

1 Identification

- **Product identifier**
- **Trade name:** t-BUTYL HYDROPEROXIDE
- **Article number:** 190049
- **CAS Number:**
75-91-2
- **EC number:**
200-915-7
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
MP Biomedicals, LLC
29525 Fountain Parkway
Solon, OH 44139
United States
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.
Self-react. C H242 Heating may cause a fire.



GHS06 Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

Muta. 2 H341 Suspected of causing genetic defects.



GHS05 Corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Sens. 1 H317 May cause an allergic skin reaction.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 1)

· **Label elements**

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

tert-butyl hydroperoxide

· **Hazard statements**

Flammable liquid and vapor.

Heating may cause a fire.

Harmful if swallowed.

Toxic in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

· **Precautionary statements**

Wear protective gloves / eye protection / face protection.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dusts or mists.

Keep/Store away from clothing/combustible materials.

Wear protective gloves / protective clothing.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Keep only in original container.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Obtain special instructions before use.

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

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER/doctor.

Specific treatment (see on this label).

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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

IF exposed or concerned: Get medical advice/attention.

If skin irritation or rash occurs: Get medical advice/attention.

If swallowed: Rinse mouth. Do NOT induce vomiting.

In case of fire: Use for extinction: CO₂, powder or water spray.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Store at temperatures not exceeding 109.4°F.

Store away from other materials.

Store in a well-ventilated place. Keep container tightly closed.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 2)

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 2

Reactivity = 2

The substance possesses oxidizing properties.

· **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 2

Reactivity = 2

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

75-91-2 tert-butyl hydroperoxide

· **Identification number(s)**

· **EC number:** 200-915-7

· **Dangerous components:** Void

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Consult your Doctor. Show the safety data sheet to the Doctor. Away from the dangerous area.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air or oxygen; call for doctor.

If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.

· **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Never give anything by mouth to an unconscious person. Rinse mouth with water. If symptoms persist consult a Doctor.

· **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.

US

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 3)

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Pick up mechanically, dispose contaminated material as waste according to Section 13.
Ensure adequate ventilation.
- **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**
Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 2-8 °C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Further information about storage conditions:**
Do not gas tight seal receptacle.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see Section 7.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 4)

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Store protective clothing separately.
 - Avoid contact with the eyes.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:**
 - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
 - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
 - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
 - **General Information**
 - **Appearance:**

Form:	Liquid
Color:	Clear, colorless
 - **Odor:** Indeterminate
 - **Odor threshold:** Not determined.
- | | |
|--------------------|-----------------|
| · pH-value: | Not determined. |
|--------------------|-----------------|
- **Change in condition**

Boiling point/Boiling range:	Undetermined.
-------------------------------------	---------------

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: **t-BUTYL HYDROPEROXIDE**

(Contd. of page 5)

· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	
Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Not determined.
· Explosion limits:	
Lower:	Not Applicable
Upper:	Not Applicable
· Vapor pressure at 20 °C (68 °F):	23 hPa (17 mm Hg)
· Density:	Not Applicable
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	Not Determined
· Water:	Insoluble.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 %
Water:	1.0 %
VOC content:	0.0 g/l / 0.00 lb/gl
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
75-91-2 tert-butyl hydroperoxide		
Oral	LD50	406 mg/kg (rat)
Dermal	LD50	460 mg/kg (rabbit)

(Contd. on page 7)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 6)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

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.
- **Additional ecological information:**
- **General notes:**
 - Generally not hazardous for water
 - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **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:**
 - Can not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Discard must be made according to official regulations.

