



# Technical Construction File

File No.	RENOSA
Date	2016-10-10
Rev. No.	RENOSA_07

## MSDS for HYDROGEN PEROXIDE 50%

### 1. IDENTIFICATION OF THE PRODUCT AND COMPANY

(1) MSDS Name : Hydrogen Peroxide, 50 wt% solution in water

No	Model	Volume	Application
1	RENO-SA	2.0cc X 2	RENO-S30/RENO-D50
2	RENO-SA10	5.0cc X 2	RENO-S130/RENO-S130D
3	RENO-SA20	1.8cc X 2	RENO-S20
4	RENO-SA90	4.0cc X 2	RENO-S90

(2) Supplier(Head office) : Renosem Co., Ltd.

Unit 103-806, 397, Seokcheon-ro, Ojeong-Gu, Bucheon-si, Gyeonggi-do Korea.

Tel : +82-32-222-0100 FAX : +82-32-222-0110

(3) Description : Hydrogen peroxide is clear and odorless liquid

(4) Emergency Telephone Number : Tel : +82-32-222-0100 FAX : +82-32-222-0110

### 2. HAZARD IDENTIFICATION

#### Classification

Oxidative liquid : Category 2

Acute toxic (Oral) : Category 4

Skin causticity skin pungent : Category 2

Acute Eye damageability/ eye irritation : Category 2

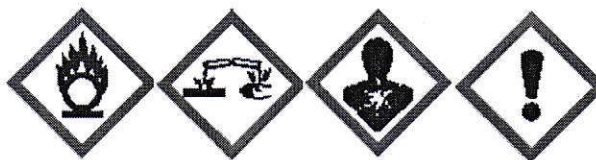
Reproductive toxicity : Category 2

Specific target organ toxicity (single exposure) : Category 1 (respiratory, central nervous system)

Specific target organ toxicity (repeated exposure) : Category 1 (lung), Category 2 (blood)

#### Labeling

Hazard symbols :



Signal word : Danger

#### Hazard statement

H272 May intensity fire : oxidizer

H302 Harmful if swallowed

H315 Causes skin irritation

H318 Causes serious eye damage

H361 Suspected of damaging fertility or the unborn child

H370 Causes damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

#### Precautionary statement

##### Prevention

P201 Obtain special instructions before use

P202 Do not handle until all safety precautions have been read and understood

P210 Keep away from heat/ sparks/ open flames/ hot surfaces – No smoking

P220 Keep/ Store away from clothing /.../ combustible materials



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- P221 Take any precaution to avoid mixing with combustibles  
P260 Do not breathe dust/ fume/ gas/ mist/ vapors / spray  
P264 Wash hands thoroughly after handling  
P270 Do not eat, drink or smoke when using this product  
P280 wear protective gloves/ protective clothing/ eye protection/ face protection  
P281 Use personal protective equipment as required

### Response

- P301+P312 If swallowed : Call a poison center or doctor/physician if you feel uncomfortable  
P305+P351 If in eyes : Rinse continuously with water for several minutes.  
+P338 Remove contact lenses if present and easy to do – continue rinsing.  
P308+P313 If exposed or concerned : Get medical advice/ attention  
P330 Rinse mouth  
P332+P313 If skin irritation occurs : Get medical advice/ attention  
P362 Take off contaminated clothing and wash before reuse  
P370+P378 In case of fire : Use water for extinction

### Storage

- P405 Store locked up

### Disposal

- P501 Dispose of contents/ container in accordance with regulations

### Other hazards (NFPA)

- Health 2  
Fire 0  
Reactivity 3

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	SYNONYMS	CAS No.	EN No.	CONTENT (%)
Hydrogen peroxide	HYDROGEN PEROXIDE	7722-84-1	231-765-0	50
Water	DIHYDROGEN OXIDE	7732-18-5	231-791-2	50

## 4. FIRST AID MEASURES

- Eyes Contact Flush eye immediately with plenty of water for at least 15 minutes.  
Get medical aid immediately.
- Skin Contact Remove contaminated clothing and shoes.  
Flush skin immediately with plenty of soap and water.  
Wash the contaminated clothing and shoes before reuse.  
Get medical aid immediately.
- Inhalation Stay away from source of exposure.  
Get medical aid immediately.  
If breathing is difficult, oxygen supply may be necessary.  
If breathing has ceased, apply artificial respiration.
- Swallowing Drink plenty of water. Do not induce vomiting.  
Get medical aid immediately.
- Notes to physician Do not wash the stomach or induce vomiting.  
In case of inhaling chemicals, consider oxygen supply.



