

**SODIUM HYPOCHLORITE**

REVISION DATE: 09/20/2022

1. - PRODUCT AND COMPANY IDENTIFICATION**Product name:** Sodium hypochlorite.**Internal Code of product identification:** 121.01.0.**Company name:** USIQUÍMICA DO BRASIL LTDA.**Address:** Rua da Lagoa, 431 - Cumbica - Guarulhos - SP.**Company Phone:** + 55 11 3821-7000 - PBX system.**Emergency phone:** SUATRANS - COTEC - Environmental Emergency.

DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.

193 – Firefighters.

Main recommended uses for the substance: Used in water treatment plants, laundries, bleaching in the pulp and paper process, disinfectants, sanitizers and fungicides.**2. - HAZARD IDENTIFICATION****Classification of the substance or mixture (according to ABNT NBR 14.725-2)**

Corrosive to metals - Category 1


Corrosive to the skin - Category 1B

Specific Target Organ Systemic Toxicity - Single Exposure - Category 3

Hazardous to the aquatic environment - Acute - Category 1

Hazardous to the aquatic environment - Chronic - Category 2

Appropriate label elements (GHS classification):

LABEL ELEMENTS	DATA
Product identification and supplier emergency telephone number.	Commercial Name: Sodium hypochlorite. Synonym: Hypochlorite Emergency phone: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 hours.
Chemical composition	Caustic soda (NaOH) -1 mass %, Sodium chloride (NaCl) -14 mass %, Water - 71 mass %, Sodium hypochlorite - 14 mass % (12 to 14).
Hazard pictograms	
Warning words	Danger.
Danger phrases	H290 - May be corrosive to metals. H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye damage. H335 - May cause irritation to the respiratory tracts. H400 - Very toxic to aquatic life. H411 - Toxic to aquatic life with long lasting effects.
Caution Phrases	P264 - Wash skin thoroughly after handling. P280 - Use protective gloves/protective clothing/eye protection/face protection. P303 + P361 + P353- IN CASE OF SKIN CONTACT (or with the hair): Remove immediately all contaminated clothing. Wash the skin with water/take a shower. P304+P340+P310 - IN CASE OF INHALATION: Remove the person to a ventilated area and keep the person in a rest position that does not make it difficult to breathe. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. P305+P351+P338+P310 - IN CASE OF EYE CONTACT: Rinse carefully

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	with water for several minutes. If contact lenses are used, remove them if it is easy. Continue rinsing. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. P363 - Wash contaminated clothing before reuse. P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
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Other hazards which do not result in a classification No information found.

3. - COMPOSITION AND INFORMATION ON THE INGREDIENTS

Substance: NaClO (sodium hypochlorite) in aqueous solution.

Chemical or common name: Sodium hypochlorite.

Synonym: Hypochlorite.

Composition: Caustic soda (NaOH) -1 mass %, Sodium chloride (NaCl) -14 mass %, Water - 71 mass %, Sodium hypochlorite - 14 mass % (12 to 14).

CAS Registration No.: 7681-52-9

Impurities that contribute to the danger: Not applicable.

4. - FIRST AID MEASURES**First aid measures:**

- **Inhalation:** Remove the victim to fresh air and keep at rest in a position comfortable for breathing. Provide oxygen or artificial respiration if necessary. If you feel unwell, contact a TOXICOLOGICAL INFORMATION CENTER/or a doctor. Take this MSDS
- **Skin contact:** Flush exposed skin with sufficient amount of water to remove the material for at least 15 minutes. Remove contaminated clothing and shoes. In case of skin irritation: Consult a physician. Take this MSDS.
- **Eye contact:** Rinse thoroughly with water for several minutes. Keep eyelids apart and flush eyes with plenty of water for at least 15 minutes. If contact lenses are used, remove them if that is easy and rinse again. If eye irritation persists: Consult a physician. Take this MSDS.
- **Ingestion:** Do not induce vomiting. Wash out mouth with plenty of water. Never give anything by mouth to an unconscious person. If possible, have the victim ingest activated charcoal. If you feel unwell, contact a TOXICOLOGICAL INFORMATION CENTER/or a doctor. Take this MSDS.

Most important symptoms and effects, acute or delayed:

Inhalation: Difficulty breathing, cough, chemical pneumonitis, pulmonary edema. Severe respiratory irritant. Irritating to mucous membranes. Repeated exposure can cause nosebleeds and risk of chronic bronchitis.

