1. Identification of the substance or mixture and of the supplier

1.1. GHS product identifier
   1.1.1. Product name Phenol
   1.1.2. Chemical name Phenol
   1.1.3. Synonyms Hydroxybenzene, Monohydroxybenzene, Benzenol, Phenylhyroxide, Phenolic acid
   1.1.4. Formula C₆H₅OH
   1.1.5. Molecular weight 94.11 g/mol
   1.1.6. CAS number 108-95-2

1.2. Relevant Identified uses of the substance or mixture
   1.2.1. UN Number 1671
   1.2.2. Annex I, EU directive 67/948/EC 604-001-00-2
   1.2.3. EC number 203-631-7

1.3. Recommended use of the chemical and restrictions on use. Laboratory chemical and Rawmaterial of Bis-phenol A, Polycarbonate, Epoxy resin production process, etc.

1.4. Details of the supplier of the safety data sheet
   1.4.1. Company: Hindustan Organic chemicals Ltd
   1.4.2. Address: Ambalamugal, Kochi, Kerala 682302
   1.4.3. Telephone: 0484-2720911-14
   1.4.4. Facsimile: 0484-2720893
   1.4.5. E-mail: k.kusumam@hocindia.com

1.5. Emergency telephone number: 0484-2727222 / 0484-2727333/0484-2727230

2. Hazards identification

2.1. GHS classification of the substance/mixture and any national or regional information.
   2.1.1. GHS classification
      2.1.1.1. Acute toxicity, Oral (Category 3)
      2.1.1.2. Acute toxicity, Dermal (Category 3)
      2.1.1.3. Acute toxicity, Inhalation (Category 3)
2.1.1.4. Skin corrosion/irritation (Category 1)
2.1.1.5. Serious eye damage/ eye irritation (Category 1)
2.1.1.6. Germ cell mutagenicity (Category 2)
2.1.1.7. Specific target organ toxicity-repeated exposure (Category 2)
2.2. GHS label element including with precautionary statement

2.2.1. Pictogram

2.2.2. Signal word Danger

2.2.3. Hazards statement
   2.2.3.1. H301 Toxic if swallowed
   2.2.3.2. H311 Toxic in contact with skin
   2.2.3.3. H314 Causes severe skin burns and eye damage
   2.2.3.4. H331 Toxic if inhaled
   2.2.3.5. H341 Suspected of causing genetic defects
   2.2.3.6. H373 May cause damage to organs through prolonged or repeated exposure

2.2.4. Precaution statement (s)
   2.2.4.1. P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
   2.2.4.2. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection
   2.2.4.3. P301+P310 If SWALLOWED: immediately call a POISON Center or doctor/physician
   2.2.4.4. P305+P351+P338 If in EYES: Rinse cautiously with water for several minutes
      Remove contact lenses, if present and easy to do. Continue rising.
   2.2.4.5. P310 Immediately call a POISON Center or doctor/physician.
2.3. Supplemental Hazard Statement  None

3. Composition/information on ingredients
3.1. Single substance
3.1.1. Product name Phenol
3.1.2. Chemical identity Phenol
3.1.3. Common name/ synonym Hydroxybenzene, Monohydroxybenzene, Benzenol, Phenylhyroxide, Phenyllic acid
3.1.4. CAS number 108-95-2
3.1.5. Impurities and stabilizing additives Phenol content > 99.98% the rest composition is water

3.2. Mixture substances
3.2.1. This substance is a single substance

4. First-aid measures
4.1. Description of first aid measures
4.1.1. General advise - Consult a physician. Show this safety data sheet to the doctor in attendance
4.1.2. If inhaled - If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
4.1.3. In case of skin/eye contact
4.1.3.1. In case of skin contact - Take off contaminate clothing and shoes immediately. Wash off with Polyethylene glycol then alternate with plenty of water. Take victim immediately to hospital. Consult a physician.
4.1.3.2. In case of eye contact - Rinse thoroughly with plenty of water for at least 15 minutes. Take victim immediately to hospital. Consult a physician.
4.1.4. If swallowed- Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Take victim immediately to hospital. Consult a physician
4.2. Most important symptoms and effects, both acute and delayed- Mention in Label and SDS item 11
4.3. Indication of any immediate medical attention and special treatment needed- Take victim immediately to hospital with SDS. Consult a physician.