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#### 5. FIRE FIGHTING MEASURES

Suitable (Unsuitable) Extinguishing Agent	
Suitable Extinguishing Agent	Different extinguishing agent depending on the kinds of combustible Materials. Water – wood, paper, fabric, plastic Powder, Foam, CO <sub>2</sub> – oil or large amount of solvent
Unsuitable Extinguishing Agent in case of big fire	No information available Spray plenty of water. Apply water from a protected location or from a safety distance
Specific Hazards coming from Chemicals	
Pyrolysis product Fire and explosion hazard	Oxygen If container is exposed to impact, friction or heat. It may rupture or it may ignite combustible material. Fire risk could be ignored. If decomposition or foreign substance exist could explode at room temperature. Contact with the surface of aluminium at a temperature above 150°C could cause explosion even without decomposition.
Special protective equipment for fire fighting and prevention	
	Move container from fire area if it can be done without risk. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 miles) Cool containers with water spray until well after the fire is out. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

#### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	
	Wear personal protective equipment and do not work facing wind. Avoid contact with combustible material. Do not touch the leak with hands. Isolate hazard area and keep unnecessary people away Use water spray to reduce the vapors
Environmental precautions	
	Dilute with plenty of water immediately
Methods for cleaning up	
	Use water spray to reduce the vapors. Stop leak if possible without personal risk. Isolate hazard area and keep unnecessary people away. Stop leak with things like sand and dilute with plenty of water Notify the appropriate authorities (government departments/ a local government) in case of discharge more than a standard amount.





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## 7. HANDLING AND STORAGE

- Handling : Ventilate the whole area or provide ventilation utilizing local.  
Wear protective gloves, garment, aprons, etc.  
Avoid keeping Hydrogen peroxide tightly closed because it can decompose and generate oxygen gas.  
Wash body and clothing after using chemicals..
- Storage : 1. Storage at room temperature type : 5 ~30°C  
2. Storage in refrigerator type : 0 ~ 5°C  
Avoid contact with combustible and reducing materials.  
Store in a well-ventilated area  
Take cautions not to be mixed with other materials and keep container tightly closed.  
Keep unnecessary people away from the storing place and deny  
Store and use in accordance with governmental and local laws/regulations.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Chemical materials exposure standard, Biological exposure standard etc.	
Domestic limits	TWA – 1ppm, 1.5mg/m <sup>3</sup>
ACGIH limits	TWA- 1ppm, TLV-STEL- 2ppm
Biological exposure limits	No data available
B. Engineering controls	
	Protect from direct sunlight Ensure working process is appropriate to permissible exposure limits of the Labor Department.
C. Personal protection	
Respiratory protection	In case of frequent or intensive exposure use self-contained respiratory protective device
Eye protection	Do not wear contact lenses. Provide an emergency face wash fountain and quick drench shower in. Wear safety goggles to protect eye from scattering materials and harmful liquids.
Hand protection	Wear appropriate chemical resistant gloves.
Body protection	Wear chemical resistant apron and boots.

## 9. PHYSICAL & CHEMICAL PROPERTIES

- A. Appearance: colorless  
B. Odor: slight pungent smell  
C. Threshold value: Not applicable  
D. pH: 1.2- 3.5  
E. Decomposition point: -32.8°C  
F. Boiling Point/ boiling range: 111 deg°C  
G. Flash point: No data applicable  
H. Evaporation rate: No data applicable





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- I. Flammability: No data applicable  
J. Upper and lower level in the range of ignition and explosion: No data applicable  
K. Vapor pressure: 23mmHg (30°C )  
L. Solubility: 100g/100ml (25°C )  
M. Vapor density: 1.2 (air=1)  
N. Relative density(density): 1.13~ 1.22  
O. Partition coefficient (N-octanol /water): No data applicable  
P. Spontaneous Combustion temperature: -32.52 kcal/mol  
Q. Heat of decomposition: -23.45 kcal/mol  
R. Viscosity: 1.115cP (25°C )  
S. Molecular weight: 34.01

## 10. STABILITY AND REACTIVITY

A. Chemical Stability	When heated to above 141 , explosive decomposition could occur. Contact with organic mater, heavy metal or mixing with plenty of dust cause decompsition, oxygen gas acoompanied with decomposition heat.
B. Condition of instability	Not polymerizing.
C. Conditions to avoid (Electrostatic discharge, impact, oscillation, etc.)	Avoid sources of ignition such as heat, flame, spark and others. Contact with combustible materials could cause ignition or explosion. Avoid contact with contaminated materials. Try to maintain the purity of BPO. It the container is exposede to heat, it can rupture of explode.
D. Materials to Avoid	Combusable materials, acid, metallic osides, metals, reducing agent, amine.
E. Hazardous Decomposition	Pyrolysis product: Carbon oxides

## 11. TOXICOLOGICAL INFORMATION

A. Possible route of exposure	
Inhalation Oral Skin contact Eye contact	Steam inhalation ratio is biggest in body's absorption. Less possibility Possible Possible
B. Health Hazards	
Acute oral toxicity Acute dermal toxicity Acute inhalation toxicity Skin corrosion or irritation Serious eye damage or Irritation	LD50 50% : 910 mg/kf Rat LD50 4,060 mg/kf Rat Steam LC50 1,438 ppm Rat A rabbit is reported to show necrosis or corrosiveness on skin. It has cirtical pungent in the case of animal experiment – concerned serious eye damage





