

# BENZYLDIMETHYL[2-[2-[4-(1,1,3,3-TETRAMETHYLBUTYL)-PHENOXY]ETHOXY]-ETHYL]AMMONIUM CHLORIDE

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## 1. Product Identification

**Synonyms:** Benzethonium chloride; Ammonium, benzyldimethyl(2-(2-(p-(1,1,3,3-tetramethylbutyl)phenoxy)ethoxy)ethyl) chloride

**CAS No.:** 121-54-0

**Molecular Weight:** 462.09546

**Chemical Formula:**  $C_{27}H_{42}ClNO_2$

**Product Codes:** CHEM-198

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Benzethonium chloride	121-54-0	100%	Yes

## 3. Hazards Identification

**Potential Acute Health Effects:** Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer, permeator). **CARCINOGENIC EFFECTS:** Not available. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance is toxic to mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

## 4. First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## 5. Fire Fighting Measures

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...), halogenated compounds.

**Fire Hazards in Presence of Various Substances:**

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** When heated to decomposition it emits very toxic fumes of NO<sub>x</sub> and Hydrogen Chloride.

**Special Remarks on Explosion Hazards:** Not available.

## 6. Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## 7. Handling and Storage

**Precautions:**

Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials.

**Storage:**

Keep container tightly closed. Keep container in a cool, well-ventilated area. Sensitive to light. Store in light-resistant containers.

## 8. Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Not available.

## 9. Physical and Chemical Properties

**Physical state and appearance:** Solid. (crystalline powder.)

**Odor:** Mild

**Taste:** Bitter.

**Molecular Weight:** 448.1 g/mole

**Color:** White. Off-white.

**pH (1% soln/water):** 5 [Acidic.]

**Boiling Point:** Not available.

**Melting Point:** 158°C (316.4°F)

**Critical Temperature:** Not available.

**Specific Gravity:** Not available.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol, diethyl ether, acetone.

**Solubility:** Easily soluble in cold water, hot water. Soluble in methanol, acetone. Partially soluble in diethyl ether.

## 10. Stability and Reactivity

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excess heat, light, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, organic materials.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Sensitive to light. Reactive with soaps, anionic detergents, and nitrates

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## 11. Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 338 mg/kg [Mouse].

**Chronic Effects on Humans:** Causes damage to the following organs: mucous membranes.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** May affect genetic material (mutagenic). May cause cancer based on animal test data.

**Special Remarks on other Toxic Effects on Humans:** Acute Potential Health Effects: Skin: Causes skin irritation. It may be absorbed by the skin. Eyes: Causes eye irritation.

Inhalation: May cause respiratory tract irritation. Ingestion: Harmful if swallowed. May cause gastrointestinal tract irritation with vomiting, and diarrhea. May affect behavior (CNS depression, excitement, convulsions, seizures, coma), respiration (respiratory depression), blood, urinary system (hematuria), metabolism (weight loss). Chronic Potential Health Effects: Prolonged or repeated ingestion or skin contact may affect metabolism, the endocrine system (thymus), and cardiovascular system. Prolonged or repeated skin contact may cause dermatitis.

## 12. Ecological Information

**Ecotoxicity:** Ecotoxicity in water (LC50): 1.6 mg/l 96 hours [Pimephales promelas]. 1.4 mg/l 96 hours [Lipomas macrochirus]. 56 mg/l 96 hours [Oncorhynchus kisutch].

**BOD5 and COD:** Not available.

**Products of Biodegradation:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are as toxic as the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## 13. Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## 14. Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## 15. Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Benzethonium chloride

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):**

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

**DSCL (EEC):**

R22- Harmful if swallowed. R36/38- Irritating to eyes and skin. S2- Keep out of the reach of children. S46- If swallowed, seek medical advice immediately and show this container or label.

**HMIS (U.S.A.):**

**Health Hazard: 2**

**Fire Hazard: 1**

**Reactivity: 0**

**Personal Protection: E**

**National Fire Protection Association (U.S.A.):**

**Health: 2**

**Flammability: 1**

**Reactivity: 0**

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## 16. Other Information

**References:**

Not available.

**Other Special Considerations:**

Not available.

**Product Use:**

Laboratory Reagent and Consumer Hobby

**Revision Information:**

No Changes.

**Disclaimer:**

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