

# Material Safety Data Sheet

Chlorine Liq CHLOR12 (RXSOL-31-3034-025)



## 1. Product and Company Identification

Product Name : RXSOL-31-3034-025  
Product Type : Chlorine Liquid

### Material Identity

Product Name: SODIUM HYPOCHLORITE N

General or Generic ID: SALTS

### Company Details:

RX MARINE INTERNATIONAL  
105, A wing , BSEL , TECH PARK.  
VASHI ,NEW BOMBAY 400703 INDIA

Stock Point : Mumbai, Kandla, Chennai, Visakhapatnam, Kolkata, Fujairah UAE, Muscat Oman

Phone : 91 22 27815541 / 42 / 43  
Fax : +91 22 2781 1318  
Email : [mail@rxmarine.com](mailto:mail@rxmarine.com)

## 2. Composition / information on ingredients

| Chemical Name                | CAS         | % BY WEIGHT |
|------------------------------|-------------|-------------|
| Liquid Carrier - Formulatory | Proprietary | 85.0- 88.0  |
| Chlorine Liq                 | 7681-52-9   | 12.0- 15.0  |

## 3. Hazards Identification

|            |                                                                                                                                                                                                                                                                                                                                                                          |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye        | Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness.                                                                                                                                                                                                                            |
| Skin       | Can cause permanent skin damage. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage. Additional symptoms of skin contact may include: skin blistering, hair loss, Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use. |
| Swallowing | Swallowing this material may be harmful or fatal. Symptoms may include severe stomach and intestinal irritation (nausea, vomiting, diarrhea), abdominal pain, and vomiting of blood. Swallowing this material may cause burns and destroy tissue in the mouth, throat, and digestive tract. Low blood pressure and shock may occur as a result of severe tissue injury.  |
| Inhalation | It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing this material may be harmful or fatal. Symptoms may include severe irritation and burns to the nose, throat, and respiratory tract.                                                                                 |

|                           |                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Symptoms of Exposure      | Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea) cough, tight feeling in the chest, difficult breathing, lung edema (fluid buildup in the lung tissue), lung damage, shock, coma, and death. |
| Target Organ Effects      | This material (or a component) has been shown to lower activity of certain immune system cells in experimental animals. The significance of this effect with respect to human health is uncertain.                                                                                                                                               |
| Developmental Information | There are no data available for assessing risk to the fetus from maternal exposure to this material.                                                                                                                                                                                                                                             |
| Cancer Information        | Based on the available information, this material cannot be classified with regard to carcinogenicity. This material is not listed as a carcinogen by the International Agency for Research on Cancer, the National Toxicology Program, or the Occupational Safety and Health Administration.                                                    |
| Other Health Effects      | When combined with an acid or ammonia, sodium hypochlorite may produce chlorine or chloramine gas, respectively. Inhalation of these gases results in coughing, choking, difficult breathing, and other symptoms of respiratory tract irritation. Fluid may collect in the lung tissue following a severe gas exposure.                          |
| Primary Route(s) of Entry | Inhalation, Skin contact, Eye contact.                                                                                                                                                                                                                                                                                                           |
| Inhalation                | Chlorine is irritating to the nose, throat, and lungs. Symptoms include: coughing, shortness of breath, chest pain, nausea, vomiting, and dizziness. Pulmonary edema (swelling) and chemical pneumonia can develop hours after exposure. High concentrations may cause unconsciousness and death.                                                |
| Skin Contact / Absorption | High concentrations can cause severe irritation and tissue destruction. Symptoms include: burning and prickling sensations, reddening, and blisters. Direct contact with liquid causes severe local irritation, blistering and burns.                                                                                                            |
| Eye Contact               | A severe irritant of the eyes. Symptoms include: stinging and burning sensation with excessive tear production. Direct contact with liquid may cause burns, permanent damage, and possibly blindness.                                                                                                                                            |
| Ingestion.                | Not a likely route of exposure as chlorine is a gas at room temperature. Liquid may cause pain, burning, thirst, abdominal cramps, nausea, and vomiting. Irritation and swelling of the throat causes difficulty breathing.                                                                                                                      |
| Exposure Limits.          | ACGIH/TLV-TWA: 0.5ppm<br>ACGIH/TLV-STEL: 1.0ppm                                                                                                                                                                                                                                                                                                  |