14 Transport information

- | | |
|--------------------------------|--|
| UN-Number | UN3109 |
| DOT, ADR, IMDG, IATA | |
| UN proper shipping name | Organic peroxide type F, liquid (tert-butyl hydroperoxide) |
| DOT | 3109 Organic peroxide type F, liquid (tert-butyl hydroperoxide), |
| ADR | ENVIRONMENTALLY HAZARDOUS |

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: **t-BUTYL HYDROPEROXIDE**

(Contd. of page 7)

· **IMDG** *ORGANIC PEROXIDE TYPE F, LIQUID (tert-butyl hydroperoxide),
MARINE POLLUTANT*

· **IATA** *ORGANIC PEROXIDE TYPE F, LIQUID (tert-butyl hydroperoxide)*

· **Transport hazard class(es)**

· **DOT**



· **Class** *5.2 Organic peroxides*

· **Label** *5.2, 8*

· **ADR**



· **Class** *5.2 Organic peroxides*

· **Label** *5.2*

· **IMDG**



· **Class** *5.2 Organic peroxides*

· **Label** *5.2/8*

· **IATA**



· **Class** *5.2 Organic peroxides*

· **Label** *5.2 (8)*

· **Packing group**

· **DOT, ADR, IMDG, IATA** *II*

· **Environmental hazards:**

· **Marine pollutant:** *Yes (DOT)
Symbol (fish and tree)*

· **Special marking (ADR):** *Symbol (fish and tree)*

· **Special precautions for user** *Warning: Organic peroxides*

· **Danger code (Kemler):** *-*

· **EMS Number:** *F-J,S-R*

· **Stowage Category** *D*

· **Stowage Code** *SW1 Protected from sources of heat.*

· **Segregation Code** *SG35 Stow "separated from" acids.*

*SG36 Stow "separated from" alkalis.
SG72 See 7.2.6.3.2.*

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: **t-BUTYL HYDROPEROXIDE**

(Contd. of page 8)

- | | |
|--|--|
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | |
| · DOT | |
| · Quantity limitations | On passenger aircraft/rail: 10 L
On cargo aircraft only: 25 L |
| · Remarks: | Special marking with the symbol (fish and tree). |
| <hr style="border-top: 1px dashed black;"/> | |
| · ADR | |
| · Remarks: | <79%+>14% H ₂ O: UN 3107,5.2,7b; ≤72%+≥28% H ₂ O: UN3109,5.2,9b. |
| · UN "Model Regulation": | UN 3109 ORGANIC PEROXIDE TYPE F, LIQUID (TERT-BUTYL HYDROPEROXIDE), 5.2, II, ENVIRONMENTALLY HAZARDOUS |

15 Regulatory information

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

· Section 355 (extremely hazardous substances):
--

Substance is not listed.

· Section 313 (Specific toxic chemical listings):
--

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is listed.

· Proposition 65

· Chemicals known to cause cancer:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for females:
--

Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:
--

Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is not listed.

- Carcinogenic categories

· EPA (Environmental Protection Agency)
--

Substance is not listed.

· TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 9)

· **Hazard pictograms**



· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

tert-butyl hydroperoxide

· **Hazard statements**

Flammable liquid and vapor.

Heating may cause a fire.

Harmful if swallowed.

Toxic in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

· **Precautionary statements**

Wear protective gloves / eye protection / face protection.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dusts or mists.

Keep/Store away from clothing/combustible materials.

Wear protective gloves / protective clothing.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Keep only in original container.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Obtain special instructions before use.

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

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER/doctor.

Specific treatment (see on this label).

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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

IF exposed or concerned: Get medical advice/attention.

If skin irritation or rash occurs: Get medical advice/attention.

If swallowed: Rinse mouth. Do NOT induce vomiting.

In case of fire: Use for extinction: CO₂, powder or water spray.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Store at temperatures not exceeding 109.4°F.

Store away from other materials.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2016

Reviewed on 09/28/2016

Trade name: t-BUTYL HYDROPEROXIDE

(Contd. of page 10)

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Quality Control Dept.
- **Date of preparation / last revision** 09/28/2016 / -
- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Liq. 3: Flammable liquids – Category 3

Self-react. C: Self-reactive substances and mixtures – Type C/D

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1C: Skin corrosion/irritation – Category 1C

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

US