

SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY / UNDERTAKING

1.1. Identification of the substance/preparation

Product name : HYDROGEN PEROXIDE-50 %w/w
Chemical Name : Hydrogen Peroxide
Synonyms : Hydroperoxide, Hydrogen dioxide
Molecular formula : H₂O₂
Molecular Weight : 34 g/mol

1.2. Use of the Substance/Preparation

Recommended use : Versatile chemical used in various industries for bleaching, chemical synthesis, environmental control / effluent treatment, sterilizations etc.

1.3. Manufacturers / Suppliers Details

Name : National Peroxide Limited,
Address : NRC Road, Village Vadavali,
P.O. Mohone, Kalyan – 421102,
Thane Dist., Maharashtra State, India.
Telephone : +91 251 2270094, 2271375, 2270672
Telefax : +91 251 2270671.
Email address : mktg@naperol.com

1.4. Emergency telephone number

Telephone : +91 251 3255648 (Emergency 24 Hour)

2. HAZARDS IDENTIFICATION

2.1. GHS-Classification (EC n°1272/2008)

This mixture is classified as Hazardous.

Physical Hazard:

Hazard Class	Hazard category	H Phrases	H- Statement
Oxidising liquids	Category 2	H272	May intensify fire; Oxidizer

Health Hazard:

Hazard Class	Hazard category	H Phrases	H- Statement
Skin Irritation	Category 2	H315	Causes Skin irritation
Acute Toxicity- Oral	Category 4	H302	Harmful if swallowed
Acute Toxicity - Inhalation	Category 4	H332	Harmful if inhaled
Specific Target Organ Toxicity (STOT) – Single Exposure	Category 3	H335	May cause respiratory irritation.

Environmental Hazard:

Hazard Class	Hazard category	H Phrases	H- Statement
Acute Aquatic Toxicity	Category 2	H401	Toxic to aquatic life

2.2. GHS Label elements, including precautionary statements

Name(s) on label:

Hazardous components : Hydrogen Peroxide (50.0%w/w min)



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

Signal Word

- Danger

Hazard Symbols



Hazard Statements

- H272 May intensify fire; Oxidiser.
- H315 Causes skin irritation.
- H302 Harmful if swallowed.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H401 Toxic to aquatic life.

Precautionary statements

Prevention

- P220 Keep/Store away from clothing/flammable/combustible materials.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoor or in well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

- P301+P312+P330+P331 IF SWALLOWED: Call a POISON CENTRE or doctor/Physician. Rinse mouth. Do NOT induce vomiting.
- P302+P353+P361 IF ON SKIN: Rinse skin with water/shower. Remove/take off immediately all contaminated clothing.
- P304+P340+P312 IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.
- P305+P351+P338+P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue to rinsing. Immediately call a POISON CENTRE or doctor/Physician.
- P370+P378 In case of Fire: Use Water, Use water spray for extinction.

Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal

- P501 Dispose of content by diluting with profuse water and in accordance with local/regional/national regulations.



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

2.3. Other hazards which do not result in Classification or are not covered by the GHS

- H412 Harmful to aquatic life with long lasting effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance : Not Applicable. This product is a mixture.

3.2 Mixture : Hydrogen Peroxide, aqueous solution

CAS-No. : 7722-84-1

Concentration : 50.0 % w/w min.

3.2. Hazardous Components:

Substance Name	Hazard class	Hazard Category	Route of Exposure	H Phrases
Hydrogen Peroxide	Oxidising liquid	Category 1		H271
	Acute Toxicity	Category 4	Inhalation	H332
	Acute Toxicity	Category 4	Oral	H302
	Skin corrosion	Category 1		H314
	Specific target organ toxicity – Single exposure	Category 3	Inhalation	H335
	Acute aquatic toxicity	Category 2		H401
	Chronic aquatic toxicity	Category 3		H412

4. FIRST AID MEASURES

4.1. Description of necessary measures for different routes of exposure

On Inhalation

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

In case of Eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Consult with an ophthalmologist immediately in all cases.

In case of Skin contact

- Remove and wash contaminated clothing before re-use.
- Wash off with plenty of water.
- Keep warm and in a quiet place.
- Consult a physician.

On Ingestion

- Call a physician immediately.
- Take victim immediately to hospital.

If victim is conscious:

- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.

If victim is unconscious but breathing:

- Artificial respiration and/or oxygen may be necessary.