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Respiratory hypersensitivity	No data available
Skin hypersensitivity	No data available
Special target organ toxicity(single exposure)	Causes irritation from nose, neck, organs of animal and human.
Special target organ toxicity(repeated exposure)	Irritating human lung, influence leukocyte count, erythrocyte floor space index value and make hemolysis
Germ cell mutagenicity	Negative in micro-nucleus experiment conducted to mouse.
Genetic toxicity	Affects human sperm in a test tube experiment. Effect on sperm mobility in male animals and estrous cycle in female animals, resulting in birth disorders and weight loss in young animals-raising concerns about bad effect on reproductive ability or fetus.
Carcinogenicity	
IARC	3. not carcinogenic substance
ACGIH	A4. Not carcinogenic substance
Aspiration hazard	No data available

## 12. Ecotoxicity effects

A. Ecotoxicity effects.	
Fish	LC50 155mg/l 24hr
Crustacean	EC50 2.4mg/l 48hr(cyclops)
Bird	EC50 2.5mg/l 72hr
B. Persistence and degradability	
Persistence	No data available
Degradation	No data available
C. Bioaccumulative potential	
Condensability	When 5 w/v% is orally administered to a male mouse(Wister family), 56.2 mg/kg(liquid measure 0.112ml/100g) of aqueous solution of hydrogen peroxide has no effect.
Biodegradability	Known to be decomposed by enzyme catalysts with in human body.
D. Mobility in soil	No data available
E. Other hazards	No data available



## 13. Disposal Consideration

A. Disposal method	Should be disposed of in accordance with laws about toxicants and the Dangerous Goods safety management act. Before disposing of liquid waste, dilute it with plenty of water
B. Matters that require attention in disposal	Should be disposed of in accordance with applicable regulations. Do not absorb with combustible materials such as sawdust.



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#### 14. Transport Information

- U.S. Department of Transportation (DOT)
- International Maritime Organization (IMDG)
- International Civil Aviation Organization (ICAO)
- International Air Transport Association (IATA)

Classification regulations of above authorities are unified under the UN Recommendation on the Transport

This product is classified as dangerous good under UN model regulations as below

A. UN No.	2014
B. Proper UN Shipping name	Aqueous solution of hydrogen peroxide
C. Hazard Class in Transport	5.1 (8)
D. Packing group	II
E. Marine pollutant	Not applicable
F. Special safety measures that is necessary for users to know relating with transporting or	
Emergency measures in case of fire	F – H
Emergency measures in case of release	S - Q

#### 15. Regulatory Information

Regulations by the industrial safety and health Act	Listed as a substance of which working environment monitoring is necessary. (measurement cycle : 6 month) Listed as a hazardous substance that should be managed. Listed as a substance of which exposure standards should be established.
Regulations by the safe	Toxic
Regulations by the dangerous goods safety management Act	6 <sup>th</sup> category, oxidative liquid (if under 36%, categorized as nonhazardous substance.)
Regulations by the waste management Act	Not the object of regulation
Regulations by national and foreign laws	
U.S regulations (OSHA)	7500 lb
U.S regulations (CERCLA)	Not applicable
U.S regulations (EPCRA 302)	1000 lb
U.S regulations (EPCRA 304)	1000 lb
U.S regulations (EPCRA 313)	Not applicable
U.S regulations (Material of rotterdam agreement)	Not applicable



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U.S regulations (Material of stockholm convention)	Not applicable
U.S regulations (Material of montreal Agenda)	Not applicable
EU category	R50: R8C: R35Xn: R20/22
EU category information (Hazard)	R5, R8, R20/22, R35
EU category information (Safety)	S1/2, S17, S26, S28, S36/37/39, S45

## 16. OTHER INFORMATION

### A. Reference

KOSHA MSDA information service. <http://www.kosha.net>  
Croner's: Dangerous Substances.  
Sax's Dangerous Properties of Industrial Materials, 12th Ed.  
National Institute of Technology and Evaluation, Japan <http://www.safe.nite.go.jp>  
HSNO CCID, New Zealand <http://www.ermanz.govt.nz/hs/compliance/chemicals.html>  
EU Directive 1999/45/EC  
European Chemical Substances Information System <http://ecb.jrc.ec.europa.eu/esis/>  
EUN Recommendations on the Transport of Dangerous Goods-Model Regulations 16th Ed.  
TOXNET, U.S. National Library of Medicine <http://toxnet.nlm.nih.gov>  
ECOTOX Database, EPA <http://cfpub.epa.gov/ecotox>  
IMDG Code 2008 edition (Amendment 34-08), IMO  
Hansol Chemical's MSDS. <http://www.hansolchemical.com/eng/index.html>

### B. The number of revision and data of the last revision

The number of revision	4
Date of the last revision	Dec 24. 2014

### C. Notice

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*Reikalaujamų parametrų vertimas*

RENO-S90

STERILIZANTAS

Koncentracija ir naudojimas 8 ml (50%), 1 ciklas/kasetė

Sterilizanto RENO-SA90 naudojimo instrukcija

Naudoti RENO-S90 sterilizatoriuje

4. Talpa: 8 ml/kapsulėje (50%)

9. Fizikinės ir cheminės savybės

D. pH: 1,2 – 3,5

2021-12-17

Vertimas tikras

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