

## Section 1 – Chemical Product and Company Identification

MSDS Name: Lithium t-butoxide solid

Chemical Family: Alkali Metal Alkoxide

Use of the substance: Industrial Manufacturing

Company: Optima Chemicals Group, LLC  
200 Willacoochee Hwy.  
Douglas, Georgia 31535  
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Emergencies: Telephone (912) 384-5101

## Section 2 – Hazards Identification

Hazards:

Self -heating; may cause fire

Causes severe skin burns and eye damage..

NFPA Rating: Health: 3 Flammability: 3 Reactivity: 2 Special: W

Precautionary Statements:

Wear chemical splash goggles with a face shield, rubber gloves and rubber clothing.

Keep cool, away from sunlight...

Do not breathe dust or mist.

Wash thoroughly after handling.

Avoid breathing vapors.

Use only outdoors or in well-ventilated area.

## Section 3 – Composition, Information on Ingredients

<u>CAS #</u>	<u>EC#</u>	<u>Chemical Name</u>	<u>Wt.%</u>
1907-33-1	217-611-5	Lithium t-butoxide	98

## Section 4 – First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, lifting upper and lower lids.  
See a medical doctor or ophthalmologist immediately.

Skin: Quickly wipe off as much as possible, then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and/or shoes. Thoroughly wash with soap and water, and seek medical attention.

Ingestion: Quickly wipe material from the mouth, and rinse mouth out with plenty of water. Dilute with 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

Inhalation: Remove from exposure, to fresh air immediately. If breathing discomfort occurs and persists, seek medical attention. If not breathing give artificial respiration, and seek medical attention.

Notes to Medical Doctor: This product has a high ph and is corrosive to eyes, skin and mucous membranes. . Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. Observation may be warranted. Treatment is controlled removal of exposure with symptomatic and supportive care.

### **Section 5 – Fire Fighting Measures**

Flammable Limits: Upper: 8% ; Lower: 2.4% (t-butanol and hydrolysis product)

General Hazard: Flammable solid Reacts violently with water to give off flammable fumes and corrosive dust, and t-butanol. Dust explosion hazard.

Fire Extinguishing Agents Recommended: Do not use water or carbon dioxide. Use dry chemical.

Hazardous Combustion Products: Lithium hydroxide, carbon dioxide, carbon monoxide.

Special Fire fighting Procedures: Wear self-contained breathing apparatus and protective clothing(approved for firefighting) to protect against heat, products of combustion and oxygen deficiency.. Do not breathe smoke, gases or vapors generated.

Autoignition temperature: Not applicable.

Flashpoint: -11.1°C (t-butanol, hydrolysis product)

Sensitivity to Static Discharge: Yes

Sensitivity to Impact: None

### **Section 6 – Accidental Release Measures**

Remove all sources of ignition. Do not use water in the initial phases of clean up. With clean shovel, place in clean, dry, metal container and cover loosely. Dispose of waste according to local, state and Federal laws and regulations. Before cleanup measures begin, review the entire MSDS with particular attention to Section 3, and Section 8.

### **Section 7 - Handling and Storage**

Handling: Use in a closed system under argon or nitrogen. Do not get in eyes, on skin or clothing. Do not breathe vapors or mist.

Storage: Store in cool, dry place. Store in tightly closed container. Keep away from sources of ignition, water, air, acids and oxidizing agents.

### **Section 8 – Exposure Controls, Personal Protection**

Exposure Limits:

T-butanol, hydrolysis product; PEL (OSHA) - 100 ppm, TWA (ACGIH)- 100 ppm.,  
STEL(OSHA- 150 ppm

Engineering Controls: Use in closed system under argon or nitrogen. If personal contact can occur, use local exhaust ventilation (explosion proof), to keep airborne concentrations below exposure limits.

Eyes and Face: Wear chemical splash goggles with a face shield.

Skin: Wear rubber gloves and rubber protective clothing.

Respiratory: When engineering controls are not adequate, wear a NIOSH/MSHA respirator approved for protection against organic vapors and mists.

Work Hygienic Practices: Quick-drench eyewash and safety shower.

### **Section 9 – Physical and Chemical Properties**

Appearance and Odor: Yellow solid, odor not available

Melting Point: - < 250°C

Boiling Point: not available

Flash Point: -11.1°C

Vapor Density: Air=1 (2.55)

pH: Reacts vigorously with water to give > 12      Percent Volatile: not available

Vapor Pressure: 30.1 mm Hg at 20°C (t-butanol hydrolysis product)

Specific Gravity: Bulk density, approx. 0.5g/cc      Evaporation Rate: not available

Water Solubility: Exothermic reaction to form basic lithium hydroxide and Tertiary butanol.

