

TBHP (CAS 75-91-2) MSDS

1. Product Name and Identification

Product Name: [TBHP \(Tert-Butyl Hydroperoxide\)](#)

Synonyms: Tert-Butyl Hydroperoxide, 1-Hydroperoxy-1-methylethane

Chemical Formula: C₄H₁₀O₂

CAS Number: 75-91-2

Manufacturer/Supplier: [Insert Name Here]

Emergency Contact: [Insert Contact Information]

2. Composition/Ingredients

Chemical Name: Tert-Butyl Hydroperoxide

Concentration: Typically 70% in water or organic solvent

Molecular Weight: 90.12 g/mol

Impurities: May contain trace amounts of stabilizers

3. Hazards Identification

Hazard Classification:

- Organic Peroxide (Type C)
- Acute Toxicity (Category 4 - oral and dermal)
- Serious Eye Damage (Category 1)

Label Elements:

- **Signal Word:** Danger
- **Hazard Statements:**
 - H242: Heating may cause a fire.
 - H302 + H312: Harmful if swallowed or in contact with skin.
 - H318: Causes serious eye damage.
- **Precautionary Statements:**
 - P210: Keep away from heat, sparks, and open flame.
 - P280: Wear appropriate eye protection, protective clothing, and gloves.
 - P305 + P351 + P338: If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if easy to do. Continue rinsing.
 - P370 + P378: Use water or foam to extinguish fires involving the product.

4. First Aid Measures

General Advice: Seek medical attention immediately if symptoms persist after exposure.

- **Inhalation:**
 - Move the individual to fresh air.
 - If breathing is difficult, provide oxygen and seek medical advice.
- **Skin Contact:**
 - Immediately wash exposed skin with soap and water.
 - Remove contaminated clothing and wash before reuse. Seek medical attention if irritation occurs.
- **Eye Contact:**
 - Rinse thoroughly with water for at least 15 minutes while keeping the eyelids open.
 - Remove contact lenses if present and easy to remove. Seek immediate medical attention.
- **Ingestion:**
 - Rinse mouth. Do not induce vomiting without medical guidance.
 - Provide medical attention urgently.

5. Handling and Storage

Handling:

- Handle in well-ventilated areas to prevent vapor buildup.
- Avoid contact with skin, eyes, and clothing. Keep away from open flames and ignition sources.
- Use explosion-proof equipment when working with large amounts.

Storage:

- Store in a cool, dry, and ventilated environment.
- Keep away from heat and incompatible materials.
- Use approved containers designed for organic peroxides.

6. Exposure Controls/Personal Protection

Exposure Limits:

- OSHA PEL (TWA): 1 ppm for vapor exposure.

Engineering Controls:

- Ensure adequate ventilation, preferably with local exhaust at potential emission points.
- Utilize explosion-proof ventilation systems.

Personal Protective Equipment (PPE):

- **Eye Protection:**

- Safety glasses with side shields or chemical goggles.
- **Skin Protection:**
 - Chemical-resistant gloves (e.g., nitrile) and full protective clothing.
- **Respiratory Protection:**
 - Approved respirators for organic vapors if exposure exceeds permissible limits.
- **Hygiene Measures:**
 - Wash hands and exposed skin thoroughly after handling.

7. Physical and Chemical Properties

- **Appearance:** Clear colorless to pale yellow liquid
- **Odor:** Mild, characteristic odor
- **pH:** Acidic
- **Melting Point:** $\sim -5^{\circ}\text{C}$
- **Boiling Point:** $\sim 145^{\circ}\text{C}$ (decomposes)
- **Flash Point:** $\sim 38^{\circ}\text{C}$ (closed cup)
- **Solubility:** Soluble in water and organic solvents
- **Density:** $\sim 0.92\text{ g/cm}^3$
- **Vapor Pressure:** Low
- **Viscosity:** Low viscosity, flowable liquid

8. Stability and Reactivity

Stability:

- Stable under recommended storage and handling conditions but decomposes when heated.

Reactivity:

- Reactive with heat and external ignition sources.

Conditions to Avoid:

- Heat, open flames, sunlight, and contamination with incompatible materials.

Hazardous Decomposition Products:

- May release carbon oxides and other toxic fumes during decomposition or combustion.

Materials to Avoid:

- Strong oxidizers, acids, reducing agents, and metals such as iron or copper.

9. Toxicological Information

Acute Toxicity:

- LD50 (Oral, Rat): ~470 mg/kg
- LD50 (Dermal, Rabbit): ~380 mg/kg

Skin:

- May cause irritation with prolonged or repeated exposure.

Eyes:

- Causes severe irritation and potential permanent damage.

Respiratory:

- Vapor or mist may cause respiratory irritation.

Chronic Effects:

- Prolonged exposure may cause damage to liver and kidneys.

10. Disposal Considerations

Waste Disposal:

- Dispose of in accordance with local, state, and federal environmental regulations.
- Avoid releasing product into waterways, sewers, or soil.

Empty Containers:

- Rinse containers thoroughly before disposal. Ensure all residues are removed.

Special Recommendations:

- Consult with licensed chemical waste disposal services for bulk disposal.
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