5. Fire-fighting measures
5.1. Suitable (and unsuitable) extinguishing media. - Use waterspray, alcohol-resistance foam, dry chemical or carbon monoxide
5.2. Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products). Carbon oxides (CO, CO2)
5.3. Special protective equipment and precautions for firefighters. Wear self contained breathing apparatus (SCBA) for fire fighting if necessary.
5.4. Further information No data available.

6. Accident release measures
6.1. Personal precautions, protective equipment and emergency procedures.
6.1.1. Avoid breathing vapour, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
6.1.2. Wear respiratory protection as mentioned in item 8
6.1.3. Emergency procedures Barricade and evacuate personnel to safe areas.
6.2. Environmental precautions.
6.2.1. Prevent further leakage or spillage if safe to do so.
6.2.2. Do not let product enter drains.
6.2.3. Discharge into environment must be avoided.
6.3. Methods and materials for containment and cleaning up. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal as mention in item 13.

7. Handling and storage
7.1. Precautions for safe handling. - Avoid contact with skin and eyes. Provide appropriate exhaust ventilation at places where dust is formed.
7.2. Conditions for safe storage, including any incompatibilities.- Store in cool place. Keep container tightly closed in a dry and well-ventilated place
7.2.1. Incompatibility - Keep separate from Strong oxidizing agents, Strong alkalis, Strong Acids that already mentioned in item 10

8. Exposure controls/personal protection
8.1. Control parameters, e.g., occupational exposure limit values or biological limit values.

8.1.1. Occupational exposure limit value refer to ACGIH TWA-TLV = 5

8.1.2. Biological limit values No data available

8.2. Appropriate engineering controls. No data available

8.3. Individual protection measures, such as personal protective equipment.

8.3.1. Skin protection - Handle with gloves. Use proper gloves have to satisfy with EU Directive 89/686/EEC and EN374 standard

8.3.2. Eye/face protection - Face shield and safety glasses that tested and approved under appropriate government standards such as NIOSH (USA) or EN166 (EU)

8.3.3. Skin/body protection - Complete suit protecting against chemicals.

8.3.4. Respiratory protection - Full face particle respirator (cartridges organic vapour). In cases of emergency self-contained breathing apparatus (SCBA).

9. Physical and chemical properties

9.1. Appearance (physical state, color, etc.). Solid

9.2. Odour Odour as Hospital cleaning material

9.3. Odour threshold limit N/A

9.4. pH 6.0

9.5. Melting point/freezing point Melting point < 20 C

9.6. Initial boiling point and boiling range Initial boiling point > 100 C at 1.013 hPa

9.7. Flash point N/A

9.8. Evaporation rate N/A

9.9. Flammability (solid, gas)) N/A

9.10. Upper/lower flammability or explosive limits N/A

9.11. Vapour pressure 6.3 hPa at 55C and 0.5 hPa at 20 C

9.12. Vapour density N/A

9.13. Relative density 1.071 g/cm3 at 25 C

9.14. Solubility N/A

9.15. Partition coefficient: n-octanol/water) log Pow = 1.46

9.16. Auto-ignition temperature N/A

9.17. Decomposition temperature N/A
9.18. Viscosity N/A

10. Stability and reactivity

10.1. Reactivity N/A
10.2. Chemical stability N/A
10.3. Possible of hazardous reactions N/A
10.4. Condition to avoid N/A
10.5. Incompatible materials Strong oxidizing agents, Strong alkalis, Strong Acids
10.6. Hazardous decomposition products: N/A

11. Toxicological information

11.1. Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)

