



# NATIONAL PEROXIDE LIMITED, KALYAN

## MATERIAL 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 : H<sub>2</sub>O<sub>2</sub>  
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. Company/Undertaking Identification

Address : National Peroxide Limited,  
NRC Road, Village Vadavali,  
P.O. Mohone, Kalyan – 421102,  
Thane Dist., Maharashtra State, India.  
Telephone : 091 251 2270094, 2271375, 2270672  
Telefax : 091 251 2270671.

#### 1.4. Emergency telephone number

Telephone : 091 251 3255648 (Emergency 24 Hour)

### 2. HAZARDS IDENTIFICATION

Appearance : Liquid  
Colour : Colorless  
Odour : Pungent

- Classified as hazardous according to criteria of NOHSC.
- Corrosive
- Non-combustible, but may contribute to the combustion of other substances and causes violent and explosive reactions.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Hydrogen peroxide

CAS-No. : 7722-84-1  
Symbol(s) : O, C  
R-phrases) : R 8, R34  
Concentration : 50.0 – 50.5 % w/w

### 4. FIRST AID MEASURES

#### 4.1. Inhalation

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

#### 4.2. 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.



#### 4.3. 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.

#### 4.4. Ingestion

***The following actions are recommended:***

- 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.

### 5. FIRE-FIGHTING MEASURES

#### 5.1. Suitable extinguishing media

- Water
- Water spray

#### 5.2. Extinguishing media which must not be used for safety reasons

- None.

#### 5.3. Special exposure hazards in a fire

- 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

- Refer to protective measures listed in sections 7 and 8.
- Isolate the area.
- Keep away from Incompatible products.
- Prevent further leakage or spillage if safe to do so.
- In case of contact with combustible material, keep material wet with plenty of 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 for cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Dilute with plenty of water.
- Do not add chemical products.
- 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. 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.

### 7.2. Storage

- 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 banded area.
- Regularly check the condition and temperature of the containers.
- Information about special precautions needed for bulk handling is available on request.

### 7.3. Specific use(s)

- For further information, please contact: Supplier

### 7.4. Packaging material

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

### 7.5. Other information

- Refer to protective measures listed in sections 7 and 8.
- Do not confine the product in a circuit, between closed valves, or in a container without a vent.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1. Exposure Limit Values

#### Hydrogen peroxide

- WEL (TWA = 1 ppm, TWA = 1.4 mg/m<sup>3</sup>)
- WEL (STEL = 2 ppm, STEL = 2.8 mg/m<sup>3</sup>)
- TLV (NOHSC) (TWA = 1 ppm, TWA = 1.4 mg/m<sup>3</sup>)

### 8.2. Exposure Controls

- Ensure adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.
- Refer to protective measures listed in sections 7 and 8.

#### 8.2.1. Occupational exposure controls

##### 8.2.1.1. 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.

##### 8.2.1.2. Hand protection

- Protective gloves - impervious chemical resistant:
  - PVC



- Rubber gloves
- 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).

#### 8.2.1.3. Eye protection

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

#### 8.2.1.4. Skin and body protection

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

#### 8.2.1.5. Hygiene measures

- Use only in an area equipped with a safety shower.
- Eye wash bottle with pure water
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

### 8.2.2. 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

### 9.2. Important Health Safety and Environmental Information

pH	:	<2.0 <i>Remarks:</i> Apparent pH
Boiling point/range	:	115 °C (H <sub>2</sub> O <sub>2</sub> 50 %)
Flash point	:	<i>Remarks:</i> The product is not flammable.
Flammability	:	<i>Lower explosion limit:</i>
(solid, gas)	:	<i>Remarks:</i> The product is not flammable.
Explosive properties	:	<i>Remarks:</i> With certain materials (see section 10).
	:	<i>Remarks:</i> In case of heating:
Oxidizing properties	:	<i>Remarks:</i> yes
Vapour pressure	:	1 mbar
	:	<i>Temperature:</i> 30 °C (H <sub>2</sub> O <sub>2</sub> 50 %)
	:	12 mbar
	:	<i>Temperature:</i> 20 °C
	:	<i>Remarks:</i> Total pressure (H <sub>2</sub> O <sub>2</sub> + H <sub>2</sub> O) (H <sub>2</sub> O <sub>2</sub> 50 %)
	:	72 mbar
	:	<i>Temperature:</i> 50 °C
	:	<i>Remarks:</i> Total pressure (H <sub>2</sub> O <sub>2</sub> + H <sub>2</sub> O) (H <sub>2</sub> O <sub>2</sub> 50 %)
Relative density / Density	:	1.2 (H <sub>2</sub> O <sub>2</sub> 50 %)
Solubility	:	Soluble
	:	Water
	:	Polar organic solvents
Partition coefficient	:	
(in octanol/water)	:	<i>log Pow:</i> -1.1
Viscosity	:	1.17 mPa.s
	:	<i>Temperature:</i> 20 °C (H <sub>2</sub> O <sub>2</sub> 50 %)
Vapour density	:	1 (H <sub>2</sub> O <sub>2</sub> 50 %)



### 9.3. Other data

<b>Freezing point</b>	:	-52 °C (H <sub>2</sub> O <sub>2</sub> 50 % )
<b>Auto inflammability</b>	:	<i>Remarks:</i> The product is not flammable.
<b>Surface tension</b>	:	75.6 mN/m <i>Temperature:</i> 20 °C (H <sub>2</sub> O <sub>2</sub> 50 %)
<b>Decomposition Temperature</b>	:	>= 60 °C <i>Remarks:</i> Self-Accelerating decomposition temperature (SADT) < 60 °C <i>Remarks:</i> Slow decomposition

## 10. STABILITY AND REACTIVITY

### 10.1. Stability

- Potential for exothermic hazard
- Stable under recommended storage conditions.

### 10.2. Conditions to avoid

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

### 10.3. Materials to avoid

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

### 10.4. Hazardous decomposition products

- Oxygen, The release of other hazardous decomposition products is possible.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Toxicological data

#### **Acute oral toxicity**

- LD<sub>50</sub>, rat, >225 & <1200 mg/kgbw (H<sub>2</sub>O<sub>2</sub> 50 %)

#### **Acute inhalation toxicity**

- LC<sub>50</sub>, 4 h, rat, 2.000 mg/m<sup>3</sup> (Hydrogen peroxide)

#### **Acute dermal toxicity**

- LD<sub>50</sub>, rabbit, > 2.000 mg/kg corrosive (H<sub>2</sub>O<sub>2</sub> 50 %)

#### **Skin irritation**

- Rabbit, Skin irritation, corrosive effect (H<sub>2</sub>O<sub>2</sub> 50 %)

#### **Eye irritation**

- Risk of serious damage to eyes. (H<sub>2</sub>O<sub>2</sub> 50 %)

#### **Irritation (other route)**

- Inhalation, mouse, Irritating to respiratory system., RD 50 = 665 mg/m<sup>3</sup> (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/m<sup>3</sup>, irritant effects

#### **Carcinogenicity**

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

#### **Genetic toxicity in vitro**

- In vitro tests have shown mutagenic effects.

#### **Genetic toxicity in vivo**

- Animal testing did not show any mutagenic effects.

#### **Possible hazards (summary)**

- Corrosive effects



## 11.2. Health effects

### **Main effects**

- The product causes burns of eyes, skin and mucous membranes.

### **Inhalation**

- Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.
- Repeated or prolonged exposure: Risk of sore throat, nose bleeds, chronic bronchitis.

### **Eye contact**

- Severe eye irritation
- redness
- lachrymation
- swelling of tissue
- Risk of serious damage to eyes.

### **Skin contact**

- Severe skin irritation
- redness
- swelling of tissue
- Causes burns.

### **Ingestion**

- severe irritation
- Ingestion causes burns of the upper digestive and respiratory tracts.
- nausea
- vomiting
- Bloating of stomach, belching.
- Risk of chemical pneumonitis from product inhalation.

## 12. ECOLOGICAL INFORMATION

### 12.1. Ecotoxicity effects

#### **Acute toxicity**

- Fishes, Pimephales promelas, LC<sub>50</sub>, 96 h, 16.4 mg/l
- Fishes, Pimephales promelas, NOEC, 96 h, 5 mg/l
- Crustaceans, EC<sub>50</sub>, 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, EC<sub>50</sub>, growth rate, 72 h, 4.3 mg/l
- Algae, Chlorella vulgaris, NOEC, 72 h, 0.1 mg/l

### 12.2. Mobility

- Air, Volatility, Henry's law constant (H) = 1 Pa.m<sup>3</sup>/mol  
Conditions: 20 °C Remarks: not significant
- Air, condensation on contact with water droplets  
Remarks: rain washout
- water  
Remarks: The product evaporates slowly.
- Soil/sediments  
Remarks: non-significant evaporation and adsorption

### 12.3. Persistence and degradability

#### **Abiotic degradation**

- Air, indirect photo-oxidation, t<sub>1/2</sub> from 16 - 20 h  
Conditions: sensitizer: OH radicals
- water, redox reaction, t<sub>1/2</sub> from 25 - 100 h  
Conditions: mineral and enzymatic catalysis, fresh water
- water, redox reaction, t<sub>1/2</sub> from 50 - 70 h  
Conditions: mineral and enzymatic catalysis, salt water
- Soil, redox reaction, t<sub>1/2</sub> 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. Remarks: not applicable
- Effects on waste water treatment plants, Inhibitor  $> 30$  mg/l  
Remarks: inhibitory action

**12.4. Bioaccumulative potential**

- Bioaccumulative potential  
Result: Does not bioaccumulate.

**12.5. Other adverse effects**

- no data available

**12.6. Possible hazards (summary)**

- Toxic to aquatic organisms.
- Nevertheless, hazard for the environment is limited due to product properties:
- No toxicity of degradation products ( $H_2O$  and  $O_2$ ).
- Inherently biodegradable.
- Does not bioaccumulate.

**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.

**13.2. Packaging treatment**

- 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.
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**14. TRANSPORT INFORMATION**

<b>UN-No</b>	<b>2014</b>
<b>IATA-DGR</b>	
Class	5.1
Sub-risks	CORROSIVE
Packing group	II
ICAO-Labels	5.1 + 8
Proper shipping name:	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
<b>IMDG</b>	
Class	5.1
Sub-risks	Corrosive
Packing group	II
IMO-Labels	5.1 + 8
HI/UN No.	2014
Proper shipping name:	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
EMS Number	F – H, S – Q



**Remarks:**

- IATA: forbidden over 40 %
- HAZCHEM Code: 2P

## 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
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 has to be indicated next to the product name.

### 15.3. Inventory Information

- One or more components not listed on inventory.
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## 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. Revisions

- Rev. No. 00 / 28/06/2010 – First Issue
- Rev. No. 10 / 01/04/2012 – IMS First Issue.

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.