4.2. Most important symptoms/effects, acute and delayed

Inhalation

- Corrosive to respiratory system
- Symptoms: Breathing difficulties, Cough, pulmonary oedema, nausea, Vomiting
- Prolonged Exposure: Nose bleeding, chronic bronchitis



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

Skin contact

- Corrosive
- Causes severe burns
- Symptoms: redness, swelling of tissue

Eye contact

- Corrosive
- Causes severe burns
- Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
- Symptoms: Redness, lachrymation, swelling of tissue

Ingestion

- If ingested, severe burns to mouth and throat, as well as a danger of perforation of the oesophagus and the stomach
- Symptoms: Nausea, Abdominal pain, Blood vomiting, suffocation, cough, severe shortness of breath
- Risk of: Respiratory disorder

4.3. Indication of immediate medical attention and special treatment needed, if necessary

- If swallowed
- Take victim immediately to hospital
- Consult with an ophthalmologist immediately in all cases
- Burns must be treated by a physician
- Keep under medical supervision for at least 48 hours.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media

- Water
- Water spray

5.2. Unsuitable Extinguishing media

- None.

5.3. Specific hazards arising from the chemical

- Oxygen released in thermal decomposition may support combustion
- Contact with combustible material may cause fire.
- Contact with flammables may cause fire or explosions.
- Risk of explosion if heated under confinement.

5.4. Special protective equipment for fire-fighters

- Evacuate personnel to safe areas.
- In the event of fire, wear self-contained breathing apparatus.
- When intervention in close proximity wear acid resistant over suit.
- Clean contaminated surface thoroughly.

5.5. Other information

- Keep product and empty container away from heat and sources of ignition.
- Keep containers and surroundings cool with water spray.
- Approach from upwind.
- HAZCHEM Code: 2P

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Advice to non-emergency personnel

- Prevent further leakage or spillage if safe to do so.
- Keep away from Incompatible products.



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

Advice to emergency personnel

- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Use personal protective equipment.
- In case of contact with combustible material, keep material wet with plenty of water.
- Keep wetted with water.

6.2. Environmental precautions

- Limited quantity
Flush into sewer with plenty of water.
- Large quantities:
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and materials for containment and cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Dilute with plenty of water.
- Do not add chemical products.
- Keep in suitable, closed and properly labelled containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".
- Never return spills in original containers for re-use.

7. HANDLING AND STORAGE

7.1. Precaution for safe handling

- Use only in well-ventilated areas.
- Keep away from heat.
- Keep away from Incompatible products.
- May not get in touch with:
Organic materials
- Use only equipment and materials which are compatible with the product.
- Before all operations, passivate the piping circuits and vessels according to the procedure recommended by the producer.
- Never return unused material to storage receptacle.
- Use only in an area with adequate water supply
- Containers and equipment used to handle the product should be used exclusively for that product.
- Do not confine the product in a circuit, between closed valves, or in a container without a vent.

7.2. Condition for safe Storage, including any incompatibilities

- Keep in a cool, well-ventilated place.
- Keep away from heat.
- Keep away from Incompatible products.
- Keep away from combustible material.
- Store in a receptacle equipped with a vent.
- Store in original container.
- Keep container closed.
- Keep in a bunded area.
- Regularly check the condition and temperature of the containers.
- Information about special precautions needed for bulk handling is available on request.

7.3. Packaging material

- Aluminium 99,5 %
- Stainless steel 304L / 316L
- Approved grades of HDPE

7.4. Specific use(s)

- For further information, please contact: Supplier



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control Parameters

Exposure Limit Values

Hydrogen peroxide

- WEL (TWA = 1 ppm, TWA = 1.4 mg/m³)
- WEL (STEL = 2 ppm, STEL = 2.8 mg/m³)
- TLV (NOHSC) (TWA = 1 ppm, TWA = 1.4 mg/m³)

8.2. Appropriate Engineering Controls

- Ensure adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.

8.3 Individual Protection Measures

8.3.1. Respiratory protection

- In case of emissions, face mask with type NO-P3 cartridge.
- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.

8.3.2. Hand protection

- Protective gloves - impervious chemical resistant:
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
- Suitable material: PVC, Natural Rubber, Butyl-rubber, Nitrile Rubber

8.3.3. Eye protection

- Chemical resistant goggles must be worn.
- If splashes are likely to occur, wear: Tightly fitting safety goggles, Face-shield

8.3.4. Skin and body protection

- Protective suit
- If splashes are likely to occur, wear:
- Apron, Boots
- Suitable material: PVC, rubber products

8.3.5. Hygiene measures

- Ensure that Safety showers are close to the workstation location.
- Eye wash bottle with pure water
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

8.4. Environmental exposure controls

- Dispose of rinse water in accordance with local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General Information (appearance, odour)