11.1.1. Acute Toxicity
11.1.1.1. Acute toxicity, Inhalation (Category 3) LD50 (rat) 8 hours = 900 mg/kg
11.1.1.2. Acute toxicity, Oral (Category 3) LD50 (rat) = 317 mg/kg
11.1.1.3. Acute toxicity, Dermal (Category 3) LC50 (rabbit) = 900 mg/kg
11.1.1.4. Skin corrosion/irritation (Category 1) rabbit 24 hours — severe burn
11.1.1.5. Serious eye damage/ eye irritation (Category 1) rabbit 24 hours — eye severely destroyed
11.1.1.6. Respiratory or skin sensitization N/A
11.1.1.7. Germ cell mutagenicity In vitro tests showed mutagenic effects
11.1.1.8. Carcinogenicity Donotclassifiedascarcinogenic substance basis on IARC, ACGIH, NTP, EPA

11.1.1.8.1. IARC: Group 3: Not classifiable as to its carcinogenicity to humans (Phenol)
11.1.1.9. Reproductive toxicity N/A
11.1.1.10. Specific target organ systemic toxicity (STOT SE) - Single exposure N/A
MATERIAL SAFETY DATA SHEET: PHENOL

11.1.1.11. Specific target organ systemic toxicity (STOT RE) - Repeated exposure May cause damage to organs through prolonged or repeated exposure
11.1.1.12. Aspiration hazard N/A
11.2. Potential health effects already shown in item 11.1.1
11.3. Delayed and immediate effects and chronic effects from short and long-term exposure already shown in item 11.1.1
11.4. Acute toxicity in numerical already shown in item 11.1.1

12. Ecological information
12.1. Ecotoxicity (aquatic and terrestrial, where available).
   12.1.1. Toxicity to fish LC50 - Carassius auratus (goldfish), 96 hours 36.10 — 68.80 mg/l
   12.1.2. Toxicity to Crustaceans (various species) EC50 - Daphnia magna (Water flea), 24 hours , 12.00 mg/l
   12.1.3. Toxicity to Algae (various species) EC50 - Chlorella vulgaris (Fresh water algae), 96 hours, 370.00 mg/l
12.2. Persistence/ degradability : N/A
12.3. Bio-accumulative potential : N/A
12.4. Mobility in soil : N/A
12.5. Other adverse effects Harmful to aquatic life

13. Disposal considerations
13.1. Waste packaging should be disposed. Refer to local regulation by licensed disposal company
13.2. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber

14. Transportation information
14.1. UN proper shipping name
   14.1.1. ADR/RID: PHENOL, SOLID
   14.1.2. IMDG: PHENOL, SOLID
   14.1.3. IATA: Phenol, solid
14.2. UN Number
   14.2.1. ADR/RID: 1671
   14.2.2. IMDG: 1671
14.2.3. IATA: 1671
14.3. UN transportation classification
  14.3.1. ADR/RID: 6.1
  14.3.2. IMDG: 6.1
  14.3.3. IATA: 6.1
14.4. UN packing group
  14.4.1. ADR/RID: II
  14.4.2. IMDG: II
  14.4.3. IATA: II
14.5. Environmental hazards / Marine pollutant
  14.5.1. ADR/RID: no
  14.5.2. IMDG: no
  14.5.3. IATA: no
14.6. Special precautions for user: N/A

15. Regulatory information
  15.1. This safety data sheet complies with the local regulation

16. Other information

- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide.
- The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions.
- It does not represent any guarantee of the properties of the products.
- The information contained in this Safety data sheet is believed to be reliable, but no representation guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. Hindustan Organic Chemicals Limited makes no warranties expressed or implied in respect of the adequacy of this document for any particular purpose.
1. **IDENTIFICATION OF THE SUBSTANCE AND COMPANY**

- Product Name: ACETONE
- Product Use: Solvent used in the processing of resins, lacquers, waxes, adhesives, inks, paints and plastics.
- Company: Hindustan Organic chemicals Ltd
- Address: Ambalamugal, Kochi, Kerala 682302
- Telephone: 0484-2720911-14
- Facsimile: 0484-2720893
- E-mail: k.kusumam@hoclindia.com
- Other Names Not Available

2. **COMPOSITION/ INFORMATION ON INGREDIENTS**

Name: Acetone  
CAS : 67-64-1  
Proportion Hazard : 100%

3. **HAZARDS IDENTIFICATION**

- Flammable liquid: high hazard  
- Substance that is acutely toxic (Oral)  
- Substance that is mildly irritating to the skin  
- Substance that is irritating to the eyes  

**Hazard statement codes:**  
- H225 Highly flammable liquid and vapour.  
- H303 May be harmful if swallowed.  
- H316 Causes mild skin irritation.  
- H319 Causes serious eye irritation.  

