



Material Safety Data Sheet

BUTYL ALCOHOL-tert**1. Product Identification**

Synonyms: 2-Methyl-2-propanol; trimethyl carbinol; tert-butanol

CAS No.: 75-65-0

Molecular Weight: 74.12

Chemical Formula: (CH₃)₃COH

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
tert-Butyl Alcohol	75-65-0	99 - 100%	Yes

3. Hazards Identification**Emergency Overview**

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. MAY CAUSE IRRITATION TO SKIN. MAY AFFECT LIVER AND KIDNEYS.

Potential Health Effects**Inhalation:**

Butyl alcohols have produced few cases of poisoning in industry because of their low volatility. Causes irritation to upper respiratory tract. Difficult breathing, coughing, headache, dizziness, and drowsiness may occur. May cause narcosis. May be absorbed into the bloodstream with symptoms similar to ingestion.

Ingestion:

May produce abdominal pain, vomiting, dullness, headache, muscle weakness, giddiness, ataxia, confusion, delirium, diarrhea, coma, and death from respiratory failure. May cause liver, kidney, pulmonary and cardiac damage. Estimated mean lethal dose is 3 - 7 ounces.

Skin Contact:

May cause irritation with redness and pain.

Eye Contact:

May cause irritation with blurred vision. Causes irritation, redness, and pain.

Chronic Exposure:

Chronic exposure may cause skin, kidney and liver effects.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, impaired liver or kidney or respiratory function, or central or peripheral nervous system disorders may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Call a physician if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Flash point: 11C (52F) CC

Autoignition temperature: 478C (892F)

Flammable limits in air % by volume:

l_{el}: 2.4; u_{el}: 8.0

Flammable.

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back.

Sensitive to static discharge.

Fire Extinguishing Media:

Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. This highly flammable liquid must be kept from sparks, open flame, hot surfaces, and all sources of heat and ignition.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Product may solidify at room temperature. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

100 ppm (TWA)

-ACGIH Threshold Limit Value (TLV):

100 ppm (TWA)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

9. Physical and Chemical Properties

Appearance:

Colorless liquid. Colorless hygroscopic crystals below melting point

Odor:

Camphor odor.

Solubility:

Miscible in water.

Specific Gravity:

0.78 @ 26C

pH:

No information found.

% Volatiles by volume @ 21C (70F):

100

Boiling Point:

82C (180F)

Melting Point:

26C (79F)

Vapor Density (Air=1):

2.6

Vapor Pressure (mm Hg):

44 @ 26C (79F)

Evaporation Rate (BuAc=1):

1.05

10. Stability and Reactivity

Stability:

Stable at room temperature in sealed containers.

Hazardous Decomposition Products:

Burning may produce carbon monoxide, carbon dioxide and isobutylene.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizing agents, hydrogen peroxide + sulfuric acid, mineral acids and alkali metals. May attack some forms of plastics and rubber. Reacts with HCl to form t-butyl chloride, a volatile liquid.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Oral rat LD50: 3500 mg/kg. Investigated as a tumorigen, mutagen, reproductive effector.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
tert-Butyl Alcohol (75-65-0)	No	No	None

12. Ecological Information

Environmental Fate:

When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material may evaporate to a moderate extent. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into air, this material is expected to have a half-life between 10 and 30 days.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

International (Water, I.M.O.)

Proper Shipping Name: BUTANOLS
Hazard Class: 3
UN/NA: UN1120
Packing Group: II
Information reported for product/size: 52L

International (Air, I.C.A.O.)

Proper Shipping Name: BUTANOLS
Hazard Class: 3
UN/NA: UN1120
Packing Group: II
Information reported for product/size: 52L

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
tert-Butyl Alcohol (75-65-0)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

--Canada--

Ingredient	Korea	DSL	NDSL	Phil.
tert-Butyl Alcohol (75-65-0)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-----SARA 313-----	
	RQ	TPQ	List	Chemical Catg.
tert-Butyl Alcohol (75-65-0)	No	No	Yes	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	-RCRA-	-TSCA-	
	CERCLA	261.33	8(d)
tert-Butyl Alcohol (75-65-0)	No	No	Yes

16. Other Information

Label Hazard Warning:
WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO EYES AND RESPIRATORY TRACT. MAY CAUSE IRRITATION TO SKIN. MAY AFFECT LIVER AND KIDNEYS.

Label Precautions:
Keep away from heat, sparks and flame.
Avoid contact with eyes, skin and clothing.

Avoid breathing vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. In case of skin contact, immediately flush skin with plenty of water for at least 15 minutes. Call a physician if irritation develops.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 3.

Disclaimer:

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall INDO GULF GROUP be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if INDO GULF GROUP has been advised of the possibility of such damages.