

# SAFETY DATA SHEET



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## 24-Hour Emergency Number (CHEMTREC)

USA: 800-424-9300  
International: 703-527-3887

All non-emergency numbers should be directed  
to Customer Service at 800-PURITY1

## TERT-BUTYL ALCOHOL

SDS No. M0024

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: tert-Butyl Alcohol

Synonyms: 2-Methyl-2-propanol; Trimethyl Carbinol; tert-Butanol

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

### 2. HAZARDS IDENTIFICATION



#### **Classification:**

Flammable Liquids: GHS Category 3

Skin Irritation: GHS Category 2

Eye Irritation: GHS Category 2

Target Organ System Toxicity, single exposure: GHS Category 3

#### **Label Elements**

Signal Word: DANGER!

#### Hazard Statements:

- H226 – Flammable liquid and vapor.
- H315 – Causes skin irritation.
- H320 – Causes eye irritation.
- H332 – Harmful if inhaled.
- H335 – May cause respiratory irritation.
- H336 – May cause drowsiness and dizziness.

#### Precautionary Statements:

- P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P310 – If SWALLOWED: Immediately call or POISON CENTER or a doctor/physician.
- P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P341 – If inhaled: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P501 – Dispose of contents/ container to an approved waste disposal plant.

Clear focus. Consistent results. Complete confidence.

### Emergency Overview

May cause central nervous system effects. May be absorbed through the skin. Causes irritation to eyes, skin, and respiratory tract. Flammable liquid and vapor. Target Organs: Kidneys, central nervous system, and liver.

#### HMIS Rating:

Health – 2 Flammability – 3 Physical Hazard – 1 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
tert-Butyl Alcohol	76-65-0	>99%	Yes

### 4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Get medical help immediately. Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. If vomiting occurs naturally, have victim lean forward. Allow the victim to rinse mouth and give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person.

Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation persists.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Do not allow victim to rub or keep eyes closed. Get medical attention.

Notes to Physician: Treat symptomatically and supportively.

### 5. FIRE FIGHTING MEASURES

Flammability: Flammable liquid and vapor (GHS Category 3)

Auto-ignition Temperature: 470° C (878° F)

Flash Point: 4° C (39° F)

Flammable Limits: Lower Limit – 2.4 vol %, Upper Limit – 8.0 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Vapors may form explosive mixtures with air. Use water spray to keep fire exposed containers cool. Water may be ineffective since material is lighter than water and may be spread. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Fire Fighting Media: For small fires, use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam. In case of large fires, use water spray, fog, or alcohol-resistant foam.

National Fire Protective Association: Health - 1, Flammability - 3, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

### 6. ACCIDENTAL RELEASE MEASURES

Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

## 7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from sources of ignition. should be stored away from heat and light and be protected from ignition sources.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 100 ppm TWA

NIOSH – 100 ppm TWA; 300 mg/m<sup>3</sup> TWA; 1600 ppm IDLH;

OSHA Final PELs – 100 ppm TWA; 300 mg/m<sup>3</sup> TWA

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless (after melting) liquid.

Odor: Camphor odor

Molecular Formula: (CH<sub>3</sub>)<sub>3</sub>COH

Molecular Weight: 74.12

Auto-ignition Temperature: 470° C (878° F)

Flash Point: 4° C (39° F)

Flammable Limits: Lower Limit – 2.4 vol %, Upper Limit – 8.0 vol %

pH: Not available.

Boiling Point: 83.7° C @ 760 mm Hg

Freezing/Melting Point: 25-25.5° C

Decomposition Temperature: Not available

Specific Gravity: 0.7860 g/cm<sup>3</sup>

Vapor Density (Air=1): 2.6

Vapor Pressure: 36 mbar @ 20° C.

Evaporation Rate (Butyl acetate = 1): Not available.

Viscosity: 3.35 mPas 20° C

Solubility: Soluble in water

Conductivity: Conductive; Conductivity = 2.66x10<sup>6</sup> pS/m; Dielectric Constant = 12.47; Relaxation Time Constant = 4.2x10<sup>-5</sup> seconds

## 10. STABILITY AND REACTIVITY

Stability: Stable under normal temperature and pressure.

Conditions to Avoid: High temperatures, incompatible materials, ignition sources.

Incompatibility with Various Substances: Strong oxidizing agents, aluminum, organic peroxides, chromium trioxide.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

## 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Inhalation of high concentrations may cause central nervous effects characterized by nausea, headache, dizziness, unconsciousness, and coma. Causes respiratory tract irritation. May cause liver and kidney damage. May cause lung damage. May cause blood changes.

INGESTION HAZARD: May cause liver and kidney damage. May cause central nervous system depression with excitement followed by headache, drowsiness, nausea, and vomiting. Advanced stages may cause collapse, unconsciousness, coma, and possible death due to respiratory failure.

SKIN CONTACT HAZARD: Cause skin irritation. May be absorbed through the skin in harmful amounts. Repeated or prolonged exposure may cause drying and cracking of skin.

EYE CONTACT HAZARD: Causes eye irritation.

Chronic Exposure Hazards: Repeated eye exposure may cause visual abnormalities including blurred vision and photosensitivity.

Animal Toxicity:

Oral, rabbit: LD50 = 3559 mg/kg;

Oral, rat: LD50 = 3500 mg/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: No information available.

Teratogenicity: Inhalation, rat: TCLo = 8000 ppm/7H Effects on embryo or fetus - fetotoxicity (stunted fetus).

Reproductive Effects: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

## 12. ECOLOGICAL INFORMATION

Ecotoxicity: Goldfish (fresh water) death, 1000 ppm/24H; Fathead minnow LC50 = 1940 mg/L/1H; Aquatic plant toxicity = 8500 ppm; Bacteria (*Pseudomonas putida*) 650 mg/L inhibited cell multiplication.

Environmental Fate: When released to the soil, substance is expected to biodegrade, leach to the groundwater, or volatilize. In water, substance is expected to biodegrade or volatilize. Bioconcentration potential is expected to be low. Substance is moderately to highly mobile in soil (log octanol/water partition coefficient is 0.88).

Physical: Substance reacts in air with hydroxyl radicals (half-life 2-3 days).

## 13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. TRANSPORT INFORMATION

### US DOT, IATA, IMO

Proper Shipping Name: Butanols  
Hazard Class: 3  
UN Number: UN1120  
Packing Group: II

### Canada TDG

Additional Information: Flashpoint 11 C

## 15. REGULATORY INFORMATION

### US Federal Regulations:

TSCA: CAS# 75-65-0 is listed on the TSCA Inventory.

Health and Safety Reporting List: Not listed.

Chemical Test Rules: CAS# 75-65-0: Not listed.

Section 12b: Not listed.

TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substances: CAS# 75-65-0 does not have an RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 75-65-0 – acute, flammable

Section 313: tert-butanol (CAS# 75-65-0 2) is subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

Clean Air Act: CAS# 75-65-0 is not listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.

Clean Water Act: CAS# 75-65-0 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

### US State Regulations:

CAS# 75-65-0 is on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts

California Prop 65: California No Significant Risk Level: Not listed

### Canada:

DSL/NDSL: CAS# 75-65-0 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of B2, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS#75-65-0 is not listed on Canada's Ingredient Disclosure List.

### DSCL (EEC):

Hazard Symbols: Xn, F

Risk Phrases: R11 – Highly Flammable; R20 - Harmful by inhalation.

Safety Phrases: S9 – Keep container in a well-ventilated place; S16 – Keep away from sources of ignition – no smoking.

WGK (Water Danger/protection): CAS# 75-65-0: No information available.

## 16. OTHER INFORMATION

Originally Prepared: 1/1/2006

Last Revised: 06/13/2019 – Updated precautionary statements in section 2.

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