

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	70%t-Butyl Hydroperoxide Solution
Product code	026-13451,028-13455
CAS No	75-91-2
Formula	(CH ₃) ₃ COOH
Manufacturer	Wako Pure Chemical Industries, Ltd. 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81 (0)6-6203-3741 Fax: +81 (0)6-6201-5964
Supplier	Wako Pure Chemical Industries, Ltd. 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81 (0)6-6203-3741 Fax: +81 (0)6-6201-5964
Emergency telephone number	+81-6-6203-3741 / +81-3-3270-8571
Recommended uses and restrictions on use	For research purposes

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

Self-reactive substances and mixtures

Flammable liquids

Acute toxicity - Oral

Acute toxicity - Dermal

Acute toxicity - Inhalation (Vapors)

Skin corrosion/irritation

Serious eye damage/eye irritation

Germ cell mutagenicity

Specific target organ toxicity (single exposure)

Category 2 nervous system, blood system, respiratory system

Category 3 Narcotic effects

Specific target organ toxicity (repeated exposure)

Category 1 kidneys

Category 2 blood system

aquatic environment (acute hazard)

aquatic environment (long-term hazard)

Type F

Category 3

Category 4

Category 3

Category 3

Category 1 A

Category 1

Category 2

Category 2, Category 3

Category 1, Category 2

Category 2

Category 2

Pictograms



Signal word

Danger

Hazard statements

H242 - Heating may cause a fire
 H226 - Flammable liquid and vapor
 H314 - Causes severe skin burns and eye damage
 H318 - Causes serious eye damage
 H302 - Harmful if swallowed
 H311 - Toxic in contact with skin
 H331 - Toxic if inhaled
 H341 - Suspected of causing genetic defects
 H336 - May cause drowsiness or dizziness
 H401 - Toxic to aquatic life
 H411 - Toxic to aquatic life with long lasting effects
 H371 - May cause damage to the following organs: nervous system, blood system, respiratory system
 H372 - Causes damage to the following organs through prolonged or repeated exposure: kidneys
 H373 - May cause damage to the following organs through prolonged or repeated exposure: blood system

Precautionary statements-(Prevention)

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required.
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Do not breathe dust/fume/gas/mist/vapors/spray
- Avoid release to the environment
- Keep away from heat/sparks/open flames/hot surfaces. — No smoking
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ventilating/lighting/equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Keep/Store away from clothing/combustible materials
- Keep only in original container
- Keep cool

Precautionary statements-(Response)

- 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 or doctor/physician
- Call a POISON CENTER or doctor/physician if you feel unwell.
- Wash contaminated clothing before reuse.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a POISON CENTER or doctor/physician if you feel unwell.
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth.
- Do NOT induce vomiting.
- In case of fire: Use CO₂, dry chemical, or foam for extinction
- Collect spillage

Precautionary statements-(Storage)

- Store locked up.
- Store in a well-ventilated place. Keep container tightly closed
- Store away from other materials

Precautionary statements-(Disposal)

- Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Mixture

Formula (CH₃)₃COOH

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS No
t-Butyl Hydroperoxide	68.0-74.0	90.12	(2)-224	N/A	75-91-2
Water	Balance	18.02	N/A	N/A	732-18-5

Impurities and/or Additives : Not applicable

Section 4: FIRST AID MEASURES

Inhalation

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Water spray (fog), carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Special extinguishing method

No information available

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Protection of fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling**Technical measures**

Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage**Safe storage conditions****Storage conditions**

Keep container protect from light tightly closed. Store in a cool (2-10 °C) place.

