

MATERIAL SAFETY DATA SHEET

Date Printed: 11/16/2007
Date Updated: 01/26/2006
Version 1.9

Section 1 - Product and Company Information

Product Name TERT-BUTYL HYDROPEROXIDE, T-HYDRO
SOLUTION, 70 WT. % IN WATER
Product Number 458139
Brand ALDRICH
Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
TERT-BUTYL HYDROPEROXIDE 70% SOLUTION IN WATER	75-91-2	No

Ingredient Name	CAS #	Percent	SARA 313
TERT-BUTYL HYDROPEROXIDE	75-91-2	>= 70	No
WATER	7732-18-5	<= 30	No

Formula C4H10O2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Oxidizing. Toxic.

Contact with combustible material may cause fire. Harmful in contact with skin and if swallowed. Toxic by inhalation. Causes burns. May cause sensitization by inhalation and skin contact.

Risk of explosion if heated under confinement.

Readily absorbed through skin. Combustible liquid.

HMIS RATING

HEALTH: 2

FLAMMABILITY: 2

REACTIVITY: 3

SPECIAL HAZARD(S): Oxidizer

NFPA RATING

HEALTH: 2

FLAMMABILITY: 2

REACTIVITY: 3

SPECIAL HAZARD(S): Oxidizer

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE

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

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS

Organic Peroxide: Yes

EXPLOSION HAZARDS

Container explosion may occur under fire conditions.

EXPLOSION DATA

Sensitivity to Mechanical Impact: May be shock-sensitive.

CONDITIONS OF FLAMMABILITY

Vigorously supports combustion.

FLASH POINT

109 °F 43 °C Method: closed cup

EXPLOSION LIMITS

Lower: 5.75 % Upper: 10.15 %

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Combustible liquid. Contact with other material may cause fire. Emits toxic fumes under fire conditions. May accelerate combustion.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

ENVIRONMENTAL PRECAUTION(S)

Do not allow material to enter drains or water courses. Avoid contaminating water supply.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Store in a cool dry place. Keep away from heat and open flame.

Unsuitable: Do not store near, nor allow contact with, clothing and other combustible material.

Store at 2-8°C

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance

Color: Colorless
Form: Clear liquid

Property

Value

At Temperature or Pressure

Molecular Weight

90.12 AMU

pH

4.3

BP/BP Range

96.2 °C

MP/MP Range

- 3.0 °C

760 mmHg

Freezing Point

N/A

Vapor Pressure

62 mmHg

45 °C

Vapor Density

2.07 g/l

Saturated Vapor Conc.	N/A	
SG/Density	0.9 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	4.4 Pas	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	109 °F 43 °C	Method: closed cup
Explosion Limits	Lower: 5.75 % Upper: 10.15 %	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	1.397	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Soluble.	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Heat. Light.

Materials to Avoid: Acids, Strong reducing agents, Organic materials, Finely powdered metals, Strong acids, Strong bases, Sulfur.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Readily absorbed through skin. Harmful if absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Toxic if inhaled.

Ingestion: Harmful if swallowed.

SENSITIZATION

Sensitization: Possible sensitizer.

Skin: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals. The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and

vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

IRRITATION DATA

Skin
Rabbit
70 %
24 H
Remarks: Severe irritation effect
Eyes
Rabbit
Remarks: Severe irritation effect

CHRONIC EXPOSURE - MUTAGEN

Result: Laboratory experiments have shown mutagenic effects.

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish
Species: Brachydanio rerio
Time: 96 h
Value: 57 mg/l

ELIMINATION

Classification: Not significantly biodegradable.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Section 14 - Transport Information

DOT

Proper Shipping Name: Organic peroxide type F, liquid
UN#: 3109
Class: 5.2
Packing Group: Packing Group II
Hazard Label: Organic Peroxide
PIH: Not PIH

IATA

Proper Shipping Name: Organic peroxide type F, liquid
IATA UN Number: 3109
Hazard Class: 5.2

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: O-C
Indication of Danger: Oxidizing. Corrosive.
R: 7-10-20/21/22-34-52/53
Risk Statements: May cause fire. Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes burns.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S: 3/7-14-26-36/37/39-45-61

Safety Statements: Keep container tightly closed in a cool place. Keep away from combustible material. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Oxidizing. Toxic.

Risk Statements: Contact with combustible material may cause fire. Harmful in contact with skin and if swallowed. Toxic by inhalation. Causes burns. May cause sensitization by inhalation and skin contact. Risk of explosion if heated under confinement.

Safety Statements: Keep in a cool place. Keep container tightly closed. Keep away from combustible material. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Readily absorbed through skin. Combustible liquid.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.