## 4. First Aid Measures

|                    |                                                                                                                                                                                                                                                                                                                            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eyes               | If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention. |
| Skin               | Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash clothing before reuse and discard contaminated shoes.                                                                                                                     |
| Swallowing         | Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.                                           |
| Inhalation         | If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.                                                              |
| Note to Physicians | Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions), immune system.                                                                                                                                          |

## 5. Fire-fighting Measures

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flash Point                      | Not applicable                                                                                                                                                                                                                                                                                                                                                                                   |
| Explosive Limit                  | Not applicable                                                                                                                                                                                                                                                                                                                                                                                   |
| Autoignition Temperature         | No data                                                                                                                                                                                                                                                                                                                                                                                          |
| Hazardous Products of Combustion | May form: chlorine                                                                                                                                                                                                                                                                                                                                                                               |
| Fire and Explosion Hazards       | No special fire hazards are known to be associated with this product.                                                                                                                                                                                                                                                                                                                            |
| Extinguishing Media              | Use an extinguishing media appropriate for surrounding fire..                                                                                                                                                                                                                                                                                                                                    |
| Fire Fighting Instructions       | Water may be used to keep fire-exposed containers cool until fire is out. Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.                                                    |
| NFPA Rating                      | Health - 3, Flammability - 0, Reactivity - 1                                                                                                                                                                                                                                                                                                                                                     |
| Conditions of Flammability       | Does not burn. Note that chlorine is a strong oxidizing agent and is a serious fire risk due to its reactivity.                                                                                                                                                                                                                                                                                  |
| Means of Extinction              | Product does not burn. Where fire is involved use any fire fighting agent that is appropriate extinguishing media for material that is supplying the fuel to the fire. Avoid direct contact with water to leaking container surfaces. Do not use dry chemicals, carbon dioxide or halogenated extinguishing agents                                                                               |
| Flash Point                      | Not applicable                                                                                                                                                                                                                                                                                                                                                                                   |
| Autoignition Temperature         | Not applicable                                                                                                                                                                                                                                                                                                                                                                                   |
| Upper Flammable Limit            | Not applicable                                                                                                                                                                                                                                                                                                                                                                                   |
| Lower Flammable Limit            | Not applicable                                                                                                                                                                                                                                                                                                                                                                                   |
| Hazardous Combustible Products   | Toxic products are formed when combustibles burn in chlorine. Water sprayed directly on chlorine forms corrosive hypochlorous and hydrochloric acids.                                                                                                                                                                                                                                            |
| Special Fire Fighting Procedures | Wear NIOSH-approved self-contained breathing apparatus and protective clothing. Remove chlorine containers from fire area if safe to do so. Use water spray to cool containers, knock down fumes, and to direct escaping gas away from persons. Use water with caution since chlorine in water is very corrosive. Ventilate area. Chlorine gas is heavier than air and may collect in low areas. |
| Explosion Hazard                 | May react to cause fire and explosion upon contact with many organic compounds, ammonia, hydrogen, and many metals at elevated temperatures.                                                                                                                                                                                                                                                     |

## 6. Accidental Release Measures

|             |                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Small Spill | Dilute with water and absorb onto a noncombustible absorbent material.                                                                                                                                                                                                                                                                                                                |
| Large Spill | Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Collect and add slowly to large volume of water. Persons not wearing protective equipment should be excluded from area of spill until clean-up is completed. Stop spill at source. Dike to prevent spreading. Pump to salvage tank. |

## 7. Handling and Storage

|          |                                                                                                                                                                                                                                                                                                                                |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handling | Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Emergency eyewash fountains and safety showers should be available in the immediate vicinity of potential exposure |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Handling Procedures:

Store containers as per Chlorine Institute Guidelines. Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Liquid chlorine lines must have suitable expansion chambers between block valves due to high coefficient of expansion. Inspect piping and containers used for chlorine service on a regular basis. Emergency equipment should be readily available. An emergency plan and special training where chlorine is used should be established.

#### Storage Requirements:

Store in a cool, dry location outdoors or in well-ventilated areas, detached/segregated areas of noncombustible materials. Refer to Chlorine Institute guidelines and local regulations for other storage requirements. Keep containers tightly closed, and away from incompatible materials. Store away from sunlight and sources of heat and ignition. 68 kg cylinders should be stored in an upright position. Prevent exposing cylinders to temperatures above 51°C.

