

PRODUCT SPECIFICATION			
Product Name	Sodium Hypochlorite Solution, 14-15% Available Chlorine		
Alternative Name	Bleach Liquor		
Specification Reference	HYPO/6 (19/09/IHJK)		
	Units	Specification Range	Typical Analysis
Available Chlorine	% w/w	>14.0	14.8
Density at 20°C	kg/litre	1.24 – 1.27	1.25
Sodium Hypochlorite	% w/w	>14.7	15.5
Sodium Hydroxide	% w/w	0.2 – 1.0	0.7
Sodium Carbonate	% w/w	<1.5	0.3
Iron, Fe	ppm	<2	0.4
Methods of Analysis			
Methods of analysis are given in BS4426:1969			
Additional Information			
Quality Standard			
This product meets the requirements of BS EN 901:2013 chemicals for the treatment of water intended for human consumption			

The strength specification is that at the time of supply. Sodium Hypochlorite solution is inherently unstable and slowly loses strength, producing Sodium Chloride and Oxygen, therefore time/light/foreign matter all contribute (sometimes to significant effect) to a reduction in strength. We recommend no more than 2-3 months stock on hand in cool/dark storage conditions.

NOTES

Exclusion of Liability

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Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Trade Name	Sodium Hypochlorite
Substance Name	Hypo. Bleach, concentrated. Sodium hypochlorite liquor, concentrated.
Index Number	017-011-00-1
CAS Number	7681-52-9
EINECS Number	231-668-3
REACH Registration Number	01-2119488154-34-XXXX

Relevant identified uses of the substance or mixture and uses advised against

Identified use(s)	Bleaching agent, oxidising agents, intermediate, Industrial and professional cleaning
Uses advised against	None identified

1.3 Details of the supplier of the safety data sheet

Fluid Science Ltd
 Hazelbottom Road
 Cheetham
 Manchester
 M8 0GR
 Tel: 44(0)161 205 4454
 Fax: 44(0) 161 203 4298
 Email: msds@tennantsdistribution.com

1.4 Emergency telephone number

Tel: 44(0)844 335 0001 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Aquatic Acute 1: Very toxic to aquatic life.
 Aquatic Chronic 2: Toxic to aquatic life with long lasting effects.
 Eye Dam. 1: Causes serious eye damage.
 Met. Corr. 1: May be corrosive to metals.
 Skin Corr. 1B: Causes severe skin burns and eye damage.

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

2.2.1 According to Regulation (EC) No. 1272/2008 (CLP).

Hazard Pictogram



Signal word(s): Danger.

Hazard statement(s)

H290: May be corrosive to metals.
 H314: Causes severe skin burns and eye damage.
 H400: Very toxic to aquatic life.
 H411: Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260: Do not breathe vapour
 P273: Avoid release to the environment
 P280: Wear protective gloves/protective clothing/eye protection/face protection
 P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Additional Labelling:

EUHO31: Contact with acids liberates toxic gas

2.3 Other hazards		
None known		
3. COMPOSITION/INFORMATION ON INGREDIENTS		
Substances		
- Chemical nature: Sodium hypochlorite Aqueous solution		
Chemical Name	Identification Number	
Sodium hypochlorite, solution	Index No. CAS No. EC No. REACH Reg. No. Classification	017-011-00-1 7681-52-9 231-668-3 01-2119488154-34-xxxx Met. Corr. 1 H290 Skin Corr. 1B H314 Aquatic Acute 1 H400 Aquatic Chronic 2 H411 EUH031
		12 – 16%
For the full text of the H-Statements mentioned in this Section, see Section 16.		
4. FIRST AID MEASURES		
4.1 Description of first aid measures		
Inhalation Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Obtain medical attention.		
Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If symptoms develop, obtain medical attention.		
Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor.		
Ingestion Do NOT induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Immediately call a POISON CENTRE/doctor.		
4.2 Most important symptoms and effects, both acute and delayed Inhalation: May cause breathing difficulty. Cough. Gas (chlorine) produced under fire or acidic conditions is toxic by inhalation. Skin Contact: Causes burns. Eye Contact: Risk of serious damage to eyes. Ingestion: Will cause corrosion of and damage to the upper gastrointestinal tract.		
4.3 Indication of any immediate medical attention and special treatment needed In cases of severe exposure, pulmonary oedema may develop. Fluid build up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal. Immediately call a POISON CENTER/doctor. Treat symptomatically.		
5. FIRE FIGHTING MEASURES		
5.1 Extinguishing Media Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Unsuitable extinguishing media: High volume water jet		
5.2 Special hazards arising from the substance or mixture Non-combustible. May decompose in a fire, giving off toxic and irritant vapours. (chlorine). Chlorine is an oxidising agent.		
5.3 Advice for fire-fighters Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Use water spray or fog to knock down and absorb corrosive fumes. Keep fire exposed containers cool by spraying with water. Dike fire control water for later disposal.		
6. ACCIDENTAL RELEASE MEASURES		
6.1 Personal precautions, protective equipment and emergency procedures Provide adequate ventilation. Do not use metal containers for spilled liquid. Wear appropriate personal protective equipment, avoid direct contact.		
6.2 Environmental precautions Avoid release to the environment. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.		
6.3 Methods and material for containment and cleaning up Collect spillage. Small spillages: Wash the spillage area with water. Large spillages: Contain spillages with sand, earth		

