



PREC ShenZhen Prechem New Materials Co., Ltd.

Chemical Safety Data Sheet

Identification of the substance/mixture and of the company/undertaking

Product name: tert-Butanol
Company: ShenZhen Prechem New Materials Co., Ltd.
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SECTION 1 IDENTIFICATION

GHS Product identifier: tert-Butanol 99.9%.
Other means of identification: /
Recommended use of the chemical and restrictions on use: /
Supplier's details: /
Emergency phone number: /

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable Liquids Category 2.

Acute Toxicity (Inhalation) Category 4.

Serious Eye Damage/Eye Irritation Category 2A.

Specific Target Organ Toxicity - Single Exposure Category 3 (respiratory tract irritation).

GHS Label elements, including precautionary statements



Signal word: Danger.

Hazard statement(s): Highly flammable liquid and vapor. Harmful if inhaled. Causes serious eye irritation. May cause respiratory irritation.

Precautionary statement(s):

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof [electrical/ventilating/ lighting/...] equipment. Use non-sparking tools. Take action to prevent static discharges. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling.

Response: In case of fire: Use Foam, powder, carbon dioxide or water spray to extinguish. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Storage: Store in well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Disposal: Dispose of contents/container to...

Other hazards which do not result in classification: /

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
tert-Butanol	75-65-0	99.92%
Water	7732-18-5	0.01%

SECTION 4 FIRST AID MEASURES

Description of necessary first aid measures

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

In case of skin contact: Immediately remove all contaminated clothing, including footwear. Wash off with soap and plenty of water, using safety shower if available. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes. Ensure complete irrigation of the eye by occasionally lifting the upper and lower lids. Consult a physician.

If swallowed: Rinse mouth with water. DO NOT induce vomiting. Consult a physician.

Most important symptoms and effects, both acute and delayed: Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

Indication of immediate medical attention and special treatment needed: /

SECTION 5 FIREFIGHTING MEASURES

Suitable extinguishing media: Foam. Dry chemical powder. Carbon dioxide. Water spray or fog - Large fires only.

Special hazards arising from the chemical: Liquid and vapour are highly flammable. Severe fire hazard when exposed to heat, flame and/or oxidisers. Vapour may travel a considerable distance to source of ignition. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO).

Special protective actions for fire-fighters: Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation (or protect in place). Fight fire from a safe distance, with adequate cover. If safe, switch off electrical equipment until vapour fire hazard removed. Use water delivered as a fine spray to control the fire and cool adjacent area. Avoid spraying water onto liquid pools. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment.

Environmental precautions: Prevent, by any means available, spillage from entering drains or water courses.

Methods and materials for containment and cleaning up: Stop leak if safe to do so. Water spray or fog may be used to disperse /absorb vapour. Contain spill with sand, earth or vermiculite. Use only spark-free shovels and explosion proof equipment. Collect recoverable product into labelled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occurs, advise emergency services.



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SECTION 7 HANDLING AND STORAGE

Precautions for safe handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights, heat or ignition sources. When handling, DO NOT eat, drink or smoke. Vapour may ignite on pumping or pouring due to static electricity. DO NOT use plastic buckets. Earth and secure metal containers when dispensing or pouring product. Use spark-free tools when handling. Avoid contact with incompatible materials. Keep containers securely sealed. Avoid physical damage to containers.

Conditions for safe storage, including any incompatibilities: Store in original containers in approved flame-proof area. No smoking, naked lights, heat or ignition sources. DO NOT store in pits, depressions, basements or areas where vapours may be trapped. Keep containers securely sealed. Store away from incompatible materials in a cool, dry well ventilated area. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

OCCUPATIONAL EXPOSURE LIMITS (OEL)

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
China Occupational Exposure Limits for Hazardous Agents in the Workplace	tertiary utanol	Butyl alcohol	100 g/m ³	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
tertiary butanol	Butyl alcohol, tert; (tert-Butanol)	150 ppm	1,300 ppm	8000 ppm
Ingredient	Original IDLH	Revised IDLH		
tertiary butanol	8,000 ppm	1,600 ppm		

Appropriate engineering controls: For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Personal protective equipment

Eye/face protection: Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

Skin protection: Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber. The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Respiratory protection: Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.

Thermal hazards: /

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless transparent liquid
Odour	/
Odour Threshold	/
pH	/



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Melting point/freezing point	25.6°C.
Initial boiling point and boiling range	82.0°C.
Flash point	11.0°C.
Evaporation rate	1.05 BuAc=1.
Flammability (solid, gas)	HIGHLY FLAMMABLE.
Upper/lower flammability or explosive limits	2.4-8.0%.
Vapour pressure	5.59.
Vapour density	2.55 (AIR=1) .
Relative density	0.784 (WATER=1) .
Water solubility	Miscible.
Partition coefficient: noctanol/water	/
Autoignition temperature	477°C.
Decomposition temperature	/
Viscosity	2.59 (30°C).

SECTION 10 STABILITY AND REACTIVITY

Reactivity: /

Chemical stability: Product is considered stable under normal handling conditions.

Possibility of hazardous reactions: Hazardous polymerisation will not occur. Contact with alkaline material liberates heat.

Conditions to avoid: Heat, flames and sparks.

Incompatible materials: Strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents.

Hazardous decomposition products: Carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure: Inhaled, Ingestion, skin, eyes.

Symptoms related to the physical, chemical and toxicological characteristics: /

Acute health effects

Inhalation: Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects. Inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

Ingestion: Accidental ingestion of the material may be damaging to the health of the individual. Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result.

Skin: Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact. Most liquid alcohols appear to act as primary skin irritants in humans.

Eyes: Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

Chronic health effects: here exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals. There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have



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been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects..

Numerical measures of toxicity (such as acute toxicity estimates): /

SECTION 12 ECOLOGICAL INFORMATION

Toxicity: /

Persistence and degradability: Water/Soil: HIGH (Half-life=360days). Air: LOW (Half-life=24.58 days).

Bioaccumulative potential: LOW (BCF = 1.09).

Mobility in soil: HIGH (KOC = 1.471).

Other adverse effects: /

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal methods: Recycle wherever possible or consult manufacturer for recycling options. Consult Land Waste Authority for disposal. Bury or incinerate residue at an approved site. Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 TRANSPORT INFORMATION

UN number: 1120.

UN proper shipping name: BUTANOLS.

Transport hazard class(es): 3.

Packaging group: II.

Environmental hazards: /

Special precautions for user: /

SECTION 15 REGULATORY INFORMATION

Regulations: This safety data sheet is in compliance with the following national standards: GB /T16483-2008, GB 13690-2009, GB/T 15098-2008, GB 18218-2009, GB 15258-2009, GB 6944-2012, GB 190-2009, GB 191-2009, GB 12268-2012, GA 57-1993, GBZ 2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation [Published by the Ministry of Railways, 2008], Dangerous Chemicals Safety Administrative Regulation [Published by the State Council, 2011].

SECTION 16 OTHER INFORMATION

References

“Model Regulations on the Transport of Dangerous Goods”

“The Globally Harmonized System of Classification and Labelling of Chemicals”

This MSDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority.products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.