

**MATERIAL SAFETY DATA SHEET**

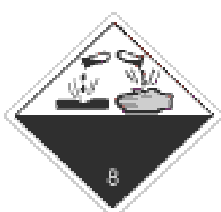
MSDS No. 02-08

According to EC Regulation No.1907/2006

**SODIUM HYPOCHLORITE, SOLUTION**

Revision: 8 Last up date: June 22, 2009 Date issued: July 21, 1999

Page 1/9

**Label no.8**  
**Corrosive substances****Corrosive****Dangerous for  
the environment****1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING****1.1. Identification of the substance/preparation**

Trade Name	<b>Sodium hypochlorite solution</b>
Chemical Name	Sodium hypochlorite solution
Common Synonyms	Bleaching lye, sodium oxychloride, hypochlorous acid- sodium salt.
Chemical Formula	NaOCl
Molecular Weight	74.44

**1.2. Uses of the substance/preparation**

Bleaching agent in textiles, pulp and paper industries

Oxidizer in chemical industry

Water treatment

Household sodium hypochlorite bleaches are solutions of up to 10%, but are most commonly about 5%.

**1.3. Company/undertaking identification****OLTCHIM S.A.**

Address	1 Uzinei Street, 240050 - Ramnicu Valcea, Romania
Telephone	+40/250/701200
Fax	+40/250/735446
e-mail	oltchim @oltchim.ro

**1.4. Emergency telephone number +40 / 250/738141**

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 2/9

### 2. HAZARDS IDENTIFICATION

**EC Classification according to Directive 67/548/CEE, Annex I** C; R34, N;R 50

**Corrosive liquid**

**Toxic to the aquatic life**

**Health effects:** Sodium hypochlorite causes burns of any area of contact. May be fatal if swallowed. Exposure can occur to chlorine gas released from sodium hypochlorite solution after mixture with acid solutions. Harmful if inhaled.

**Environmental effects:** When released into the soil this material may leach into groundwater. This material is expected to be toxic to aquatic life.

**Emergency overview:** Sodium hypochlorite is a corrosive liquid. It is a non flammable substance. Contamination may cause decomposition and generating chlorine gas which could result in high pressure and possible container rupture.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components /constituents	Concentration %wt.	CAS No.	EC No.	Annex I Index	Hazard Symbol	Risk phrases
Sodium hypochlorite, min	12	7681-52-9	231-668-3	017-011-00-1	C N	R31-34 R 50
Sodium Hydroxide	0.7-2	1310-73-2	215-185-5	011-002-00-6	C	R34

### FIRST - AID MEASURES

*Seek medical attention immediately in all cases of exposure!*

**Inhalation:** Chlorine gas released from sodium hypochlorite causes burning in the throat and coughing. High levels of exposure can lead to swelling and obstruction of the airway. In serious cases noncardiogenic pulmonary edema can occur.

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

**Skin contact:** Remove contaminated clothes and shoes. Rinse skin with plenty of water for at least 15 minutes until slippery feeling disappears. Seek medical attention immediately. Wash clothing before reuse.

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 3/9

**Eye contact:** Immediately flush eyes with high amounts of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Seek medical attention immediately.

**Ingestion:** Call a physician immediately. Do not induce vomiting. If conscious, give large amounts of water. *Never give anything by mouth to an unconscious person.*

**Note to Physician:** Consider oral administration of sodium thiosulfate solutions if sodium hypochlorite is ingested. Do not administer neutralizing substances since the result exothermic reaction could further damage tissue. Endorectal intubation could be needed if glottic oedema compromises the airway. For individuals with significant inhalation exposure, monitor arterial blood and chest x-ray.

---

### 5. FIRE - FIGHTING MEASURES

**Suitable extinguishing media:** Use media appropriate for surrounding fires (powder, foam extinguishing agents or carbon dioxide). Use water spray to cool fire-exposed containers, to dilute liquid, and control vapour.

**Unsuitable extinguishing media:** None

**Exposure hazards:** Not considered to be a fire hazard. Sodium hypochlorite itself does not burn, but poisonous gases are produced in fire.

**Protection of fire-fighters:** Firefighters should wear proper protective equipment and self contained breathing apparatus with full face-piece operated in positive pressure mode.

---

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal equipment. Keep unnecessary and unprotected personnel away from entering.

**Environmental precautions:** Prevent from contamination the ground and surface water by isolating the hazard area. Contain and recover when is possible. Dispose according to all applicable federal state or local environment regulations.

**Methods of cleaning up:** Contain and recover liquid when possible. Large spills will be removing with vacuum trucks pump to storage vessels. Soak up residues with an absorbent such as clay, sand or other suitable material; place in a chemical waste containers for proper disposal. Neutralize with sodium sulphite, bisulfite or thiosulfate, and then flush with plenty of water. For small spills, take up with an absorbent material and place in a chemical waste containers; seal tightly for proper disposal.

