

tert-Butyl hydroperoxide solution: sc-251134



The Power to Question

MATERIAL SAFETY DATA SHEET

1 Identification of substance:

Product Name: tert-Butyl hydroperoxide solution
Catalog Number: sc-251134
Supplier: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800
Emergency: ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

2 Hazards identification

Classification of the substance or mixture



GHS02 Flame

H226 Flammable liquid and vapour.
H242 Heating may cause a fire.



GHS06 Skull and crossbones

H311 Toxic in contact with skin.
H331 Toxic if inhaled.



GHS05 Corrosion

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.



GHS07

H302 Harmful if swallowed.
H402 Harmful to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



C; Corrosive

R34: Causes burns.



Xn; Harmful

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.



O; Oxidizing

R7: May cause fire.

R10-52/53: Flammable. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment: Not applicable

Label elements

Labelling according to EU guidelines:

Code letter and hazard designation of product:

C Corrosive

O Oxidizing

Risk phrases:

7 May cause fire.

10 Flammable.

20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

34 Causes burns.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

3/7 Keep container tightly closed in a cool place

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

Hazard description:**WHMIS classification**

B3 - Combustible liquid

C - Oxidizing materials

D2B - Toxic material causing other toxic effects

E - Corrosive material

**Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2	Health (acute effects) = 2
FIRE	2	Flammability = 2
REACTIVITY	3	Reactivity = 3

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances**CAS# Description:**

tert-Butyl hydroperoxide (CAS# 75-91-2): 70%

Water (CAS# 7732-18-5): 30%

Identification number(s):**EC number:** 200-915-7

4 First aid measures

Description of first aid measures**General information** Immediately remove any clothing soiled by the product.**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.**Information for doctor****Most important symptoms and effects, both acute and delayed**

No further relevant information available.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Firefighting measures

Extinguishing media**Suitable extinguishing agents**

Carbon dioxide

Fire-extinguishing powder

Alcohol resistant foam

Special hazards arising from the substance or mixture

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Can form explosive gas-air mixtures.

Promotes fire

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling**Precautions for safe handling**

Keep container tightly sealed.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Gases can be produced if heated in sealed containers, causing possible rupture or explosion.

Potentially explosive when mixed with organic substances.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Conditions for safe storage, including any incompatibilities**Storage**

Requirements to be met by storerooms and receptacles: Refrigerate

Information about storage in one common storage facility:

Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Protect from heat.

Do not store with organic materials.

Store away from metal powders.

Further information about storage conditions:

Keep container tightly sealed. Store at 4° C.

Refrigerate

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace: Not required.

Additional information: No data

Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands:

Impervious gloves

Check protective gloves prior to each use for their proper condition.

Material of gloves

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Eye protection:

Safety glasses

Tightly sealed goggles

Full face protection

Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Liquid
Formula:	C4H10O2
Weight:	90.12
pH-value:	Not determined.
Change in condition	
Melting point/Melting range:	-3°C (27 °F)
Boiling point/Boiling range:	ca 96°C (ca 205 °F) (dec)
Sublimation temperature / start:	Not determined
Flash point:	43°C (109 °F)
Flammability (solid, gaseous)	Not applicable.
Ignition temperature:	Not determined
Decomposition temperature:	>80°C (>176 °F)
Auto igniting:	Not determined.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure at 45°C (113 °F):	82.46 hPa (62 mm Hg)
Density at 20°C (68 °F):	0.937 g/cm³ (7.819 lbs/gal)
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water at 20°C (68 °F):	130-150 g/l
Segregation coefficient (n-octanol/water):	
Not determined.	
Viscosity:	
dynamic at 4°C (39 °F):	20 mPas
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity**Chemical stability****Thermal decomposition / conditions to be avoided:**

Exothermic thermal decomposition

Do not heat above 80°C.

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions

Reacts with alkali metals.

Reacts with alkaline earth metals.

Incompatible materials:

Bases

Heat

Organic materials

Metal powders

Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:		
Oral	LD50	810 mg/kg (rat)
Dermal	LD50	628 mg/kg (rabbit)
Inhalative	LC50/4H	1850 mg/m3/4H (rat)
Irritation of skin	severe	500 mg/24H (rabbit)
Irritation of eyes	severe	150 mg/1M (rabbit)

Primary irritant effect:

on the skin: Corrosive effect on skin and mucous membranes.

on the eye: Strong corrosive effect.

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):

Mutagenic effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:

Subacute to chronic toxicity:

tert-Butyl hydroperoxide is severely irritating to the eyes and skin. Ingestion may cause irritability, gastric secretion alterations, and hemorrhages. Absorption through skin contact may cause cyanosis as well as changes to the liver and urine composition. Inhalation causes dyspnea while long term exposure to fumes may cause changes to urine composition, olfactory sensations, and metabolic chlorine levels. Chronic inhalation has been shown to cause mutations in animals.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Danger through skin absorption.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark: Harmful to aquatic organisms

Additional ecological information:

General notes:

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Do not allow material to be released to the environment without proper governmental permits.

Harmful to aquatic organisms

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number	
DOT, ADR, IMDG, IATA	UN3109
UN proper shipping name	
DOT, IMDG, IATA	ORGANIC PEROXIDE TYPE F, LIQUID (tert-Butyl hydroperoxide solution in water)
ADR	3109 ORGANIC PEROXIDE TYPE F, LIQUID (tert-Butyl hydroperoxide solution in water)

Transport hazard class(es)	
DOT, IMDG, IATA	
	
Class	5.2 Organic peroxides.
Label	5.2
ADR	
	
Class	5.2 (P1) Organic peroxides
Label	5.2
Packing group	
DOT, ADR, IMDG, IATA	II
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	
Danger code (Kemler):	Warning: Organic peroxides 539
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	
	Not applicable.
UN "Model Regulation":	
	UN3109, ORGANIC PEROXIDE TYPE F, LIQUID (tert-Butyl hydroperoxide solution in water), 5.2, II

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:

Hazard symbols:

C Corrosive

O Oxidizing

Risk phrases:

7 May cause fire.

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National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information:

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.