or any suitable adsorbent material. Earth may be shovelled to contain spillage and to avoid contamination of sewers and watercourses.

6.4 Reference to other sections

See also Section 8, 13

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of mists. Wear protective gloves/protective clothing/eye protection/face protection. Ensure adequate ventilation.

7.2 Conditions for safe storage, including any incompatibilities

For small quantities - vented containers made from glass or PVC are suitable.
For large quantities - glass reinforced plastic tanks with a PVC lining, rubber lined mild steel or high density polyethylene tanks are suitable. Storage tanks should be completely enclosed except for vents and overflows. Provision should be made to wash tanks clear of sludge, which can build up due to salting out of solids during natural decomposition.

Storage temperature: Ambient. Keep away from heat and direct sunlight.

Storage life: Stable under normal conditions.

Incompatible materials: Do not mix with acid. Avoid contact with other cleaning agents.

7.3 Specific end use(s)

No further relevant information

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Sodium Hypochlorite Not Listed (UK HSE EH40).

In case of chlorine emission the occupational exposure limit for chlorine should be observed.

Chlorine: CAS No. 7782-50-0 STEL 0.5 ppm 1.5 mg/m³

Region	Source
Europe	EU Occupational Exposure Limits
United Kingdom	
Workplace Exposure Limits (WEL)	
Remark	Notes

Sodium Hypochlorite solution

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL / DMEL	Oral	Inhalation	Dermal
Industry - Long Term - Local effects		1.55 mg/m ³	0.5%
Industry - Long Term - Systemic effects		1.55 mg/m ³	
Industry - Short term - Local effects		3.1 mg/m ³	
Industry - Short term - Systemic effects		3.1 mg/m ³	
Consumer - Long Term - Local effects		1.55 mg/m ³	
Consumer - Long Term - Systemic effects		1.55 mg/m ³	
Consumer - Short term - Local effects	0.26 mg/kg bw/day	3.1 mg/m ³	
Consumer - Short term - Systemic effects		3.1 mg/m ³	

Predicted No Effect Concentration (PNEC)

Environment	PNEC
Aquatic Compartment (including sediment)	0.21 µg/l Fresh water, 0.042 µg/l Marine water, 0.26 µg/l Intermittent releases, 30 µg/l Sewage treatment plant
Terrestrial Compartment	No data
Atmospheric Compartment	No data

8.2 Exposure controls

Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction. A washing facility/water for eye and skin cleaning purposes should be present.

Respiratory protection

Normally no personal respiratory protection is necessary. When required to spray sodium hypochlorite solutions or to work in mists adequate respiratory protection should be provided. Where a cartridge/canister respirator is suitable use: Type B P3

Eye protection	
Wear eye protection with side protection (EN166). Goggles giving complete protection to eyes. If splashes are likely to occur: Full face shield.	
Skin and body protection	
Wear protective clothing and gloves: The following materials are suitable for protective gloves (permeation time >= 8 hours): PVC (0.5mm), Neoprene (0.5mm), Butyl rubber (0.5mm), Nitrile rubber (0.35mm), Natural rubber (0.5mm).	
Thermal hazards	
None known.	
Environmental Exposure Controls	
Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.	
9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Appearance	Liquid.
Colour	Greenish-yellow
Odour	Faintly chlorinous
Odour threshold	Not known.
pH	>12.5
Melting point/freezing point	-17 °C
Flash Point	Initial boiling point and boiling range 110 °C
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not flammable
Vapour pressure	Not applicable.
Vapour density	2.5 kPa (20°C)
Density (g/ml)	2.5
Relative density	Not available.
Solubility(ies)	1.26 approx (20°C)
Solubility (Other)	Solubility (Water) : Miscible
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Log Pow: -3.42 (20°C)
Decomposition Temperature (°C)	Not applicable.
Viscosity	Not available.
Explosive properties	2.6mPa.s (20°C)
Oxidising properties	Not explosive.
	May liberate chlorine under certain conditions: chlorine is an oxidising agent.
9.2 Other information	
Molecular weight	74.44 g/mol
10. STABILITY AND REACTIVITY	
10.1 Reactivity	
Contact with acids liberates very toxic gas. (chlorine). Chlorine is an oxidising agent	
10.2 Chemical stability	
Stable under normal conditions. Stability of the solution decreases with the action of heat, light and in the presence of some trace impurities.	
10.3 Possibility of hazardous reactions	
Contact with acids liberates very toxic gas. (chlorine). Chlorine is an oxidising agent. Reacts with ammonia solutions and amines to form explosive compounds. Can react violently if in contact with methanol. Decomposition with evolution of oxygen is accelerated by light and heat and also by contact with many metals, particularly copper, nickel, iron and 'monel'.	
10.4 Conditions to avoid	
Incompatible materials. Keep away from heat and direct sunlight.	
10.5 Incompatible materials	
Decomposition with evolution of oxygen is accelerated by light and heat and also by contact with many metals, particularly copper, nickel, iron and 'monel'.	
10.6 Hazardous decomposition products	
Chlorine. Oxygen.	

