



SAFETY DATA SHEET

Issue Date 26-June-2008

Revision Date 01-September-2020

Version 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name BTMAC

Other Means of Identification

SDS # LC-004

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Catalyst

Details of the Supplier of the Safety Data Sheet

Supplier Address

Lindau Chemicals, Inc.
731 Rosewood Drive
Columbia, SC 29201

Emergency Telephone Number

Company Phone Number

Phone: 1-803-799-6863

Fax: 1-803-256-3639

Emergency Telephone

INFOTRAC 01-352-323-3500 (International)

1-800-457-4280 (North America)

2. HAZARDS IDENTIFICATION

OSHA/HCS Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification

Acute Toxicity: Inhalation	Category 4
Acute Toxicity: Oral	Category 3
Acute Toxicity: Skin	Category 3
Specific Target Organ Toxicity (Single Exposure)	Category 3
Germ Cell Mutagenicity	Category 2
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A

Signal Word

Danger

Hazard Statements

H332: Harmful if inhaled

H301: Toxic if swallowed

H311: Toxic in contact with skin

H335: May cause respiratory irritation

H341: Suspected of causing genetic defects

H315: Causes skin irritation

H319: Causes serious eye irritation



Appearance White/off-white crystalline powder

Physical State Powder

Odor Slight characteristic odor

Precautionary Statements - Prevention

P202: Do not handle until all safety precautions have been read and understood.

P261: Avoid breathing dust.

P264: Wash face, hands and any exposed skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves, protective clothing and eye protection.

Precautionary Statements - Response

P305 + P351: IF IN EYES: Rinse cautiously with water for several minutes.

P338: Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P301 + P310 + P330: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

P308 + P313: If exposed or concerned: Get medical advice/attention.

Precautionary Statements - Storage

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

Precautionary Statements - Disposal

P501: Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms

N,N,N,-trimethylbenzenemethanaminium chloride

Formula

C₁₀H₁₆ClN

Chemical Name	CAS No	Weight-%
Benzyltrimethylammonium chloride	56-93-9	100

4. FIRST AID MEASURES

First Aid Measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration. Seek medical attention if respiratory irritation or distress continues.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediately call a poison center or doctor/physician.
Ingestion	If swallowed, call a poison control center or doctor/physician immediately. Rinse mouth thoroughly with water. Do not induce vomiting.
Skin Contact	Wash thoroughly with soap and water until no traces of the chemical remain. Remove and wash contaminated clothing before reuse. Get immediate medical attention.

Most Important Symptoms and Effects

Symptoms	Causes skin irritation. Causes serious eye irritation. May cause irritation to skin and/or mucous membranes. Toxic if swallowed. Toxic if absorbed through the skin.
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Indication of any Immediate Medical Attention and Special Treatment Needed (if Necessary)

Note to Physician	Treat symptomatically.
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See Toxicological Information (Section 11)

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Media	Use dry chemical, CO ₂ , foam, or water spray (fog).
Unsuitable Media	Not determined

Specific Hazards Arising from the Chemical

Product is not flammable. May support combustion if exposed to fire. Combustion products may be toxic.

Hazardous Combustion Products	Carbon dioxide, carbon monoxide, nitrogen oxides, hydrogen chloride, uncombusted organics
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Special Protective Equipment for Fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Wear protective clothing as described in Section 8 of this safety data sheet. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Provide adequate ventilation. Avoid dust formation. Evacuate personnel to safe areas.
Environmental Precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. See Section 13, Disposal Considerations, for additional information.

Methods and Materials for Containment and Cleaning Up

Contain spill, isolate the hazard area and provide ventilation. Sweep up and shovel into suitable containers for disposal while avoiding the generation of dust. Seal containers. Dilute and wash remaining product with water and dispose of in accordance with federal, state and local regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling	Handle in accordance with good industrial hygiene and safety practice. Use personal protection recommended in Section 8. Avoid contact with skin, eyes or clothing. Wash face, hands, and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid breathing dust. Use only outdoors or in a well-ventilated area. Avoid generation of dust.
General Occupational Hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for Safe Storage (Including any Incompatibilities)

Storage Conditions	Keep container tightly closed and store in a cool, dry and well-ventilated place. Avoid excessive temperatures and high humidity. Material is hygroscopic. Store locked up.
Packaging Materials	Empty containers retain product residue and can be hazardous.
Incompatible Materials	Oxidizing agents, reactive metals, strong acids, strong bases, water

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Control Parameters

Engineering Controls In the laboratory, a fume hood should always be used. Outside the laboratory, take measures to control dust generation. Ensure adequate ventilation, especially in confined areas. Eyewash stations. Showers.

Individual Protection Measures

Eye/Face Protection Chemical anti-splash safety goggles

Skin and Body Protection Rubber, neoprene or other impervious gloves are recommended to prevent skin contact. Coveralls, apron or other equipment should be worn to minimize skin contact.