**Precautionary statement codes - Prevention:**
MATERIAL SAFETY DATA SHEET: ACETONE

• P102 Keep out of reach of children. - This statement applies only where the substance is available to the general public.
• P103 Read label before use. - This statement applies only where the substance is available to the general public.
• P104 Read Safety Data Sheet before use.
• P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
• P233 Keep container tightly closed.
• P240 Ground/bond container and receiving equipment.
• P241 Use explosion-proof electrical/ventilating/lighting.
• P242 Use only non-sparking tools.
• P243 Take precautionary measures against static discharge.
• P264 Wash skin thoroughly after handling.
• P280 Wear protective gloves/protective clothing/eye protection/face protection.
• Precautionary statement codes - Response:
• P101 If medical advice is needed, have product container or label at hand. - This statement applies only where the substance is available to the general public.
• P370+P378 In case of fire: Use foam, carbon dioxide, dry chemical or alcohol foam for extinction.
• INGESTION:
• P312 Call a POISON CENTER or doctor/physician if you feel unwell.
• P331 Do NOT induce vomiting.
• EYES:
• P305+P351+P338 Rinse cautiously with water for several minutes.
• Remove contact lenses, if present and easy to do. Continue rinsing.
• P337+P313 If eye irritation persists: Get medical advice/attention.
• SKIN:
• P303+P361+P353 Remove/Take off immediately all contaminated clothing.
• Rinse skin with water/shower.
MATERIAL SAFETY DATA SHEET: ACETONE

- P332 +P313 If skin irritation occurs: Get medical advice/attention.
- Precautionary statement codes - Storage:
  - P403+P235 Store in a well-ventilated place. Keep cool.

**Chronic Effects**: Repeated or prolonged skin contact can cause severe irritation or dermatitis. Contact with this product over long periods can aggravate pre-existing medical conditions. Use of alcoholic beverages enhances toxic effects. Exposure may increase the toxic potential of chlorinated hydrocarbons, such as chloroform, trichloroethylene.

**Inhalation**: May cause irritation to the mucous membrane and upper airways, especially where vapours or mists are generated. Symptoms include sneezing, coughing, wheezing, shortness of breath, headache, dizziness, drowsiness nausea and vomiting.

**Ingestion**: Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

**Skin**: May cause redness, itching and irritation. Prolonged contact with skin may cause blistering, and repeated contact may have a defatting effect causing dryness and cracking.

**Eye**: Irritating to eyes. On eye contact this product will cause tearing, stinging, blurred vision, and redness.

### 4. FIRST AID MEASURES

**Inhalation** If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. If symptoms develop seek medical attention.

**Ingestion** Do not induce vomiting. Wash out mouth thoroughly with water. If symptoms develop seek medical attention.

**Skin** Wash affected area thoroughly with copious amounts of running water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.
MATERIAL SAFETY DATA SHEET: ACETONE

Eye If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed out completely. Seek medical attention.

First Aid Facilities Eye wash and normal wash room facilities.

Advice to Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media Use carbon dioxide, dry chemical, foam, water fog or water mist.

Specific Hazards Highly flammable liquid and vapour. Vapour/air mixtures may ignite explosively. Flashback along the vapour trail may occur. Runoff to sewer may create fire or explosion hazard.

The fire could easily be spread by the use of water in the area where the water could not be contained. Water may be ineffective in fighting the fire.

Hazardous Combustion Products Under fire conditions this product may emit toxic and/or irritating fumes and gases including carbon monoxide and carbon dioxide.

Precautions in connection with Fire

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to cool down heat-exposed containers. Fight fire from safe location. This product should be prevented from entering drains and watercourses.

Protective Equipment Full protective clothing and self-contained breathing apparatus.

Flash Point -20°C
Ignition Temperature 465-538°C
Flammable Limits UEL 13 %v/v
Flammable Limits LEL 3%v/v
MATERIAL SAFETY DATA SHEET: ACETONE

Flammability  Highly flammable.