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Ingestion

Not classified.

Data from sodium hypochlorite solution, at the highest industrially produced concentration of around 15%, shows low oral toxicity. LD50 value (rat, oral) used for Chemical Safety Assessment , 1100 mg/kg bw (as available chlorine) Will cause corrosion of and damage to the upper gastrointestinal tract.

Skin contact

Not classified.

LD50 (rat) >20,000 mg/kg bw

Inhalation

Not classified.

LC50 (rat) (1 hr) >10,500 mg/m³ (as available chlorine)

Skin corrosion/irritation

Calculation method: Causes severe skin burns and eye damage.

Serious eye damage/irritation

Self classification: Causes serious eye damage.

Skin sensitisation data

Not classified.

Human Patch testing suggests that sodium hypochlorite is unlikely to be a skin sensitiser. Reliable test data indicates that sodium hypochlorite has no potential for skin sensitisation in animals.

Respiratory sensitisation data

Not classified.

May be irritant to the respiratory tract.

Germ cell mutagenicity

Not classified.

On the basis of a weight of evidence approach, sodium hypochlorite should not be classified as genotoxic as the majority of the relevant in-vitro and in-vivo mutagenicity studies were negative.

Carcinogenicity

Not classified.

On the basis of a weight of evidence approach, sodium hypochlorite has been shown not to be carcinogenic in animal studies or in humans.

Reproductive toxicity

Not classified.

There is no evidence from animal studies that sodium hypochlorite has any adverse effects on development or fertility.

Lactation

Not classified.

STOT - single exposure

Not classified. May be irritant to the respiratory tract.

Note: ≥20% solution Classified as irritating to the respiratory system.(STOT SE 3)

STOT - repeated exposure

Not classified.

Studies in animals have shown that repeated exposures produce no significant effects

Aspiration hazard

Self classification: Not an aspiration hazard

12. ECOLOGICAL INFORMATION

12.1 Acute Toxicity

Aquatic invertebrates

Acute aquatic toxicity

Daphnia magna, Fresh water. EC50 (48 hour): 0.141 mg/l (Crassostrea virginica), Marine water. EC50 (48 hour): 0.026 mg/l Ceriodaphnia dubia, Fresh water. EC50 (48 hour): 0.035 mg/l

Chronic

Oyster, Marine water. NOEC (7 day): 0.007 mg/l

Fish

Acute aquatic toxicity

Fish, Fresh water. LC50 (96 hour): 0.06 mg/l Fish, Marine water. LC50 (96 hour): 0.032 mg/l

Chronic


Fish, Marine water. NOEC (28 days): 0.04 mg/l

Algae

Acute aquatic toxicity

Algae (Pseudokirchnerella subcapitata) (Liedtke, 2013) EC50: 0.04 mg/l Myriophyllum spicatum, Fresh