Skin: Redness, tissue swelling, burning. Severe skin irritation. Repeated exposure may cause ulceration.

Eyes: Redness, tearing, tissue swelling, burning. Corrosive. May cause irreversible damage to eyes.

Ingestion: Nausea, abdominal pain, vomiting blood, diarrhea, choking, coughing, severe shortness of breath. If ingested, they cause severe burns to the mouth and throat, as well as perforation of the esophagus and stomach. Risk of chemical bronchopneumonia due to aspiration of the product into the airways.

Risk of shock. Risk of respiratory disorder.

Notes to the physician: - Indication of immediate medical attention and special treatment required if applicable.

- The severity of injuries and the prognosis of intoxication directly depend on the concentration and duration of exposure.

5. - FIREFIGHTING MEASURES**Extinguishing media:**

Appropriate: For small proportions, use fire extinguishers. Large proportions, water in the form of mist or foam.

Not suitable: Direct water jet directly to the product.

Substance-specific hazards: Contact with reducing agents leads to violent reactions, possibly resulting in fire.

Firefighting team protection measures: Cool the containers with water mist in order to avoid product decomposition. Use dry chemical powder to put out fires.

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Remove unauthorized persons not involved in the occurrence to a safe distance.

6. - CONTROL MEASURES FOR SPILLING OR LEAKING

Personal Precautions: Wear splash goggles, gloves, protective clothing and face shield. Avoid breathing acid vapors. Always wash after handling the product.

Removal of ignition sources: Not applicable (hypochlorite is not combustible).

Prevention of inhalation and contact with skin, mucous membranes and eyes. Use the specific PPE's indicated in section 8. **Precautions to the environment:** In order not to affect waterways, hypochlorite needs to be well diluted. Concentrated hypochlorite solutions must be kept away from springs, rivers, watercourses and sewers, setting up containments with earth, sand or other inert absorbent material.

Emergency procedures and alarm systems: In emergency situations, provide people with protection for the body, face, eyes, arms and hands. There will be hardly any emanation of vapors, except in the case of a nearby fire reaching a container with hypochlorite, which, after being heated, will give off toxic vapors.

Cleaning methods: If possible, stop the leak using personal protection. Absorb the product in inert material and transfer dry residues to specific containers. If necessary, evacuate the area (large leaks). Report the incident to the local environmental agency. Wash the site after removing the residues with a large amount of water.

Neutralization: Do not add acid for neutralization, due to the emanation of chlorine gas. The most effective measure is to contain the liquid with sand and place it in containers made of material that is not subject to corrosion by the product.

Disposal: Comply with local environmental legislation.

Prevention of Secondary Hazards: Stay away from the fumes generated in case the product comes into contact with fire, as in addition to the emission of toxic vapors, there is a risk of explosion in case of contact with reducing agents, resulting in violent reactions.

Differences in the action of large and small leaks: There is no differentiation.

7. - HANDLING AND STORAGE

Handling: Use the appropriate PPE (see section 8) for handling the product, including with regard to waste generated from containments.

Technical measures Identify the containers containing hypochlorite in accordance with Decree No. 96.044/88 and their respective Ordinances. Providing the product handling area with a set of emergency shower and eye wash. Handling should only be done with the indicated PPE and in safe conditions.

Prevention of worker's exposure: Using specific PPE's - splash goggles, face shield, PVC gloves and protective clothing. Avoid inhaling alkaline vapors.

Wash after handling and decontaminate PPE's after use. PPE's must be approved for use only with the respective CAs – Certificates of Approval.

Prevention of fire and explosion: Hypochlorite by itself does not catch fire.

Precautions and guidelines for safe handling: Handle containers and packages using the appropriate PPE. Make sure that the packages are identified and free of contaminants. Avoid breathing the vapor produced by the product.

Storage: Avoid storing hypochlorite with incompatible products. Store in a cool, dry place. Containers must be corrosion resistant (example: titanium and plastic materials, such as polyethylene, polypropylene, PVC, fiberglass reinforced, steel coated with fiberglass reinforced plastic). Avoid direct exposure to the sun on the product.

Suitable storage conditions: Store in a ventilated, cool and isolated place. Do not close the lid hermetically, but when moving the container, close the lid correctly.

Storage conditions to avoid: Storage in uncoated metal containers and protected from light. Avoid exposure to the sun and heat source.