## 8. Exposure controls and personal protection

|                                 |                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye Protection                  | Chemical splash goggles and face shield (8" min.) in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your industrial hygienist.)                                                                                                                                                                     |
| Skin Protection                 | Wear impervious gloves (consult your safety equipment supplier). To prevent skin contact, wear impervious clothing and boots..                                                                                                                                                                                                                                               |
| Respiratory Protections         | If overexposure has been determined or documented, a NIOSH/MSHA jointly approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators under specified conditions. (See your safety equipment supplier.) Engineering or administrative controls should be implemented to reduce exposure. |
| Engineering Controls            | Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below level of overexposure (from known, suspected or apparent adverse effects).                                                                                                                                                                                               |
| Exposure Guidelines             | Component                                                                                                                                                                                                                                                                                                                                                                    |
| WATER (7732-18-5)               | No exposure limits established                                                                                                                                                                                                                                                                                                                                               |
| SODIUM HYPOCHLORITE (7681-52-9) | No exposure limits established                                                                                                                                                                                                                                                                                                                                               |

#### Protective Equipment:

Eyes: Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.

#### Respiratory:

Up to 5ppm: cartridge respirator with cartridge protecting against chlorine or supplied air respirator.

Up to 10ppm: supplied air respirator operated in continuous flow mode; or powered air purifying respirator with cartridge protecting against chlorine; or full facepiece chemical cartridge respirator with cartridge protecting against chlorine; or full facepiece self contained breathing apparatus.

Emergency or entry in unknown or IDHL (10ppm for chlorine) conditions:

positive pressure full facepiece self contained breathing apparatus or positive pressure full facepiece supplied air respirator with auxiliary positive pressure self contained breathing apparatus.

#### Gloves:

Impervious gloves of chemically resistant material (butyl rubber, neoprene) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eyes        | Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Respiratory | Up to 5ppm: cartridge respirator with cartridge protecting against chlorine or supplied air respirator.<br>Up to 10ppm: supplied air respirator operated in continuous flow mode; or powered air purifying respirator with cartridge protecting against chlorine; or full facepiece chemical cartridge respirator with cartridge protecting against chlorine; or full facepiece self contained breathing apparatus. Emergency or entry in unknown or IDHL (10ppm for chlorine) conditions: positive pressure full facepiece self contained breathing apparatus or positive pressure full facepiece supplied air respirator with auxiliary positive pressure self contained breathing apparatus. |

|          |                                                                                                                                                                                                                 |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gloves   | Impervious gloves of chemically resistant material (butyl rubber, neoprene) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.                                            |
| Clothing | Body suits, aprons, and/or coveralls of chemical resistant material (butyl rubber, neoprene, Teflon, Responder, Viton) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse. |
| Footwear | Impervious boots of chemically resistant material should be worn at all times.                                                                                                                                  |

#### Engineering Controls:

|                          |                                                                                                                                                                                                                           |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ventilation Requirements | Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems. |
| Other                    | Emergency shower and eyewash should be in close proximity.                                                                                                                                                                |

## 9. Physical and chemical properties

|                        |                                               |
|------------------------|-----------------------------------------------|
| Boiling Point          | (for component) 212.0 F (100.0 C)             |
| Vapor Pressure         | (for component) 17.500 mmHg                   |
| Specific Vapor Density | No data                                       |
| Specific Gravity       | 1.220 - 1.250 @ 68.00 F                       |
| Liquid Density         | 10.400 lbs/gal @ 68.00 F 1.250 kg/l @ 20.00 C |
| Percent Volatiles      | 87.5%                                         |
| Evaporation Rate       | Slower Than Ethyl Ether                       |
| Appearance             | No data                                       |
| State                  | Liquid                                        |
| Physical Form          | Homogeneous Solution                          |
| Color                  | Clear To Yellow Liquid                        |
| Odor                   | Chlorinated Bleach Odor                       |
| pH                     | 13.5                                          |
| Solubility in Water    | Soluble                                       |

## 10. Stability and reactivity

Hazardous Polymerization : Product will not undergo hazardous polymerization.

|           |                                                                                                                                                                                          |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stability | Strong oxidizer. Stable in steel containers at room temperature. Heat above 215oC can cause steel to ignite chlorine. Reacts with water to form hypochlorous acid and hydrochloric acid. |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                     |                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Incompatibility                     | Hydrocarbons, turpentine, acetylene, hydrogen, alcohols, some metals (powdered aluminum, brass, iron, copper foil, potassium, tin, titanium), nitrogen compounds, non-metals (boron, active carbon, phosphorus, silicon), ammonia, sodium hydroxide and water.                                                        |
| Hazardous Products of Decomposition | Ammonia and other nitrogen compounds react with chlorine to form highly explosive nitrogen trichloride. Hydrochloric and hypochlorous acids may form from chlorine in the presence of water vapor. Chlorine in contact with carbon monoxide and sulphur dioxide may form phosgene and sulfuryl chloride respectively. |
| Polymerization                      | Will not occur                                                                                                                                                                                                                                                                                                        |