Safe packaging material

Glass

Incompatible substances

Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**Engineering controls**

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment**Respiratory protection**

Protective mask

Hand protection

Protection gloves

Eye protection

protective eyeglasses or chemical safety goggles

Skin and body protection

Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES**Form****Color**

colorless

Turbidity

clear

Appearance

liquid

Odor

No data available

pH

No data available

Melting point/freezing point

5 °C

Boiling point, initial boiling point and boiling range

156-160 °C

Flash point

43 °C

Evaporation rate:

No data available

Flammability (solid, gas):

No data available

Upper/lower flammability or explosive limits**Upper :**

No data available

Lower :

No data available

Vapour pressure

No data available

Vapour density

No data available

Specific Gravity / Relative density

0.94g/ml

Solubilities

water : soluble . Ethanol , acetone : at the rate of any miscible .

n-Octanol/water partition coefficient:(log Pow)

No data available

Auto-ignition temperature:

No data available

Decomposition temperature:	No data available
Viscosity (coefficient of viscosity)	No data available
Dynamic viscosity	No data available

Section 10: STABILITY AND REACTIVITY

Stability

Stability	May be altered by light.
Reactivity	No data available

Hazardous reactions

None under normal processing

Conditions to avoid

Extremes of temperature and direct sunlight, static electricity, spark

Incompatible materials

Strong oxidizing agents

Hazardous decomposition products

Carbon monoxide (CO), carbon dioxide (CO₂)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
t-Butyl Hydroperoxide	560 mg/kg (Rat)	628 mg/kg (Rabbit)	1.85 mg/L (Rat) 4 h

Chemical Name	Acute toxicity -oral- source information	Based on the NITE GHS classification results.	Acute toxicity -inhalation gas-source information
t-Butyl Hydroperoxide	LD50(oral,rat):560 mg/kg (SIDS (1995)) .	LD50(skn,rabbit):628 mg/kg (SIDS (1995)) , LD50(skn,rat):470 mg/kg (PATTY (4th, 1999))	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin irritation/corrosion

Chemical Name	Skin corrosion irritation source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory, Skin sensitization source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	Mutagenic source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
t-Butyl Hydroperoxide	EC50:Pseudokirchneriella subcapitata 2.1 mg/L 72 h	LC50:Pimephales promelas 42.3 mg/L 96 h LC50:Brachydanio rerio 57 mg/L 96 h	EC50:Daphnia magna 20 mg/L 48 h

Other data

Chemical Name	Aquatic toxicity -Acute- source information	Aquatic toxicity -Chronic- source information
t-Butyl Hydroperoxide	Based on the NITE GHS classification results.	Acute toxicity Category 2, Bio-accumulation is low.(BCF=1.8(Existing chemical safety inspections data)), do not have rapid degradation.(BOD : 0%(Existing chemical safety inspections data)).

Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID

UN number	UN3109
Proper shipping name:	Organic peroxide type F, liquid (t-Butyl Hydroperoxide)
UN classification	5.2
Subsidiary hazard class	
Packing group	
ERG Code	5L
Marine pollutant	Yes

IMDG

UN number	UN3109
Proper shipping name:	Organic peroxide type F, liquid (t-Butyl Hydroperoxide)
UN classification	5.2
Subsidiary hazard class	
Packing group	
EmS-No	F-J, S-R

Marine pollutant (Sea)	Yes
IATA	
UN number	UN3109
Proper shipping name:	Organic peroxide type F, liquid (t-Butyl Hydroperoxide)
UN classification	5.2
Subsidiary hazard class	
Packing group	
Environmentally Hazardous Substance	Yes

Section 15: REGULATORY INFORMATION

International Inventories

EINECS/ELINCS	Listed
TSCA	Listed

Japanese regulations

Fire Service Act	Category V, organic peroxides dangerous grade 2
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Dangerous Substances - Explosive Substance (Enforcement Order Attached Table 1 Item 1) Mutagens - Existing Chemicals
Regulations for the carriage and storage of dangerous goods in ship	Oxidizing Agents - Organic Peroxides (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law	Oxidizing Agents - Organic Peroxides (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc on Air, Attached Table 1)
Pollutant Release and Transfer Register Law	Class 1
Class 1 - No.	366
Export Trade Control Order	Not applicable
Air Pollution Control Law	Hazardous Air Pollutants

Section 16: OTHER INFORMATION

Literature and references

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z7252(2010). *JIS: Japanese Industrial Standards

End of Safety Data Sheet