Appearance	:	liquid
Colour	:	colorless
Odour	:	pungent



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

9.2. Important Health Safety and Environmental Information

pH	:	<2.0 <i>Remarks: Apparent pH</i>
Boiling point/range	:	115 °C (H ₂ O ₂ 50 %)
Flash point	:	<i>Remarks: The product is not flammable.</i>
Melting point / freezing Point	:	-52 °C (H ₂ O ₂ 50 %).
Flammability (solid, gas)	:	<i>Lower explosion limit.</i> <i>Remarks: The product is not flammable.</i>
Explosive properties	:	Not explosive <i>Remarks: With certain materials (see section 10).</i>
Oxidizing properties	:	<i>Remarks: yes</i>
Vapour pressure	:	1 mbar <i>Temperature: 30 °C (H₂O₂ 50 %)</i> 12 mbar <i>Temperature: 20 °C</i> <i>Remarks: Total pressure (H₂O₂ + H₂O) (H₂O₂ 50 %)</i> 72 mbar <i>Temperature: 50 °C</i> <i>Remarks: Total pressure (H₂O₂ + H₂O) (H₂O₂ 50 %)</i>
Relative density	:	1.2 (H ₂ O ₂ 50 %)
Bulk density	:	not applicable
Solubility	:	Soluble Water Polar organic solvents
Partition coefficient (in octanol/water)	:	<i>log Pow: -1.1</i>
Auto-ignition Temperature	:	not applicable
Decomposition Temperature	:	>= 60 °C <i>Remarks: Self-Accelerating decomposition temperature (SADT)</i> < 60 °C <i>Remarks: Slow decomposition</i>
Viscosity	:	1.17 mPa.s <i>Temperature: 20 °C (H₂O₂ 50 %)</i>
Vapour density	:	1 (H ₂ O ₂ 50 %)

9.3. Other information

Surface tension	:	75.6 mN/m <i>Temperature: 20 °C (H₂O₂ 50 %)</i>
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10. STABILITY AND REACTIVITY

10.1. Reactivity

- Potential for exothermic hazard
- Decomposes on heating.

10.2. Chemical Stability

- Stable under recommended storage conditions.



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

10.3. Possibility of hazardous reactions

- Contact with combustible material may cause fire.
- Contact with flammable may cause fire or explosions.
- Risk of explosion if heated under confinement.
- Fire or intense heat may cause violent rupture

10.4. Conditions to avoid

- Contamination
- To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

- Acids, bases, metals, Salts of metals, reducing agents, organic materials, flammable materials

10.6. Hazardous decomposition products

- Oxygen, The release of other hazardous decomposition products is possible if contaminated with incompatible material.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicological data

Acute oral toxicity

- LD₅₀, rat, >225 & <1200 mg/kgbw (H₂O₂ 50 %)

Acute inhalation toxicity

- LC₅₀, 4 h, rat, 2.000 mg/m³ (Hydrogen peroxide)

Acute dermal toxicity

- LD₅₀, rabbit, > 2.000 mg/kg corrosive (H₂O₂ 50 %)

Skin irritation

- Rabbit, Skin irritation, corrosive effect (H₂O₂ 50 %)

Eye irritation

- Risk of serious damage to eyes. (H₂O₂ 50 %)

Irritation (other route)

- Inhalation, mouse, Irritating to respiratory system., RD 50 = 665 mg/m³ (Hydrogen peroxide)

Sensitization

- Guinea pig, Did not cause sensitization on laboratory animals.

Chronic toxicity

- Oral, Prolonged exposure, Various species, Target Organs: Gastrointestinal tract, observed effect
- Inhalation, Repeated exposure, dog, LOEL: 14.6 mg/m³, irritant effects

Carcinogenicity

- Oral, Prolonged exposure, mouse, Target Organs: duodenum, carcinogenic effects
- Dermal, Prolonged exposure, mouse, Animal testing did not show any carcinogenic effects.

Toxicity for reproduction

- Substance is totally biotransformed (metabolised).
- Study scientifically unjustified.

Specific target Organ toxicity – Single exposure

- Inhalation, mice, 665 mg/m³,
- Remark: RD 50. Irritating to respiratory system.