Flammability: self-heating, flammable solid.

Autoignition Temperature: Not available

Viscosity: Not available

Decomposition Temperature: Not available

Explosive Properties: Not explosive

Oxidizing Properties: Not an oxidizer

Molecular Weight: 80.05

### **Section 10 – Stability and Reactivity**

Stability: Stable.

Hazardous Polymerization: Does not polymerize

Incompatibility: Heat, fire, air, water, acids and oxidizing chemicals

Hazardous Decomposition Products: Lithium hydroxides, flammable hydrocarbons, and alcohols.

Conditions to Avoid: Water, heat, sparks, open flame.

### **Section 11 – Toxicological Information**

Eyes: No data available for the product. Lithium t- Butoxide: Corrosive

Skin: No data available for the product. Lithium t- Butoxide: Corrosive

Ingestion: No data available for the product. Lithium t- butoxide: Oral LD<sub>50</sub> = 1682 mg/kg (mouse), t-butanol, hydrolysis product: oral LD<sub>50</sub>=2743 mg/kg (rat).

Inhalation: No data available for the product. Lithium t- Butoxide : corrosive, t-butanol, hydrolysis product inhalation LC<sub>50</sub> > 10000 ppm (4 hr. rat)

Acute Effects: No data available for the product. Extremely reactive and corrosive to skin, eyes (may cause blindness), mucous membranes and upper respiratory tract.

Chronic Effects from Overexposure: No data available for the product.

Sensitization: No

Carcinogenicity: No listed by IARC, NTP, OSHA, or EH40. ACGIH- t- butanol is listed as a A4, not classifiable as a human carcinogen.

Mutagenicity: No data available for the product. Studies using live animals show it is not mutagenic.

Reproductive Toxicity: No data available for the product.

## **Section 12 – Ecological Information**

Ecotoxicological Information:

Environmental toxicity testing of the product has not been conducted.

THF: 96 hr. LC50 = 2160 mg/l (fathead minnow) [Handbook of Env. Data on Org. Chem., 4<sup>th</sup> Ed 2001]. 24 hr. EC50 = 5.93 g/l (Daphnia magna) [AQUIRE 2003]. 48 hr LC50 = 2820; 2930m g/l (orfe ) [Handbook of Env. Data on Org. Chem., 4<sup>th</sup> Ed],

Chemical Fate Information:

No data available for the product. Lithium t-butoxide reacts violently with water to form lithium hydroxide and t-butanol.

T-butanol- is expected to readily volatilize with both water and soil. It is not expected to absorb to sediment or bioconcentrate in aquatic organisms. It is expected to be very mobile in soil (estimated KOC of 36.9) and may leach to ground water. It is expected to biodegrade in both soil and groundwater. An estimated bioconcentration factor of 1.08 indicates a very low tendency to bioaccumulate.

## **Section 13 – Disposal Considerations**

Dispose of in accordance with federal, state, and local regulations.

## **Section 14 – Transport Information**

DOT Shipping: alkali metal alcoholates, self-heating, corrosive, N.O.S. (lithium t-butoxide), 4.2 spontaneously combustible, (8, corrosive) UN3206, PG II.

Labels: Spontaneously combustible, corrosive.

Custom Tariff No: 2905.14.1000

Marine Pollutant: No

PIH: Not designated Poison Inhalation Hazard by USDOT.

## **Section 15 – Regulatory Information**

United States:

Section 311 Hazard Category (40CFR 370): Reactive; fire hazard, immediate (acute); health hazard.

Section 313 Reportable Ingredients (40 CFR 372): tertiary butanol is a reportable substance.

Section 302 Extremely Hazardous Substances (40 CFR 355): Not listed.

CERCLA Hazardous Substance (40 CFR 302.4): Not listed

TSCA Sec 12B Export Notification: Not required

TSCA Inventory Status (40 CFR 710): Listed

Canada:

Product Identification No.: 3206

WHMIS: Hazard Classification - Class B; Division 4, Class E, t-butanol a hydrolysis product is listed.

### **Section 16 – Additional Information**

Creation Date: 02/01/2010

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

This information is believed to be accurate and represents the best information currently available to Optima Chemical Group LLC. However, we make no warranty of merchantability, express or implied, with respect to such information and assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.