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 4/9

**Special precautions:** Do not use combustible materials, such as saw dust! **Do not use sulphates or bisulphates for spill neutralizing!**

---

### 7. HANDLING AND STORAGE

**Handling:** All workers should wear suitable protective breathing apparatus and protective clothing in order to avoid any contact with hand, skin or eyes. Avoid excessive heat and contamination. Contamination may cause decomposition and generating chlorine gas which could result in high pressure and possible container rupture.

**Storage:** Keep in tightly closed containers, store in a cool, dry, well ventilated area. Isolate from incompatible substances. Containers of this material may be warnings and precautions listed for the product. The recommended storing temperature is 20-25<sup>0</sup>C. Store separately from acids. Storage for more than one month is recommended.

---

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure limits:** PEL (OSHA ) (permissible exposure limit) : 0.5 ppm  
TLV (ACGIH) (threshold limit value) : 1 ppm

**Engineering control:** A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emission of the contaminant at its source, preventing dispersion of it into the general work area.

**Respiratory protection:** If the exposure limit is exceeded, a full face piece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where exposure levels are not known, use a full face piece positive pressure, air supplied respirator. *Warning! Air -purifying respirators do not protect workers in oxygen deficient atmospheres.*

**Hand protection:** Wear rubber gloves.

**Eye / Face protection:** Chemical splash goggles and/or face shield must be worn when possibility exist for eye contact due to splashing or spraying liquid or vapour. Contact lenses must not be worn. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

**Skin protection:** Wear impervious protective clothing including boots, lab coat, apron or coveralls as appropriate, to prevent skin contact.

**Other precautions:** Maintain shower, eye wash fountain and quick-drench facilities in work area.

---

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 5/9

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### General information

Appearance Clear, yellowish liquid  
Odor like chlorine

#### Important health, safety and environmental information

pH alkaline  
Boiling point 48-76<sup>0</sup>C (decomposes)  
Flash point NA  
Flammability non flammable  
Explosive properties non explosive  
Oxidizing properties oxidizer  
Vapor pressure, 20<sup>0</sup>C 17.5 mmHg  
Specific density (water=1) 1.09 for 5.25%  
1.15 for 8.0%  
1.21for 12.0%  
Solubility in water completely miscible with water  
Partition coefficient (log K<sub>ow</sub>) NA  
Viscosity, 20<sup>0</sup>C 2.6 mPas

#### Other information

Melting point -6<sup>0</sup>C  
Autoignition temperature NA

---

### 10. STABILITY AND REACTIVITY

**Chemical stability:** Unstable. Stability decreases with concentration, heat, light exposure, decrease in pH and contamination with heavy metals, such as nickel, cobalt, copper and iron.

**Conditions to avoid:** Light, heat and incompatibles.

**Materials to avoid:** Strong acids, strong oxidizers, heavy metals (which act as catalysts), reducing agents, ammonia and ammonium salts, ether, and many organic and inorganic chemicals such as paint, kerosene, paint thinners, shellac.

**Hazardous decomposition products:** Emits toxic fumes of chlorine when heated to decomposition. Sodium oxide is formed at high temperature.

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 6/9

### 11. TOXICOLOGICAL INFORMATION

#### Animal toxicity data:

LD <sub>50</sub>	oral-mouse	880 mg/kg
LD <sub>50</sub>	inhalation rat	>10.5 mg/l
LD <sub>50</sub>	intraperitoneal mouse	240-250 mg /kg
LD <sub>50</sub>	intraperitoneal guinea pig	63 mg/kg

#### Acute toxicity

- **Inhalation:** Excessive inhalation of vapours mists or fumes may cause bronchial irritation, laboured breathing coughing, nausea and pulmonary oedema. Additional effects have included circulatory collapse and confusion, delirium, coma.
- **Eye contact:** Contact may cause severe irritation and damage, especially at higher concentrations.
- **Skin contact:** Contact may cause severe irritation with blistering and eczema, especially at higher concentrations.
- **Ingestion:** May cause erosion of the mucous membranes. Symptoms include vomiting, circulatory collapse, confusion, coma and death. Hypochlorite may cause oedema of pharynx, glottis and larynx and perforation of the esophageus or stomach. Effects are less damaging at lower concentrations.

**Chronic effects:** A constant irritant to eyes and throat.

**Medical conditions aggravated by exposure:** Persons with impaired respiratory function may be more susceptible to the effects of the substance.

#### CMR effects

**Carcinogenicity:** Not classifiable as to human carcinogenicity.

**Mutagenicity:** There is no human or animal information available.

**Teratogenicity and Embryotoxicity:** There is no human or animal information available.

---

### 12. ECOLOGICAL INFORMATIONS

#### Ecotoxicity

Fish: LC<sub>50</sub>, 96h: typical range 0.01-0.1 mg active chlorine/l according to species.

Aquatic invertebrates:

EC<sub>50</sub>, 48h: typical range 0.01-0.1 mg active chlorine/l according to species.

Aquatic plants: No relevant data on algae for technical reasons.

Microorganisms

Behavior in waste water treatment plants:

Tentative LOEC activated sludge inhibition: 0.375 mg/l (Raff, 1987)

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 7/9

**Mobility:** No data available.

**Persistence and degradability:** Not persistent.

**Bioaccumulation:** Not bio accumulative.

**Biodegradation:** Not persistent.

**Other adverse effects:** Harmful to aquatic organism.

---

### 13. DISPOSAL CONSIDERATIONS

**Waste treatment:** Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility. Processing, use or contamination of this product may change the waste management options. Dispose of container and unused content in accordance with federal state and local requirements.

**Packaging treatment:** The empty tank cars or tank trucks are washed with plenty of water. The resulted effluent is neutralised with diluted acid solutions.

---

### 14. TRANSPORT INFORMATION

Sodium hypochlorite solution can be shipped according to transport regulations for dangerous goods, hazard class 8, Corrosive substance.

#### Transport Labeling



**Label no.8**  
**Corrosive substances**

#### RID/ADR

UN No.	1791
Proper shipping name	Sodium Hypochlorite Solution
Hazard class	8
UN Packing Group	III
Classification code	C9

<i>Danger panel</i>	<i>80/1791</i>	(Hazard Identification No.	80)
		(UN Identification No	1791)

#### IMDG/IMO

UN No.	1791
Hazard class	8

## SODIUM HYPOCHLORITE SOLUTION

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 8/9

UN Packing Group	III
Proper shipping name	Sodium Hypochlorite Solution
EmS No.	F-A, S-B

### IATA/IT-ICAO

Proper shipping name	Sodium Hydroxide Solution
UN No.	1791
Hazard class	8
UN Packing Group	III
IATA Label	Corrosive
Packaging Note Passenger	819
Packaging Note Cargo	821
Max. Quantity Passenger	5 l
Max. Quantity Cargo	60 l

## 15. REGULATORY INFORMATION

Sodium hypochlorite is classified and labeled under Directive 67/548/EEC, Annex I. This product is listed on EINECS.

<b>EC Classification</b>	EC Index No. 017-011-00-1
	C; R34
	R; 31
	N; R 50

### Labeling

<b>Hazard symbol</b>	C,N	Corrosive, Dangerous for the environment
----------------------	-----	--

<b>R –phrases</b>	R 31	Contact with acids liberates toxic gas.
	R 34	Causes severe burns.
	R 50	Very toxic to aquatic organism.

<b>S- phrases</b>	S28	After contact with skin, wash with plenty of water.
	S 45	In case of accident or if you will fill unwell, seek medical advice immediately (show the label whenever possible).
	S 50	Do not mix with acids.
	S 61	Avoid release to the environment. Refer to special instructions/safety data sheet.

## 16. OTHER INFORMATION

### List of relevant R-phrases (see chapter 3)

R 31	Contact with acids liberates toxic gas.
R 34	Causes severe burns.
R 50	Very toxic to aquatic organism.

## **SODIUM HYPOCHLORITE SOLUTION**

MSDS No. 02-08

Revision: 8 Last up date: June 22, 2009 Date issued: February 2, 2000 page. 9/9

**Precautions to be taken in handling and storing:** Keep well ventilated the areas where solution of sodium hypochlorite is stored and handled.

**Work hygienic practices:** Avoid direct contact of substance with skin/eyes. Avoid the exposure of personnel with dermatological affections.

**Interdictions:** **Do not drink or eat** in working area.

**Do not smoke** in or near working area.

**The use of open flame** in working areas is prohibited.

**Uses and Restrictions:** Advice in this document relates only to product as originally supplied. Other derivative chemicals will have different properties and hazard.

**MSDS Revisions:** This Material Safety Data Sheet is made in accordance to European Directive and will replace the previous version 7 dated May 25, 2009.

### **Revised information:**

Section 12 was revised according to Sodium Hypochlorite ReachCentrum Consortium suggestion, based on the requirements of the CLP (Regulation No. 1272/2008 of the European Parliament and of the Council on classification, labeling and packaging of substances and mixtures)

Sources of key data uses to compile the data sheet:

EC Directive 67/548/EC resp. 99/45/EC as amended in each case.

EC Directive 2001/58/EC as amended in each case.

EC Directive 2000/39/EC as amended in each case.

National Threshold Limit Values of corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

---

*This MSDS has been elaborated in accordance with Regulation (EC) No.1907/2006 REACH*

*The information contained here in is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.*

*This MSDS cannot cover all possible situations which the user may experience during handling and processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained within this MSDS should be provided to the user's employees or customers.*