Repeated dose toxicity

- Oral, 90-day, mouse, Target Organs: Gastrointestinal tract, 300ppm, LOAEL (Pure Substance)
- Oral, 90-day, mouse, 100 ppm, NOAEL (Pure Substance)



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

- Inhalation, 28-day, rat, Target Organs: Respiratory system, 10 ppm, LOAEL, vapour (Pure Substance)
- Inhalation, 28-day, 2 ppm, NOAEL, vapour (Pure substance)

Other information

- No data available.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

Acute toxicity

- Fishes, Pimephales promelas, LC₅₀, 96 h, 16.4 mg/l
- Fishes, Pimephales promelas, NOEC, 96 h, 5 mg/l
- Crustaceans, EC₅₀, 48 h, 2.4 mg/l
- Crustaceans, NOEC, 48 h, 1 mg/l

Chronic toxicity

- Molluscs, NOEC, 56 Days, 2 mg/l
- Algae, Chlorella vulgaris, EC₅₀, growth rate, 72 h, 4.3 mg/l
- Algae, Chlorella vulgaris, NOEC, 72 h, 0.1 mg/l

12.2. Persistence and degradability

Abiotic degradation

- Air, indirect photo-oxidation, t_{1/2} from 16 - 20 h
Conditions: sensitizer: OH radicals
- water, redox reaction, t_{1/2} from 25 - 100 h
Conditions: mineral and enzymatic catalysis, fresh water
- water, redox reaction, t_{1/2} from 50 - 70 h
Conditions: mineral and enzymatic catalysis, salt water
- Soil, redox reaction, t_{1/2} from 0.05 - 15 h
Conditions: mineral catalysis

Biodegradation

- aerobic, t_{1/2} < 2 min
Conditions: biological treatment sludge. Remarks: Readily biodegradable.
- aerobic, t_{1/2} from 0.3 - 5 d
Conditions: fresh water. Remarks: Readily biodegradable.
- Anaerobic.
Conditions: Soil/Sediments. Remarks: not applicable
- aerobic, t_{1/2} < 12 hrs
Conditions: soil. Remarks: Readily biodegradable.

12.3. Bioaccumulative potential

- Bioaccumulative potential
Result: Does not bioaccumulate.

12.4. Mobility in Soil

- Air, Volatility, Henry's law constant (H) = 1 Pa.m³/mol
Conditions: 20 °C Remarks: not significant
- water
Considerable solubility and mobility
Remarks: The product evaporates slowly.
- Soil/sediments
Remarks: non-significant evaporation and adsorption

12.5. Other adverse effects

- no data available



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

13. DISPOSAL CONSIDERATIONS

13.1. Waste from residues / unused products

- In accordance with local and national regulations.
- Limited quantity
- Dilute with plenty of water.
- Flush into sewer with plenty of water.
- Large quantities:
Contact manufacturer.
In accordance with local and national regulations.

13.2. Contaminated Packaging

- Empty containers.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Do not rinse the dedicated containers.
- The empty and clean containers are to be reused in conformity with regulations.

14. TRANSPORT INFORMATION

IATA

UN number	UN 2014
Proper shipping name:	Not permitted to transport
Transport Hazard Class	Not permitted to transport
Sub-risks Hazard Class	Not permitted to transport
Packing group	
Packing instruction (cargo aircraft)	Not permitted to transport
Packing instruction (passenger aircraft)	Not permitted to transport

- IATA: forbidden over 40 %

IMDG

UN number	UN 2014
Proper shipping name:	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Transport Hazard Class	5.1
Sub-risks Hazard Class	8
Packing group	II
Marine Pollutant	No
Labels	5.1 – Oxidizing substance 8 - Corrosive
EmS Number	F – H, S – Q

15. REGULATORY INFORMATION

15.1. Label

- Hazardous components which must be listed on the label: Hydrogen peroxide
- Classified as hazardous according to criteria of NOHSC.

Symbol(s) C Corrosive



SAFETY DATA SHEET for HYDROGEN PEROXIDE - (50%w/w)

R-phrases(s)	R8 R34	Contact with combustible material may cause fire. Causes burns.
S-phrases(s)	S 1/2 S 3 S28 S36/39 S45	Keep locked up and out of the reach of children. Keep in a cool place. After contact with skin, wash immediately with Plenty of water. Wear suitable protective clothing and eye/face Protection. In case of accident or if you feel unwell, seek Medical advice immediately (show the label where Possible).

15.2. Other information

- The percentage concentration of the solution must be indicated next to the product name.

16. OTHER INFORMATION

16.1. Text of phrases mentioned

- WEL WORKPLACE EXPOSURE LIMIT.
- TWA TIME WEIGHTED AVERAGE.
- STEL SHORT TERM EXPOSURE LIMIT.
- NOHSC NATIONAL OCCUPATIONAL HEALTH AND SAFETY COMMISSION

16.2. NFPA (National Fire Protection Association) - Classification

Health	3 serious.
Flammability	0 minimal.
Instability or Reactivity	1 slight.
Special Notices	OX Oxidiser.

16.3. Revisions

- Rev. No. 00/ 28/06/2010 – First Issue
- Rev. No. 10/ 01/04/2012 – IMS First Issue
- Rev. No. 11/ 01/10/2016 – Product SDS evaluated under GHS format

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