Respiratory Protection Ensure adequate ventilation, especially in confined areas. In case of inadequate ventilation wear respiratory protection.

General Hygiene Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Powder		
Appearance	Crystalline powder	Odor	Slight characteristic odor
Color	White to off-white	Odor Threshold	Not determined
Property	Values	Remarks/Method	
pH	3-5	(10% aqueous solution)	
Melting Point	239–242°C (462–467°F)	(with decomposition) literature value	
Boiling Point	> 135°C (> 275°F)	ASTM D-86	
Flash Point	> 135°C (> 275°F)		
Evaporation Rate	Not applicable		
Flammability (Solid, Gas)	Not applicable		
Upper Flammability Limit	Not applicable		
Lower Flammability Limit	Not applicable		
Vapor Pressure	Nil	(mm Hg @ 60°/100°F)	
Relative Vapor Density	Not applicable		
Specific Gravity	1.1	(H ₂ O=1) (10% aq sol) (25°C (77°F))	
Water Solubility	Highly soluble		
Solubility in Other Solvents	Soluble in lower alcohols		
Partition Coefficient	log P _{ow} = 0.0274	(25°C (77°F))	
Auto-ignition Temperature	Not determined		
Decomposition Temperature	235°C (455°F) (est.)		
Kinematic Viscosity	Not applicable		
Dynamic Viscosity	Not applicable		
Explosive Properties	None		
Oxidizing Properties	None		
Other Information	BTMAC is a hygroscopic solid	Soluble in lower alcohols	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions. Hygroscopic.

Possibility of Hazardous Reactions

None under normal processing

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid

Avoid generation of dust, high temperatures, moisture and incompatible materials.

Incompatible materials

Oxidizing agents, reactive metals, strong acids, strong bases, water

Hazardous Decomposition Productss

Benzyl chloride, trimethylamine, carbon monoxide, carbon dioxide, hydrogen chloride, nitrogen oxides

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation Harmful if inhaled. May cause respiratory irritation.

Eye Contact Causes serious eye irritation

Ingestion Toxic if swallowed

Skin Contact Causes skin irritation. Toxic in contact with skin.

Chemical Name	Oral LD50	Inhalation LC50	Dermal LD50
Benzyltrimethylammonium chloride 56-93-9	63–125 mg/kg (Rat)	1.14 mg/L 4 h (dust) (Rat)	510 mg/kg 24 h (Rabbit)

Information on Physical, Chemical and Toxicological Effects

Symptoms Please see Section 4 of this SDS for symptoms.

Delayed and Immediate Effects and also Chronic Effects from Short-term and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical Measures of Toxicity

Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Chemical Name	Fish LC50	Invertebrates LC50
Benzyltrimethylammonium chloride 56-93-9	Oryzias latipes > 1000 mg/L 48 h	Daphnia pulex 11.94 mg/L 48 h (static)

Persistence/Degradability

Not determined

Bioaccumulation

Chemical Name	Partition Coefficient
Benzyltrimethylammonium chloride 56-93-9	0.0274

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS




Waste Treatment Methods

Disposal of Wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Shipping Name by Regulatory Entity

DOT	Toxic solid, organic, n. o. s. (Benzyltrimethylammonium chloride)
IMDG	Toxic solid, organic, n. o. s. (Benzyltrimethylammonium chloride)
IATA	Toxic solid, organic, n. o. s. (Benzyltrimethylammonium chloride)

Regulatory Information	UN Number	Classes	Packing Group	Label
DOT Classification	UN-2811	6 (1)	III	
IMDG Classification	UN-2811	6 (1)	III	
IATA Classification	UN-2811	6 (1)	III	

Note

Please see current shipping paper for most up-to-date shipping information, including exemptions and special circumstances.

15. REGULATORY INFORMATION

International Inventories

Listed TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, IECSC, KECI, PICCS, TCSI, AICS, NZIoC

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECI - Korea Existing Chemicals Inventory
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substance Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

United States Federal Regulations

CERCLA This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 302 No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

EPCRA This product does not contain any chemicals with known CAS numbers that are subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-know Act of 1986 (40 CFR 372).

SARA 311/312 Hazards Acute health hazard

United States State Regulations

California Proposition 65 This product does not contain any Proposition 65 chemicals.

United States State Right-to-know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania
Benzyltrimethylammonium chloride 56-93-9		X	X

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards 2	Flammability 1	Instability 1	Special Hazards Not determined
<u>HMIS</u>	Health Hazards 3	Flammability 2	Physical Hazards 1	Personal Protection Not determined
Issue Date	26-June-2008			
Revision Date	01-September-2020			
Revision Note	Reviewed/updated			
GHS Version	2			

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet