Date of issue: 2021/12/03
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Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Cumene hydroperoxide solution

SDS No. : 1898E-3

Relevant identified uses of the substance or mixture and uses advised against

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Flammable liquids: Category 3

Organic peroxides: Type F

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Acute toxicity (Dermal): Category 3

Acute toxicity (Inhalation): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Carcinogenicity: Category 1B

Specific target organ toxicity - single exposure: Category 1 (nervous system)

Specific target organ toxicity - single exposure: Category 2 (respiratory system)

Specific target organ toxicity - repeated exposure: Category 1 (blood system, respiratory system)

Aspiration hazard: Category 1

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 2

Hazardous to the aquatic environment, long-term (chronic): Category 2

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Signal word: Danger

HAZARD STATEMENT

H226 Flammable liquid and vapor

H242 Heating may cause a fire

H302 Harmful if swallowed

H311 Toxic in contact with skin
H332 Harmful if inhaled
H314 Causes severe skin burns and eye damage
H350 May cause cancer
H370 Causes damage to organs (nervous system)
H371 May cause damage to organs (respiratory system)
H372 Causes damage to organs through prolonged or repeated exposure (blood system, respiratory system)
H304 May be fatal if swallowed and enters airways
H411 Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P234 Keep only in original packaging.
P235 Keep cool.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P271 Use only outdoors or in a well-ventilated area.
P264 Wash contaminated parts thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P270 Do not eat, drink or smoke when using this product.

Response

P370 + P378 In case of fire: Use appropriate media to extinguish.
P391 Collect spillage.
P314 Get medical advice/attention if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P310 Immediately call a POISON CENTER/doctor/physician.
P312 Call a POISON CENTER/doctor/physician if you feel unwell.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P363 Wash contaminated clothing before reuse.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 IF SWALLOWED: Rinse mouth.
P331 IF SWALLOWED: Do NOT induce vomiting.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

P403 Store in a well-ventilated place.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P410 Protect from sunlight.
P411 Store at temperatures not exceeding specified values.
P420 Store separately.

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Ingredient name	Content (%)	CAS RN	ENCS	Chemical formula
Cumene hydroperoxide	80-83	80-15-9	3-1014	C9H12O2
Cumene	12	98-82-8	3-22	C6H5CH(CH3)2
Non-disclosure	residue	-	-	-

Note : The figures shown above are not the specifications of the product.

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
IF INHALED: Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.
Wash with plenty of soap and water.
Immediately call a POISON CENTER/doctor/physician.
If skin irritation or rash occurs: Get medical advice/attention.

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/physician.
If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.
Do NOT induce vomiting.
Immediately call a POISON CENTER/doctor/physician.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.
In case of fire, use water mist or loaded liquid, foam, dry sand to extinguish.
*Fire Service Act Group 5 Hazardous Materials

Unsuitable extinguishing media

Carbon Dioxide/ Halon Extinguishing System
Dry Chemical Extinguishing System-Using Phosphates, etc./Using Hydrogen Carbonates , etc./Others (except for phosphates etc., Hydrogen Carbonates etc.)
Fire Extinguisher Discharging Carbon Dioxide/Halogenide
Fire Extinguisher Discharging Dry Extinguishing agents- Using Phosphates, etc./Using Hydrogen Carbonates, etc./Others (except for phosphates etc., Hydrogen Carbonates etc.)
*Cabinet Order Concerning the Control of Hazardous Materials (Attached Table 5) Group 5 Hazardous Materials

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.
Runoff from fire control or dilution water may cause pollution.
See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.
Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.
Ventilate area until material pick up is complete.
Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Liquid: Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.
Solid: Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.
(Protective measures against fire and explosion)
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.
(Exhaust/ventilator)
Exhaust/ventilator should be available.
(Precautions)
Avoid contact with skin.
Avoid contact with eyes.
Safety Measures
Do not handle until all safety precautions have been read and understood.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and contaminated parts thoroughly after handling.
When using do not eat, drink or smoke.
Any incompatibilities
See "10.Stability and Reactivity".
Advice on general occupational hygiene
Wash contaminated parts thoroughly after handling.
Do not eat, drink or smoke when using this product.
Take off immediately all contaminated clothing and wash it before reuse.
Storage
Conditions for safe storage
Keep container tightly closed.
Store locked up. (P405)
Store at temperatures not exceeding specified values.
Store in a cool, dry place. Do not store in direct sunlight.
Storage in accordance with local/national regulation.
(Incompatible storage condition)
Protect from sunlight.
Store separately.
Container and packaging materials for safe handling
Keep only in original packaging.
Use closed unbreakable containers.

Section 8. Exposure controls/personal protection

Control parameters
Administrative Control Levels and Concentration standard value
(Cumene)
Concentration standard value TWA: 10ppm
Occupational Exposure Limit
The Japan Society for Occupational Health
(Cumene)
10ppm; 50mg/m3 (skin)
ACGIH

(Cumene)
TWA: 5ppm (URT adenoma; neurological eff)

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.

Individual protection measures

Recommend to use protective equipment in conformity with the standards.
Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid
Color: Pale yellow
Odor: Characteristic odor
Melting point/Freezing point: -37℃
Boiling point or initial boiling point data is not available.
Boiling range data is not available.
Flammability data is not available.
Lower and upper explosion limit/flammability limit data is not available.
Flash point: (C.C.)60℃
Auto-ignition temperature data is not available.
Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity data is not available.
Solubility:

Solubility in water: Insoluble
Solubility in solvent data is not available.

Partition coefficient n-octanol/water data is not available.
Vapor pressure data is not available.
Density and/or relative density: 1.04(20℃)
Relative vapor density (Air=1) data is not available.
Particle characteristics data is not available.

Other information

Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(Cumene hydroperoxide)

May explode on heating above ～150℃. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. This generates fire and explosion hazard. May decompose violently on contact with cobalt, copper or lead alloys and mineral acids. (ICSC 0761)

(Cumene)

As a result of flow, agitation, etc., electrostatic charges can be generated.

Reacts violently with acids and strong oxidants. This generates fire and explosion hazard.

The substance can form explosive peroxides. (ICSC 0170)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Acids, Strong oxidizing agents, Reducing agents, Alloys, Mineral acids, Combustible materials

Hazardous decomposition products

Carbon oxides, Explosive peroxides

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

Category 4, Harmful if swallowed

[Data for components of the product]

[NITE-CHRIP]

(Cumene hydroperoxide)

rat LD50: 382 mg/kg (source: NITE)

(Cumene)

rat LD50: 2700 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Product]

Category 3, Toxic in contact with skin

[Data for components of the product]

[NITE-CHRIP]

(Cumene hydroperoxide)

rat LD50: 0.5 – 1.0 mL/kg (a converted value: 530 – 1060 mg/kg) (source: NITE)

(Cumene)

rabbit LD50: > 3160 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Product]

Category 4, Harmful if inhaled

[Data for components of the product]

[NITE-CHRIP]

(Cumene hydroperoxide)

mist: rat LC50: 200 ppm (4-hour) (source: NITE)
(Cumene)
vapor: mouse LC50: 2000 ppm (7-hour) (converted 4-hour equivalent value: 2645 ppm) (source: NITE)
mist: rat LC50: 39.3 mg/L (4-hour) (source: NITE)

Irritant properties

Skin corrosion/irritation

[Product]
Category 1, Causes severe skin burns and eye damage

[Data for components of the product]
[NITE-CHRIP]
(Cumene hydroperoxide)
Category 1 (source: NITE)

Serious eye damage/irritation

[Product]
Category 1, Causes serious eye damage

[Data for components of the product]
[NITE-CHRIP]
(Cumene hydroperoxide)
Category 1 (source: NITE)
(Cumene)
Category 2B (source: NITE)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenicity

[Product]
Category 1B, May cause cancer

[Data for components of the product]
[NITE-CHRIP]
(Cumene)
Category 1B (source: NITE)
[IARC]
(Cumene)
Group 2B : Possibly carcinogenic to humans
[ACGIH]
(Cumene)
A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans
[NTP]
(Cumene)
RAHC : Reasonably Anticipated to be Human Carcinogens
[EU]
(Cumene)
Category 1B; Substances presumed to have carcinogenic potential for humans

Reproductive toxicity data is not available.

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]
Category 1, Causes damage to organs
Category 2, May cause damage to organs

[Data for components of the product]

[NITE-CHRIP]
(Cumene hydroperoxide)
Category 2 (respiratory system) (source: NITE)
(Cumene)
Category 1 (nervous system), Category 3 (Respiratory tract irritation), Category 3 (Narcotic effects) (source: NITE)

STOT-repeated exposure
[Product]
Category 1, Causes damage to organs through prolonged or repeated exposure
[Data for components of the product]
[NITE-CHRIP]
(Cumene hydroperoxide)
Category 1 (blood system, respiratory system) (source: NITE)
(Cumene)
Category 2 (respiratory system) (source: NITE)

Aspiration hazard
[Product]
Category 1, May be fatal if swallowed and enters airways
[Data for components of the product]
[NITE-CHRIP]
(Cumene)
Category 1 (source: NITE)

Section 12. Ecological Information

Toxicity
Aquatic toxicity
[Product]
Category 2, Toxic to aquatic life
Category 2, Toxic to aquatic life with long lasting effects
[Data for components of the product]
Hazardous to the aquatic environment, short-term (acute)
[NITE-CHRIP]
(Cumene hydroperoxide)
Algae (Pseudokirchneriella subcapitata) 72-hour ErC50: 3.1 mg/L (source: NITE)
Fish (Oncorhynchus mykiss) 96-hour LC50: 3.9 mg/L (source: NITE)
(Cumene)
Crustacea (Mysidopsis bahia) 96-hour LC50: 1.2 mg/L (source: NITE)
Fish (Oncorhynchus mykiss) 96-hour LC50: 2.7 mg/L (source: NITE)
Hazardous to the aquatic environment, long-term (chronic)
[NITE-CHRIP]
(Cumene hydroperoxide)
Algae (Pseudokirchneriella subcapitata) 72-hour NOErC: 1.0 mg/L (source: NITE)
(Cumene)
Algae (Desmodesmus subspicatus) 72-hour NOEC: 0.22 mg/L (source: NITE)
Crustacea (Daphnia magna) 21-day NOEC: 0.35 mg/L (source: NITE)

Water solubility
(Cumene hydroperoxide)
1.5 g/100 mL (source: ICSC, 2005)
(Cumene)

very poor (0.02 g/100 mL , 20℃) (source: ICSC, 2014)

Persistence and degradability

[Data for components of the product]

(Cumene hydroperoxide)

Not rapidly degradable (BIOWIN) (source: NITE)

(Cumene)

Not rapidly degradable (Degradation rate: 13%) (84/449/EEC) (source: NITE)

Bioaccumulative potential

[Data for components of the product]

(Cumene hydroperoxide)

log Pow: 2.16 (source: ICSC, 2005)

(Cumene)

log Pow: 3.66 (source: NITE)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 3109

UN Proper Shipping Name :

ORGANIC PEROXIDE TYPE F, LIQUID

Class or division (Transport hazard class) : 5.2

ERG GUIDE No.: 145

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 3109

UN Proper Shipping Name :

ORGANIC PEROXIDE TYPE F, LIQUID

Class or division (Transport hazard class) : 5.2

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 3109

UN Proper Shipping Name :

ORGANIC PEROXIDE TYPE F, LIQUID

Class or division (Transport hazard class) : 5.2

Hazard labels : Organic peroxide & keep away from heat

Environmental hazards

Marine pollutants (yes/no) : yes

Section 15. Regulatory Information

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

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Cumene hydroperoxide; Cumene

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 23rd edit., 2023 UN
IMDG Code, 2024 Edition (Incorporating Amendment 42-24)
IATA Dangerous Goods Regulations (66th Edition) 2025
2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2025 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
Recommendation of occupational exposure limits (2023-2024) (JSOH)
Supplier's data/information

General Disclaimer

Please provide SDS to customers for selling or transferring.
All chemicals have unknown hazard. Handle the product with care.
This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.
The GHS classification data given here is based on current Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2024).