<p>water. EC50 (96 hour): 0.1 mg/l</p> <p>Chronic Algae (<i>Pseudokirchnerella subcapitata</i>) (Liedtke, 2013)ErC10: 0.03 mg/l; NOEC: 0.017 mg/l Algae (periphyton), Fresh water. NOEC (7 days): 0.0021 mg/l</p> <p>Toxicity Sediment Compartment Not classified. Terrestrial Compartment Not classified.</p>	
<p>12.2 Persistence and degradability Sodium hypochlorite is a strong oxidiser. It will react with organic substances present in soil and sediments and degrades rapidly to chloride. Sodium hypochlorite is substantially removed in biological treatment processes.</p>	
<p>12.3 Bio accumulative potential Sodium hypochlorite has low potential for bioaccumulation and decomposes in water. log P (calculated) -3.42</p>	
<p>12.4 Mobility in soil Sodium hypochlorite is mobile in soil and sediments.</p>	
<p>12.5 Results of PBT and vPvB assessment Not classified as PBT or vPvB.</p>	
<p>12.6 Other adverse effects Sodium hypochlorite is substantially removed in biological treatment processes. There is evidence of inhibition to the aerobic treatment process at a concentration (mg/l) of 0.05 mg/l.</p>	
<p>13. DISPOSAL CONSIDERATIONS</p>	
<p>13.1 Waste treatment methods Dispose of contents in accordance with local, state or national legislation. Send to a licensed recycler, reclaimor or incinerator. Dispose of this material and its container to hazardous or special waste collection point.</p> <p>Additional information Disposal should be in accordance with local, state or national legislation.</p>	
<p>14. TRANSPORT INFORMATION</p>	
<p>14.1 UN Number ADR RID IMDG</p>	<p>1791 1791 1791</p>
<p>14.2 UN Proper Shipping Name ADR RID IMDG</p>	<p>HYPOCHLORITE SOLUTION HYPOCHLORITE SOLUTION HYPOCHLORITE SOLUTION</p>
<p>14.3 Transport hazard class ADR/RID Class IMDG Class IMDG EMS ICAO/IATA Excepted Quantities Passenger and Cargo Aircraft Limited Quantities Packing Instructions Passenger and Cargo Aircraft Limited Quantities Max net Qty Passenger and Cargo Aircraft Packing Instructions Passenger and Cargo Aircraft Max net Qty Cargo Aircraft Packing Instructions Cargo Aircraft Max net Qty Special Provisions Emergency Response Guidebook (ERG) Code ADR Classification Code ADR HIN ADR Transport Category Tunnel Restriction Code Emergency Action Code APP Advice on Additional Personal Protection (APP)</p>	<p>8 8 Not available E2 Y840 0.5L 851 1L 855 30L A3 8L C9 80 2 E 2X Not applicable</p>
<p>14.4 Packing group Packing group Labels</p>	<p>II 8</p>

Special provision Limited quantities Mixed Packing Instructions for Packages Special Packing Provisions for Packages Mixed Packing Instructions for Packages	 521 1L P001 IBC02 PP10 B5 MP15
14.5 Environmental hazards Environmentally hazardous	Classified as a Marine Pollutant
14.6 Special precautions for users Not applicable	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Product Name SODIUM HYPOCHLORITE SOLUTION Ship Type 2 Pollution Category Y Packing Instructions for Portable Tanks T7 Special Provisions for Portable Tanks TP2 TP24 Tank Code for Tanks L4BV(+) Special Provisions for Tanks TE11 Vehicle for Tank Carriage AT Special Provisions for Carriage – Packages Not applicable Special Provisions for Carriage - Bulk Loading Not applicable Special Provisions for Carriage - Loading, Unloading and Handling Not applicable Special Provisions for Carriage – Operation Not applicable	
15. REGULATORY INFORMATION	
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture European Regulations - Authorisations and/or Restrictions On Use. Not listed Candidate List of Substances of Very High Concern for Authorisation REACH: ANNEX XIV list of substances subject to authorisation. Not listed REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles. Not listed Not listed Not listed Not listed Community Rolling Action Plan (CoRAP) Not listed Regulation (EC) N° 850/2004 of the European Parliament and of the Council on persistent organic pollutants Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer. Not listed Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals. Not listed	
15.2 Chemical safety assessment A Chemical Safety Assessment has been performed	
16. OTHER INFORMATION	
Hazard Statements H290: May be corrosive to metals. H314: Causes severe skin burns and eye damage. H318: Causes serious eye damage. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long lasting effects. H411: Toxic to aquatic life with long lasting effects. Abbreviations and acronyms ADN : European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road CAS : Chemical Abstracts Service CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures DNEL : Derived No Effect Level EC : European Community EINECS : European Inventory of Existing Commercial Chemical Substances IATA : International Air Transport Association IBC : Intermediate Bulk Container ICAO : International Civil Aviation Organization	

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IMDG : International Maritime Dangerous Goods

LTEL : Long term exposure limit

PBT : Persistent, Bioaccumulative and Toxic

PNEC : Predicted No Effect Concentration

REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals

RID : Regulations concerning the International Carriage of Dangerous Goods by Rail

STEL : Short term exposure limit

STOT : Specific Target Organ Toxicity

UN : United Nations

vPvB : very Persistent and very Bioaccumulative

Source of key data used to compile the data sheet

Supplier information

Modifications from last revision

The Specification has been updated. The Safety Data Sheet remains the same. **Date** 04/09/22