6. MEASURES IN CASES OF ACCIDENTAL RELEASE

Wear appropriate personal protective equipment and clothing to prevent exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water authorities and EPA in accordance with local regulations.

7. PRECAUTIONS IN HANDLING AND STORAGE

Handling  Wear appropriate protective clothing and equipment to prevent inhalation, skin and eye exposure. Handle and use the material in a well-ventilated area, away from sparks, flames and other ignition sources. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Work from suitable, labelled, fire-resistant containers. Open containers carefully as they may be under pressure. Keep containers closed when not in use. Flameproof equipment is necessary in areas where the product is being used. Take precautionary measures against static discharges. Earth or bond all equipment. Do not empty into drains. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet facilities.

Storage  Store in a cool, dry, well-ventilated area away from sources of ignition, oxidising agents, strong acids, foodstuffs, and clothing. Keep containers closed when not in use and securely sealed and protected against
physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. For information on the design of the storeroom, reference should be made local standards applicable. The storage and handling of flammable and combustible liquids. Reference should also be made to all applicable local and national regulations.

8. **EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**Respiratory Protection** If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable mist/particulate filter should be used.

**Eye Protection** Safety glasses with side shields or chemical goggles should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances.

**Hand Protection** Wear gloves of impervious material i.e. chemical resistant gloves. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken.

**Body Protection** Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

**Eng. Controls** Provide sufficient ventilation to keep airborne levels below the exposure limits. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flameproof exhaust ventilation system is required.
MATERIAL SAFETY DATA SHEET: ACETONE

Biological Limit Values No biological limit available.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colourless mobile liquid</td>
</tr>
<tr>
<td>Melting point</td>
<td>minus 94.6 deg C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>56 deg C</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic sweet / fruity odour</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water. Soluble in common organic solvents.</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.791 @ 20 deg C</td>
</tr>
<tr>
<td>pH value</td>
<td>Not available</td>
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<td>Vapour pressure</td>
<td>187 mm Hg @ 20 deg C</td>
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<tr>
<td>Vapour density</td>
<td>2.0 (Air = 1)</td>
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<tr>
<td>Volatile component</td>
<td>100%</td>
</tr>
<tr>
<td>Flash point</td>
<td>Minus 20 deg C</td>
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<tr>
<td>Flammability</td>
<td>Highly flammable</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>465 to 538 deg C</td>
</tr>
<tr>
<td>Flammable limits LEL</td>
<td>3% v/v</td>
</tr>
<tr>
<td>Flammable limits UEL</td>
<td>13% v/v</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>58.08</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions of use.

Hazardous Polymerization Will not occur.

Materials to Avoid Strong oxidizing agents, strong acids
MATERIAL SAFETY DATA SHEET: ACETONE

Hazardous Decomposition Products Thermal decomposition may result in the release of toxic and/or irritating fumes and gases including carbon monoxide and carbon dioxide.

Hazardous Reaction Reacts violently with bromoform and chloroform in the presence of alkalis or in contact with alkaline surfaces. Decomposes violently in contact with nitric/sulfuric acid mixtures. Can react violently with oxidizing agents.

Conditions to Avoid Heat, direct sunlight, open flames or other sources of ignition and incompatibles.

11. TOXICOLOGICAL INFORMATION

Toxicology Information
Oral LD50(rat): 9750 mg/kg
Inhalation LC50 (rat): >16,000 ppm/4hr
Dermal LD50 (rabbit): >20ml/kg (slight irritation).
Eye Irritation (rabbit): Moderate.

Inhalation May cause irritation to the mucous membrane and upper airways, especially where vapours or mists are generated. Symptoms include sneezing, coughing, wheezing, shortness of breath, headache, dizziness, drowsiness, nausea and vomiting.

Ingestion Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

Skin May cause redness, itching and irritation. Prolonged contact with skin may cause blistering, and repeated contact may have a defatting effect causing dryness and cracking.

Eye Irritating to eyes. On eye contact this product will cause tearing, stinging, blurred vision, and redness.

Chronic Effects Repeated or prolonged skin contact can cause severe irritation or dermatitis. Contact with this product over long periods can
aggravate pre-existing medical conditions. Use of alcoholic beverages enhances toxic effects. Exposure may increase the toxic potential of chlorinated hydrocarbons, such as chloroform, trichloroethane.

12. **ECOLOGICAL INFORMATION**

**Environment Protection** Do not allow product to enter drains, waterways or sewers.

**Mobility** This product has a low potential to persist in the environment.

**Persistence / Degradability**
This product has a high potential to degrade.
ThOD: 2.20g oxygen/g
COD: 1.12-2.07g oxygen/g
BOD-5: 0.31-1.85g oxygen/g
BOD-20: 1.78g oxygen/g

**Acute Toxicity - Fish** 96hr LC50 (fathead minnow): 7,280 - 8,120mg/l

**Acute Toxicity - Daphnia**
24hr LC50 (Daphnia): >10,000mg/l
24hr EC50 (Daphnia): >10,000mg/l

**Ecotoxicity** This product has a potential to cause oxygen depletion in aqueous systems.
A low potential to affect aquatic organisms.
A low potential to affect secondary waste treatment microbial metabolism.
A low potential to affect the growth of some plant seedlings.
Overall this product is not expected to cause adverse environmental effects.

13. **DISPOSAL CONSIDERATIONS**

Dispose of waste according to applicable local and national regulations.
Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near containers. Empty
MATERIAL SAFETY DATA SHEET: ACETONE

containers may contain hazardous residues. Contaminated containers must not be treated as household waste.

Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers. Advise flammable nature.

14. TRANSPORT INFORMATION

This material is a UN Hazard class Class 3 - Flammable Liquid for the Transport of Dangerous Goods by Road and Rail.
Class 3 - Flammable Liquids are incompatible in a placard load with any of the following:
- Class 1, Explosives
- Division 2.1, Flammable Gases, (Division 2.1 and Class 3 are incompatible in transport if both are in tanks or other receptacles with a capacity individually exceeding 500 L.)
- Division 2.3, Toxic Gases
- Division 4.2 Spontaneously Combustible Substances
- Division 5.1 Oxidising Agents and Division 5.2, Organic Peroxides
- Class 6 Toxic or Infectious Substances (where the flammable liquid is nitromethane)
- Class 7 Radioactive Substances.

U.N. Number: 1090
Proper Shipping Name: ACETONE
DG Class 3
Hazchem Code: 2YE
Packing Group II
EPG Number: 3A1
IERG Number: 14
15. **REGULATORY INFORMATION**

Class A Petroleum product — Acetone is a class A petroleum product according to the Petroleum Act 1934 and petroleum rules 1976 in India.

The emergency information panel as per central Motor Vehicles rules 1989 should be provided on the three sides of the vehicle used to transport Acetone.

The storage tanks and transport vehicles need to have explosive license issued by PESO (Petroleum and Explosive Safety Organization) as per the applicable rules.

**Risk phrase:** Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness and cracking. Vapours may cause drowsiness and dizziness

**Safety Phrase** Keep container in a well ventilated place. Keep away from sources of ignition - No smoking. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Do not empty into drains. Take precautionary measures against static discharges.

**Hazard Category** Irritant, Highly Flammable
16. **OTHER INFORMATION**

- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide.
- The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions.
- It does not represent any guarantee of the properties of the products.
- The information contained in this Safety data sheet is believed to be reliable, but no representation guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. Hindustan Organic Chemicals Limited makes no warranties expressed or implied in respect of the adequacy of this document for any particular purpose.
# 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

<table>
<thead>
<tr>
<th>Product Name</th>
<th>HYDROGEN PEROXIDE-50% w/w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
<td>Hydrogen Peroxide</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Hydperoxide, Hydrogen dioxide</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>H₂O₂</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>34 g/mol</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Hindustan Organic Chemicals Ltd,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Ambalamugal, Kochi 682302, Kerala, India.</td>
</tr>
<tr>
<td>Telephone</td>
<td>+91 484 2727218, 2727409</td>
</tr>
<tr>
<td>Telefax</td>
<td>+91 484 2720893</td>
</tr>
<tr>
<td>Email address</td>
<td><a href="mailto:pb.zahir@hoclindia.com">pb.zahir@hoclindia.com</a></td>
</tr>
</tbody>
</table>