## 11. Toxicological information

|                       |                                                                                                                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Irritancy             | Severe irritant. Skin and eye irritant.                                                                                                                                                                                                                              |
| Sensitization         | Not available                                                                                                                                                                                                                                                        |
| Chronic/Acute Effects | Repeated or prolonged exposure to 0.4-9.0ppm gas may cause respiratory effects, inflammation of the nose, and corrosion of tooth enamel. Fatigue may occur when repeatedly exposed to chlorine. High concentrations inhaled may result in unconsciousness and death. |
| Synergistic Materials | Not available                                                                                                                                                                                                                                                        |
| Animal Toxicity Data  | LD50 (Inhalation, Rat): 293ppm at 1 hour<br>LD50 (Inhalation, Mice): 137ppm at 1 hour                                                                                                                                                                                |
| Carcinogenicity       | Not listed on IARC, NTP, OSHA and ACGIH carcinogen lists.                                                                                                                                                                                                            |
| Reproductive Toxicity | Not available                                                                                                                                                                                                                                                        |
| Teratogenicity        | Not available                                                                                                                                                                                                                                                        |
| Mutagenicity          | Not available                                                                                                                                                                                                                                                        |

## 12. Ecological information

Fish Toxicity:  
LC50 (Fathead Minnow, 96 hours): 0.07-0.15ppm  
LC50 (Bluegill, 96 hours): 0.44mg/L

Biodegradability:  
Product not biodegradable. Chlorine can however, be converted to chloride by reducers in natural environment. Presence of light will accelerate dissipation of chlorine in water.

Environmental Effects:  
Will cause immediate damage to wildlife, fish, and plants. Unlikely to accumulate due to reactivity with moisture and tissues.

## 13. Disposal considerations

|                              |                                                                                    |
|------------------------------|------------------------------------------------------------------------------------|
| Waste Management Information | Dispose of in accordance with all applicable local, state and federal regulations. |
|------------------------------|------------------------------------------------------------------------------------|

## 14. Transport information

|                          |                                       |
|--------------------------|---------------------------------------|
| DOT Information          | - 49 CFR 172.101                      |
| DOT Description          | Hypochlorite Solution, 8, UN1791, III |
| Container/Mode           | 55 Gal Drum / Truck Package           |
| NOS Component            | Not applicable                        |
| RQ (Reportable Quantity) | - 49 CFR 172.101                      |

## 15. Regulatory information

### -----\Chemical Inventory Status - Part 1\-----

| Ingredient                                 | TSCA | EC  | Japan | Australia |
|--------------------------------------------|------|-----|-------|-----------|
| Sodium Hypochlorite (as NaOCl) (7681-52-9) | Yes  | Yes | Yes   | Yes       |
| Water (7732-18-5)                          | Yes  | Yes | Yes   | Yes       |

### -----\Chemical Inventory Status - Part 2\-----

| Ingredient                                 | --Canada-- | Korea | DSL | NDSL | Phil. |
|--------------------------------------------|------------|-------|-----|------|-------|
| Sodium Hypochlorite (as NaOCl) (7681-52-9) | Yes        | Yes   | No  | Yes  |       |
| Water (7732-18-5)                          | Yes        | Yes   | No  | Yes  |       |

### -----\Federal, State & International Regulations - Part 1\-----

|   | -SARA 302- | -----SARA 313----- |
|---|------------|--------------------|
| I |            |                    |

### -----\Federal, State & International Regulations - Part 2\-----

| Ingredient                                 | -RCRA-<br>CERCLA | -TSCA-<br>261.33 | 8(d) |
|--------------------------------------------|------------------|------------------|------|
| Sodium Hypochlorite (as NaOCl) (7681-52-9) | 100              | No               | No   |
| Water (7732-18-5)                          | No               | No               | No   |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No

Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: None allocated.

Poison Schedule: S5

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR

## 16. Other information

The data given here is based on current knowledge and experience. This Safety Data Sheet describes the product in terms of safety requirements and does not signify any warranty with regard to the product's properties. The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer.