



Chemifloc Ltd.

SAFETY DATA SHEET Sodium Hypochlorite 10 – 14%

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

1: Identification of the substance/preparation and of the company/undertaking

Identification of the substance or preparation

Product Name: Sodium Hypochlorite,

Chemical Name: Sodium Hypochlorite

Use of the preparation:

Used as a chemical for the treatment of drinking water, has received appropriate approval by the European Committee for Standardisation.

Company/Undertaking identification

Supplier: Chemifloc Ltd
Smithstown, Shannon,
Co. Clare,
Rep. of Ireland.
Tel: 00353 61 708699
Fax: 00353 61 708698
e-mail: info@chemifloc.ie

Emergency Telephone Number: 00353 61 708699

2: Hazards Identification

EC Classification according to Directive 67/548/CEE, Annex IC; R31,R34,

Corrosive liquid

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

Ingredient Name	CAS Number	%	EC Number	Classification	Risk Phrases
Sodium hypochlorite	7681-52-9	11 - 16	231-668-3	C	R31, R34
Sodium Hydroxide	1310-73-2	0.5 – 1.0	215-185-5	C	R34
Sodium Chloride	7647-14-5	10 - 14	231-598-3	Not classified	
Water		To 100%		Not classified	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in section 8.

4: First Aid Measures

SPEED IS ESSENTIAL

- Inhalation :** Remove to fresh air, keep patient warm and administer oxygen if necessary. If respiration stops or shows signs of failing apply artificial respiration. Obtain medical attention urgently.
- Skin Contact :** Drench immediately with copious amounts of water. Remove contaminated clothing and continue washing the affected areas. Wash clothing and decontaminate shoes before re-use or disposal. If irritation persists or if blistering occurs obtain medical attention.
- Eye Contact :** Immediately flood the eye with clean water for at least 15 minutes ensuring the corners and under both eyelids are adequately flushed. Obtain medical attention for all cases where contact with the eye occurs.
- Ingestion:** Do not induce vomiting. Provided the patient is conscious, wash out the mouth with water and give about 500 mls of water to drink. Obtain medical attention urgently.
- Note to physician :** Consider oral administration of Sodium thiosulfate solutions if Sodium Hypochlorite is ingested. Do not administer neutralising substances since the resultant exothermic reaction could further damage tissue. Endotracheal intubation could be needed if glottic oedema compromises the airway. For individuals with significant inhalation exposure, monitor arterial blood gases and chest x-ray.

5: Fire-Fighting Measures

The material is non-combustible and non-explosive. Containers should be kept cool with water spray. Decomposition is accelerated by heat and is accompanied by the evolution of oxygen, which may enhance the combustion of other flammable materials. The material is a powerful oxidising agent. When involved in fires toxic fumes can be evolved, thus self-contained breathing apparatus should be worn.

6: Accidental, Release Measures

- Refer to point's no. 8 and no. 13 for information on personal protective equipment and disposal.
- Small Spillage :** Dilute and wash away with large amount of water taking care to avoid splashing.
- Large Spillage :** Keep unauthorised personnel away from the immediate area. If appropriate inform the police, fire brigade, local authority and EPA. Prevent from spreading by using sand or earth to soak up. Keep away from drains and prevent from entering watercourses. Sodium Sulphite, Sodium Thiosulphate may be used for dechlorination.

7: Handling and Storage

- Handling :** Contact with eyes and skin must be avoided. Refer to point No. 8 for information on personal protective equipment. An emergency shower, eyewash station and water supply should be provided at locations where accidental exposure is foreseeable, e.g. at filling/discharge points. Ensure no possibility of contact with acids, ammonia solutions, amines and methanol exists. Materials used in handling should be compatible with the product, advice should be sought on selection. Provide adequate ventilation. 7.2
- Storage :** Sodium Hypochlorite decomposes slowly on standing with the evolution of some oxygen. The rate of decomposition can be minimised by storing the

material in as cool a location as possible and out of direct sunlight. Certain metal impurities may catalyse the decomposition and contact with these should be avoided. The metals include nickel, cobalt, copper and iron. The material should be stored away from reactive chemicals. For containers the closure should have a vent to allow for the release of any oxygen evolved during storage. Bulk tanks should also be vented and suitable tank materials include certain types of rubber lined mild steel, PVC or PVC lined GRP, polyethylene and PTFE. Apart from vent and overflow connections storage tanks should be enclosed and provision made for washing out the tank with water to remove any sludge, due to salting out as a result of decomposition, which may accumulate over a period of time.

8: Exposure Controls/Personal Protection

Direct contact with the skin must be prevented. The generation of mists in areas where ventilation is insufficient for removal should be avoided. Contact with reactive chemicals must be prevented due to the possibility of chlorine gas being generated.

Occupational exposure limit:

The occupational exposure limit for Sodium Hypochlorite has not been assigned (UK HSE EH40), however the AIHA have assigned a STEL of 2 mg/m³ and the OSHA have set a PEL of 0.5 ppm (TWA). In case of chlorine emission the occupational exposure limit for chlorine should be observed.

Chlorine	LTEL	8hr TWA	STEL	
	ppm	mg/m ³	ppm	mg/m ³
	0.5	1.5	1	2.9

Respiratory Protection :	Breathing apparatus should be worn if required to spray or to work in aerosol mists of the product.
Hand Protection :	PVC or rubber gloves.
Eye Protection :	Close fitting chemical goggles.
Skin Protection:	Cotton or PVC overalls; PVC or rubber boots.

Occupational Exposure Limits TWA: 1mg/m³

9: Physical and Chemical Properties

General information	
Appearance	Clear greenish-yellow liquid.
Odour	Characteristic bleach odour.
Molecular Formula	NaOCl
Important health, safety and environmental information	
pH	10.5 – 12.5
Boiling point	107°C
Freezing point	Solution solidifies at -25°C. Crystals of NaCl may form at low temperatures.
Vapour pressure @ 20 °C	Approximately 2.5 kPa at 20 °C.
Density g/cm ³ at 20°C.	1.230 - 1.270 @ 20°C for 14/15% solution.
Solubility	Miscible in water.
Viscosity (mPa.s)	3.45 cP @ 20°C for 14/15% solution.
Oxidising Properties:	Strong oxidising agent. Reacts with other oxidising agents to liberate heat and possibly oxygen or chlorine.
Flammability	Non-flammable - decomposition can evolve oxygen with a resultant enhancement of combustion.

10: Stability and Reactivity

The solution decomposes slowly over time with the evolution of oxygen. Factors affecting stability are as follows:

- Initial concentration (decomposition rate reduces as strength decreases).
- Storage temperature (lower the temperature, the lower the rate of decomposition).
- Presence of metallic impurities (Ni, Co, Cu, Fe all act as catalysts to increase the rate of decomposition).
- pH (the pH must be kept above 10.5 and this is done by maintaining an excess of sodium hydroxide in the solution during manufacture).
- Exposure to light (the solution should be stored in opaque containers out of direct sunlight).

On mixing with acids the material decomposes violently with the rapid evolution of chlorine gas. Explosive reactions can occur with ammonia and ammonium compounds. No reactions occur with other alkalis. The material reacts with the generation of heat and liberation of oxygen when in contact with sodium or hydrogen peroxides. With other oxidising agents a reaction occurs with the possible evolution of oxygen or chlorine. The material is highly corrosive to most metals and to painted or varnished surfaces. Organic matter is readily oxidised and dangerous reactions are possible with alcohols, aldehydes, ketones, unsaturated hydro and halocarbons. Hazardous polymerisation will not occur.

11: Toxicological Information

Short term effects of over exposure.

- Inhalation :** Vapours containing chlorine or hypochlorous acid fumes (derived from hypochlorite under fire or acidic conditions) irritate the nose, throat and lungs causing coughing and other effects. Exposure to the mist or spray causes irritation of the nose, throat and respiratory tract. There is little hazard from properly stored solution.
- Skin Contact :** Irritant, which causes reddening of the skin. Prolonged contact may result in dermatitis. Sensitisation may occur.
- Eye Contact :** Severe irritant causing immediate irritation and severe pain. Fast removal is essential to prevent permanent damage.
- Ingestion :** Causes irritation and corrosion of the mucous membranes of the mouth and throat. May cause oedema of pharynx, glottis and larynx and perforation or ulceration of the oesophagus or stomach. Oral LD50 (rat) for 5.25% solution is 13g/kg and for 12.5% solution is 5g/kg.

Long term effects of over exposure: Acute effects predominate.

12: Ecological Information

Environmental fate

Does not bio-accumulate and is soluble in water. Decomposes to salt and water with oxygen released.

Persistence and Degradation

Quickly decomposes in water or soil.

Eco-toxicity

Toxic to all aquatic organisms; 1ppm AvCl₂ is toxic to all fish and 0.4 ppm is toxic to game fish.

Effect on Effluent Treatment

At concentrations of 0.05 mg/l, there is evidence of inhibition to the aerobic treatment process.

13: Disposal Considerations

Small quantities of material can be disposed of by treating with sodium sulphite or sodium thiosulphate and flushing to drain having first ensured total dechlorination of the resulting solution. For large quantities a specialist waste disposal firm should be employed.

14: Transport Information

Proper Shipping Name: HYPOCHLORITE SOLUTION
UN Number: 1791
RID/ADR: Class 8
Hazard ID Number: 80
Classification Code: C9
Packing Group: PG II

15: Regulatory Information

Sodium Hypochlorite Solution is classed as **Corrosive** for supply, and packaging will carry the following information:

EU Regulations:

Hazard Symbol or symbols: C : Corrosive

Risk Phrase: R31: Contact with acids liberates toxic gas.

R 34: Causes severe burns.

Safety Phrases: S 1/2: keep locked up and out of the reach of children;

S 28.1: After contact with skin, wash immediately with plenty of water.

S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 50.1: Do not mix with acids.

S61: Avoid release to the environment. Refer to special instructions/safety data sheets.

Contains EINECS number: 231-668-3

16: Other Information

References: Sodium Hypochlorite solutions are used as chemicals for the treatment of drinking water, as approved by the European Committee for Standardisation under EN 901:2007. The Transport and Regulatory Information given are in accordance with EN 901:2007.

History: This data sheet was prepared in accordance with EC Regulation No. 1907/2006 concerning REACH.

This version replaces Version 2, Jan 2009.

Date of issue: 27-10-2009

Revision: 3.

Notice to reader

To the best of our knowledge, the information provided in this Safety Data Sheet is accurate as at the date of its issue. The information it contains is being given for safety guidance purposes and relates only to the specific material and uses described in it. This information does not necessarily apply to that material when combined with other material(s) or when used otherwise than as described herein. Final determination of the suitability of any material is the sole responsibility of the user. All materials may represent unknown hazards and should be used with caution. Chemifloc Ltd disclaims any liability for loss or damage resulting from the use of any data, information or recommendations set out in this Safety Data Sheet.