1.4. Emergency telephone number

Telephone: +91 484 2727230 (Emergency 24 Hour)

## 2. HAZARDS IDENTIFICATION

2.1. GHS–Classification(ECn°1272/2008)

This mixture is classified as Hazardous,

**Physical Hazard:**

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>H Phrases</th>
<th>H-Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidising liquids</td>
<td>Category 2</td>
<td>H272</td>
<td>May intensify fire; Oxidizer</td>
</tr>
</tbody>
</table>

**Health Hazard:**

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>H Phrases</th>
<th>H-Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irritation</td>
<td>Category 2</td>
<td>H315</td>
<td>Causes Skin irritation</td>
</tr>
<tr>
<td>Acute Toxicity-Oral</td>
<td>Category 4</td>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>Acute Toxicity-Inhalation</td>
<td>Category 4</td>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>Specific Target Organ Toxicity</td>
<td>Category 3</td>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>

**Environmental Hazard:**

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>H Phrases</th>
<th>H-Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Aquatic Toxicity</td>
<td>Category 2</td>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
</tbody>
</table>
2.2. GHS Label elements, including precautionary statements

Name(s) on label:
Hazardous components: Hydrogen Peroxide (50.0% w/w min)
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
- P20 Keep/Store away from clothing/flammable/combustible materials.
- P261 Avoid breathing dust/fume/gas/mist/vapours/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 rinse.
  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.

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:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Hazardous Class</th>
<th>Hazard Category</th>
<th>Route of Exposure</th>
<th>H Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Peroxide</td>
<td>Oxidising liquid</td>
<td>Category 1</td>
<td></td>
<td>H271</td>
</tr>
<tr>
<td>Acute Toxicity</td>
<td>Category 4</td>
<td>Inhalation</td>
<td></td>
<td>H332</td>
</tr>
<tr>
<td>Acute Toxicity</td>
<td>Category 4</td>
<td>Oral</td>
<td></td>
<td>H302</td>
</tr>
<tr>
<td>Skin Corrosion</td>
<td>Category 1</td>
<td></td>
<td></td>
<td>H314</td>
</tr>
<tr>
<td>Specific target organ toxicity</td>
<td>- single exposure</td>
<td>Category 3</td>
<td>Inhalation</td>
<td>H335</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>Category 2</td>
<td></td>
<td></td>
<td>H401</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 3</td>
<td></td>
<td></td>
<td>H412</td>
</tr>
</tbody>
</table>

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 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
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 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 plenty of water
- Dilute with plenty of water
- Do not add chemical products.
- Keep in suitable, closed and properly labeled containers for disposal.
- Treat recovered material as described in the section "Disposal Consideration"
- 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.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Exposure Limit Values

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

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 N95 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 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: Colourless
Odour: Pungent

9.2. Important Health Safety and Environment Information

pH: \( \leq 2 \) Remarks: Apparent pH
Boiling point/range: \( 115^\circ C (H_2O) \)
Flash point: Remarks: The product is not flammable
Safety data sheet for HYDROGEN PEROXIDE (50%/w/w)

Melting point/freezing point: -52°C (H₂O 50%)  
Flammability (solid, gas): Lower explosion limit:  
Remarks: The product is not flammable.  
Explosive properties: Not explosive  
Remarks: with certain materials (see section 10)  
Oxidizing properties: Remarks: yes  
Vapour pressure:  
1 mbar  
Temperature: 30°C (H₂O 50%)  
12 mbar  
Temperature: 20°C  
Remarks: Total pressure (H₂O + H₂O)(H₂O 50%)  
72 mbar  
Temperature: 50°C  
Remarks: total pressure (H₂O+H₂O)  
Relative density: 1.2 (H₂O 50%)  
Bulk density: not applicable  
Solubility: Soluble  
Water  
Polar organic solvents  
Partition coefficient (in octanol/water): log Pow: -1.1  
Auto ignition Temperature: not applicable  
Decomposition Temperature: >=60°C  
Remarks: Self-Accelerating decomposition temperature (SADT) <60°C  
Remarks: Slow decomposition  
Viscosity: 1,17 mPas  
Temperature: 20°C (H₂O 50%)  
Vapour density: 1 (H₂O 50%)  
9.3. Other information  
Surface tension: 75.6 mN/m  
Temperature: 20°C (H₂O 50%)  