Hygiene measures

Appropriate: Always sanitize your hands before handling any food, as there is a risk of food contamination. Clothes contaminated with hypochlorite must be washed and sanitized before use. Always keep gloves free from moisture and decontaminated.

Inappropriate: Direct contact with the product and/or its residues.

Technical measures

Suitable conditions: Materials based on plastic or metal alloy coated with rubber, due to the corrosive action of the

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product. Provide the storage area with containment capable of supporting the stored capacity. Avoid the percolation of the product through the soil, in order to reach the subterranean layers of the soil. The tanks must have a capacity containment dike above the capacity of the storage tank. 1.5 times is suggested.

Conditions that must be avoided: Direct contact with concrete and uncoated metal alloys.

Suitable packaging materials: PVC, HDPE, PP, PTFE, epoxy vinyl ester resins, phenolic resins, polyester, natural rubber, neoprene and viton.

Unsuitable packaging materials: Carbon steel, aluminum, bronze, cadmium, lead, copper, nickel, galvanized iron, brass, nickel, silver, zinc polycarbonate, epoxy and concrete.

8. - EXPOSURE CONTROLS AND PERSONAL PROTECTION**Specific control parameters****Occupational exposure limits**

Annex 11 of NR-15 of Ordinance No. 3.214/78: 0.8 ppm (as Cl₂).

NR-15 Maximum value: 2.4 ppm (as Cl₂).

ACGIH TLVs: 0.5 ppm (as Cl₂).

ACGIH STEL: 1.0 ppm (as Cl₂).

NIOSH LT: 0.5 ppm (as Cl₂).

NIOSH STEL: 1.0 ppm (as Cl₂).

OSHA PEL (ceiling value): 1.0 ppm (as Cl₂).

AIHA STEL: 5.8 ppm (as NaClO).

Biological indicators: None.

Measures of engineering control: Handling the product in a place with good natural or mechanical ventilation, in order to keep the concentration of vapors/dust below the tolerance limit. Provide mechanical ventilation and direct exhaust system to the outside environment. These measures help to reduce exposure to the product. It is recommended to make emergency showers and eye washes available in the work area. Engineering control measures are most effective in reducing product exposure.

Appropriate personal protective equipment

Eye and face protection: Splash goggles, and in extreme cases, face shield.

Protection of the skin and body: PVC or rubber apron, acid-resistant clothing (PVC or other equivalent material) and rubber or PVC boots.

Respiratory protection: Mask (full face or half face) with acid gas filter, full face mask with air line or self-contained breathing air assembly.

Hand protection: Impermeable rubber or PVC gloves.

Special Precautions: Analyze the location of the activity in advance and the risks involved, and only then define the mandatory mitigation measures.

9. - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid, yellow color.

Odor: Pungent, penetrating and irritating.

pH: >12.

Melting point: Not applicable.

Boiling point: 110.0°C (at 760 mmHg).

Freezing point: -6°C Critical temperature: Not applicable.

Flash point: Not applicable.

Explosivity: Not explosive

Evaporation rate: Not available.

Lower and upper flammability limits: Product not flammable.

Vapour pressure: 25 hPa (20°C)

Vapor Density: Not available.

Relative Density 1.20 g/cm³ (liquid at 20°C).

Solubility in water: Miscible.

Solubility in other solvents: Not available.

Auto-ignition temperature: Product not flammable.

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Viscosity: 2.6 mPa.s (20°C)

10. -STABILITY AND REACTIVITY**Chemical stability:** Under normal conditions of use, it is stable.**Reactivity:** Reacts in the presence of oxidizing and reducing products (e.g. sulfites).**Possibility of hazardous reactions:** In contact with metals, it releases oxygen. Under the action of sunlight, it releases oxygen. Reacts violently with ammonia and products containing it, forming irritating and toxic vapors. Reacts with acids, releasing irritating chlorine gas.**Conditions to avoid:** High temperatures and contact with metals and incompatible materials and substances.**Materials or incompatible substances:** Concrete, metals, oxidizing and reducing substances.**Hazardous decomposition products:** It breaks down into hypochlorous acid, chlorine, hydrochloric acid, sodium chlorate, sodium chloride and oxygen, depending on temperature, pH, contact time, and the materials and substances present.**11. - TOXICOLOGICAL INFORMATION****Information according to the different routes of exposure****Ingestion:** This type of exposure is uncommon, but if it does occur it will cause irritation, corrosion of the gastrointestinal tract, pain and vomiting.**Inhalation:** Coughing, choking and irritation.**Skin contact:** It is irritating and corrosive and can lead to dermatitis.**Eye Contact:** Pain, irritation, and may lead to blindness.

