosity (in mm ² /s) = 5.32. Temperature: 20°C.
Solubility	Partially miscible with water
Partition coefficient n-octanol/water	log Pow = 1.35.
Vapour pressure	3 hPa. Temperature: 20 °C. Remarks: Calculated from the regression equation.
Density and/or relative density	0.81 g/cm ³ . Temperature: 20 °C.
Relative vapour density	3 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on heating and on burning. This produces irritating fumes. Reacts violently with strong oxidants. Reacts with reducing agents. This generates explosion hazard. Attacks plastics and coatings.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

MODERATE, WHEN EXPOSED TO HEAT OR FLAME; CAN REACT VIGOROUSLY WITH REDUCING MATERIALS. ISOAMYL ALCOHOL attacks plastics [Handling Chemicals Safely, 1980. p. 236]. Mixtures with concentrated sulfuric acid and strong hydrogen peroxide may cause explosions. Mixing with hypochlorous acid in water or water/carbon tetrachloride solution can generate isoamyl hypochlorites, which may explode, particularly on exposure to sunlight or heat. Mixing with chlorine would also yield isoamyl hypochlorites [NFPA 491 M, 1991]. Base-catalysed reactions with isocyanates can occur with explosive violence [Wischmeyer, 1969].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizers.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rabbit (male/female) - 3 438 mg/kg bw. Remarks: Calculated.

- Inhalation: Inhalation hazard test - rat.
- Dermal: LD50 - rabbit (male) - 3.54 mL/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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is severely irritating to the eyes. The substance is irritating to the respiratory tract. The substance is mildly irritating to the skin. Ingestion could cause effects on the central nervous system. If swallowed the substance may cause vomiting and could result in aspiration pneumonitis.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking.

Aspiration hazard

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

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - 530 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 341.21 mg/L - 48 h.
- Toxicity to algae: TTC (toxic threshold concentration) = TGK (Toxische Grenzkonzentration) which is comparable with EC5 - Scenedesmus quadricauda - 260 mg/L - 8 d.
- Toxicity to microorganisms: EC10 - activated sludge, domestic - 370 mg/L - 180 min.
Remarks:Respiration rate.

12.2 Persistence and degradability

Isopentanol is readily biodegraded in aerobic screening tests using sewage or activated sludge inocula(1-5). In one screening study utilizing a sewage seed, 75% and 100% of the isopentanol degraded within 4.5 and 6 days, respectively(1). In another, the half-life of isopentanol was 2.4 days(2). Five day BOD values ranged from 49% to 77% of theoretical(3-5). In a semi-continuous activated sludge treatment plant simulation, a 47% BOD reduction was achieved in 8 hr(3). The half-lives of isopentanol in ground water, Lester River, MN river water and Lake Superior harbor water were 15, 11, and 6.1 days, respectively(6). Isopentanol was >75% mineralized when incubated for 8 weeks in an anaerobic reactor using a 10% sludge inoculum from a secondary digester(7). The mean removal rate of isopentanol from a semi-pilot scale anaerobic lagoon was 32% in 20 days(8).

12.3 Bioaccumulative potential

The BCF for isopentanol estimated from isopentanol's octanol/water partition coefficient, log 1.42(1), using a recommended regression equation is 7(2). Such a low BCF would indicate that isopentanol would not bioconcentrate in aquatic organisms(SRC).

12.4 Mobility in soil

The Koc for isopentanol estimated from its water solubility, 26.7 mg/L(1), using recommended regression equations are 720(2) and 679(4). However, the chemicals used in developing these equations were mainly pesticides and their structures are not similar to isopentanol. The Koc for isopentanol estimated from molecular structure is 4(3). This should be a reasonable estimate for the Koc because it is close to the experimental value for the structurally similar chemical, 1-pentanol, 1.6(6). According to a suggested classification scheme(5), the estimated Kocs based on molecular structure suggests that isopentanol is very highly mobile in soil(SRC).

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: UN1105 (For reference only, please check.)	IMDG: UN1105 (For reference only, please check.)	IATA: UN1105 (For reference only, please check.)
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14.2 UN Proper Shipping Name

ADR/RID: PENTANOLS (For reference only, please check.)	IMDG: PENTANOLS (For reference only, please check.)	IATA: PENTANOLS (For reference only, please check.)
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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.)
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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.)
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14.5 Environmental hazards

ADR/RID: No	IMDG: No	IATA: No
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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
3-methylbutan-1-ol	3-methylbutan-1-ol	123-51-3	204-633-5
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 (China IECSC)			Listed.
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/>

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

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