10. STABILITY AND REACTIVITY

10.1. Reactivity
- Potential for exothermic hazard
- Decomposes on heating

10.2. Chemical stability
- Stable under recommended storage conditions.

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 material.
- 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.
11.1. Toxicological data

Acute oral toxicity
- LD<sub>50</sub>, rat, &gt;225 &lt;1200 mg/kg bw (H<sub>2</sub>O, 50%)

Acute inhalation toxicity
- LC50, 4 h, rat, 2000 mg/m<sup>3</sup> (Hydrogen peroxide)

Acute dermal toxicity
- LD<sub>50</sub>, rabbit, &gt;2000 mg/kg corrosive (H<sub>2</sub>O, 50%)

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

Eye irritation
- Risk of serious damage to eyes (H<sub>2</sub>O, 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

Toxicity for reproduction
- Substance is totally biotransformed (metabolised)
- Study scientifically unjustified

Specific target organ toxicity – single exposure
- Inhalation, mice, 665 mg/m<sup>3</sup>
- Remark : RD 50. Irritating to respiratory system.

Repeated dose toxicity
- Oral, 90 day, mouse, Target organs: Gastrointestinal tract, 300 ppm, LOAEL (Pure substance)
- Oral, 90 day, mouse, 100 ppm, NOAEL (Pure substance)
- 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, 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. Persistence and degradability

**Abiotic degradation**
- Air, indirect photo-oxidation, \( t_{10} \) from 16-20h
  Conditions: sensitizer: OH radicals
- Water, redox reaction, \( t_{10} \) from 25-100 h
  Conditions: mineral and enzymatic catalysis, fresh water
- Water, redox reaction, \( t_{10} \) from 50-70 h
  Conditions: mineral and enzymatic catalysis, salt water
- Soil, redox reaction, \( t_{10} \) from 0.05 - 0.15 h
  Conditions: mineral catalysis

**Biodegradation**
- Aerobic, \( t_{10} < 2 \) min
- Aerobic, \( t_{10} \) from 0.3 - 5 d
- Anaerobic.
  Conditions: soil/sediments. Remarks: not applicable
- Aerobic, \( t_{<c12} \) hrs

12.3. Bioaccumulative potential
- Bioaccumulative potential
  Result: Does not bioaccumulate

12.4. Mobility in soil
- Air, Volatility, Henry’s law constant (H) = 1 Pa.m\(^3\)/mol
  Conditions: 20°C Remarks: not significant
- Water
  Considerable solubility and mobility
  Remarks: The product evaporates slowly.
- Soil/sediments
  Remarks: non-significant evaporation and absorption

12.5. Other adverse effects
- no data available

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: Not permitted to transport
- 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: –
- Packing group: F
- 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

Symbols

<table>
<thead>
<tr>
<th>R-Phrase(s)</th>
<th>S-Phrase(s)</th>
<th>C</th>
<th>Corrosive</th>
</tr>
</thead>
<tbody>
<tr>
<td>R8</td>
<td>S 1/2</td>
<td>Contact with combustible material may cause fire.</td>
<td></td>
</tr>
<tr>
<td>R34</td>
<td>S 3</td>
<td>Causes burns.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S28</td>
<td>Keep locked up and out of the reach of children.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S36/39</td>
<td>Keep in a cool place.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S45</td>
<td>After contact with skin, wash immediately with Plenty of water.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wear suitable protective clothing and eye/face protection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).</td>
<td></td>
</tr>
</tbody>
</table>

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

16.2. NFPA (National Fire Protection Association) – Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability or Reactivity</th>
<th>Special Notices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 serious</td>
<td>0 minimal.</td>
<td>1 slight</td>
<td>OX Oxidiser.</td>
</tr>
</tbody>
</table>

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.