Acute toxicity

Ingestion: Stomach pains and vomiting.**Inhalation:** Pain in the respiratory tract and pulmonary edema.**Skin contact:** Dermatitis advancing to the formation of sores.**Eye Contact:** Blindness.**Chronic toxicity:** Not known.**Acute toxicity:** Not known.**Main symptoms:** Not known.**Substances that may cause interaction:** Not available.**Additives:** Not available.**Potential:** Oxidizing and reducing substances.**Synergy:** Not available.**12. - ECOLOGICAL INFORMATION****Environmental effects, behaviors and impacts of the product ecotoxicity.**

Hypochlorite is not subject to biodegradation, but it presents degradation by the action of sunlight, heat and the action of substances normally present in the soil. Reacts with organic material in water.

Persistence and degradability: Reacts with organic material in water. Increases the water COD. In laboratory tests, hypochlorite showed mild to moderate toxicity to aquatic organisms. It is strongly alkaline, and if poured into water, the pH will increase. Some species of aquatic organisms do not resist liquid media with a pH above 9.**Bioaccumulative potential:** Hypochlorite does not bioaccumulate in organisms.**Mobility in soil:** Due to its high pH, it can penetrate the soil and reach underground layers. Other adverse effects: Rat species - oral route (DL50): 8.91 g/kg.**13. - CONSIDERATIONS ON FINAL DISPOSAL****Recommended methods for final disposal:**

The treatment and disposal of product residues must be done in a suitable environment, by people trained in the use of special equipment and the recommended PPE's to avoid contact with the product, its vapors or mists. Leaks must be contained and collected for later disposal after neutralization.

Product:

Ensure all Federal, State and local agencies receive proper notice of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12.305, of August 2, 2010 (National Solid Waste Policy).

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Product waste:

Consult environmental regulatory agencies for advice on acceptable regulatory practices. Come in contact with relevant local authorities. It can be incinerated when in compliance with local regulations. Or dispose of in an approved chemical waste landfill.

Used Package:

Empty containers must be drained and covered before handling and transport operations. If the package is not properly washed and decontaminated, it is considered to contain the product.

14. - TRANSPORT INFORMATION**National and International Regulations****Land:**

Resolution No. 5947/2021 of the Brazilian National Land Transport Agency (ANTT), Approves the Complementary Instructions to the Regulation of Land Transport of Dangerous Goods and its amendments.

UN Number: 1791.

Appropriate name for shipment: HYPOCHLORITE, SOLUTION.

Risk class: 8.

Risk number: 80.

Packing group: II.

Waterway:

DPC – Directorate of Ports and Coasts (Transport in Brazilian waters) Maritime Authority Regulations (NORMAM) NORMAM 01/DPC: Vessels Used in Open-seas Navigation

UN Number: 1791.

Appropriate name for shipment: HYPOCHLORITE, SOLUTION.

Risk class: 8.

Risk number: 80.

Packing group: II.

- Air Transport:

ANAC - National Civil Aviation Agency - Resolution No. 129 as of January 8, 2009

RBAC N°175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORTATION OF DANGEROUS ITEMS IN CIVIL AIRCRAFT

IS No. 175-001 - SUPPLEMENTARY INSTRUCTION - IS

ICAO - "International Civil Aviation Organization" - Doc 9284-NA/905

IATA - "International Air Transport Association"

Dangerous Goods Regulation (DGR)

UN Number: 1791.

Appropriate name for shipment: HYPOCHLORITE, SOLUTION.

Risk class: 8.

Risk number: 80.

Packing group: II.

15. - REGULATORY INFORMATION**Specific regulations for the chemical product:**

Federal Decree No. 2,657, as of July 3, 1998;

Standard ABNT-NBR 14725:2014;

Ordinance No. 229, as of May 24, 2011 – Changes Regulatory Standard No. 26

16. - OTHER INFORMATION

The information on this sheet corresponds to the current state of our knowledge and experience of the product and is not exhaustive. It applies to the product under the conditions specified, unless otherwise stated. In case of combinations or mixtures, make sure that no new danger can appear. This information does not, in any case, exempt the user of the product from complying with all legislative, regulatory and administrative texts relating to the product, safety, hygiene and protection of human and environmental health.

Bibliographical References:



MATERIAL SAFETY DATA SHEET - MSDS

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