

SAFETY DATA SHEET

In compliance with:

- the EC Regulations No. 1907/2006, No. 1272/2008 and EU. 453/2010 (Annex I);
- the approved *Code of Practice*, under section 274 of the *Work Health and Safety Act* (the Australian WHS Act)
- the *Globally Harmonized System of Classification and Labelling of Chemicals* (GHS), Rev. 6 (2015)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product identifiers

Name of the Mixture	Ecas4 Anolyte
Other means of identification, if available	Active chlorine at neutral pH, generated by electrolysis of a sodium chloride solution

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

Identified uses	Disinfection of potable water / Water sanitisation in Healthcare and Food industry facilities
Uses advised against	There are no uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier / Distributor	Ecas4 Australia Pty Ltd	
	Address:	Unit 8 / 1 London Road, Mile End, South Australia 5031
	Telephone:	08 8122 7166
	Fax:	08 8152 0321
Competent person for the compilation of Safety Data Sheet: sergio@ecas4.com.au (Dr Sergio Ferro)		

1.4. Emergency telephone number

Phone # (office hours)	08 8122 7166
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SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In accordance with Regulations mentioned in the introduction, the mixture is classified as **NON-HAZARDOUS**.

Hazard Class	Class Codes and hazard category	Hazard statement codes	Hazard statements
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Major adverse effects

Health effects:

Ingestion: swallowing of the solution may cause irritation to the throat and digestive tract
 Skin contact: may be irritating
 Eye contact: may be irritating
 Inhalation exposure: vapours can cause dizziness and nausea
 Sensitization: No adverse effects expected

Effects on the environment:

Not relevant. At the concentration present in the mixture ($\leq 0.05\%$), the active chlorine degrades very quickly in the environment in the presence of light and/or organic substances

2.2. Label elements

Label elements, in accordance with Regulation (EC) No. 1272/2008:

Pictogram	none
Signal word	none
Hazard statement(s)	none
Precautionary statement(s)	None
- Prevention	-
- Response	-
- Storage	-
- Disposal	-
Additional information:	EUH 210: Safety data sheet available on request

Safety precautions:

Keep out of the reach of children
 Avoid contact with eyes. Avoid breathing vapours / spray.
 If medical advice is needed, make available to the container or the label of the product.
 Store in a dry, clean and ventilated place, protected from sunlight and heat sources.

2.3. Other hazards (not relevant for the classification)

The mixture meets the criteria for:

- PBT
- vPvB

YES	NO
	X
	X

Hazards for humans:

The Ecas4 Anolyte, in its most concentrated form (active chlorine content ≈ 350 ppm) can cause eye irritation, skin sensitisation, and throat discomfort. When the solution is kept in a closed container, it is not recommended to sniff or inhale its vapours.

Environmental hazards:

There are no other environmental hazards.

Dangers related to the physico-chemical characteristics:

EUH031, Contact with acids liberates toxic gas

Specific effects:

H290, May be corrosive to metals

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

The Ecas4 Anolyte (*the mixture*) is a diluted aqueous solution of sodium chloride, hypochlorous acid and sodium hypochlorite, with a neutral pH (pH 7.0 ± 0.5). **The mixture does not contain dangerous substances.**

Description of ingredients	% (~)	EINECS Number	CAS Number	LD ₅₀ of the Ingredient	Specie and administration
Water	99.46%	231-791-2	7732-18-5	> 90,000 mg/kg	Rat, oral
Sodium Chloride	0.5%	231-598-3	7647-14-5	3,000 mg/kg	Rat, oral
Hypochlorous Acid	0.03%	232-232-5	7790-92-3	> 5,000 mg/kg	Rat, oral
Sodium Hypochlorite	<0.01%	231-668-3	7681-52-9	8,910 mg/kg	Rat, oral

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

<i>General advice:</i>	No special measures required.
<i>In case of eye contact:</i>	Rinse thoroughly with plenty of water. Get medical attention if irritation persists.
<i>In case of skin contact:</i>	Remove contaminated clothing, including shoes, and wash thoroughly the affected skin with water. Consult a physician if irritation persists. Wash contaminated clothing before reuse.
<i>If swallowed:</i>	DO NOT induce vomiting: give plenty of water to rinse the throat and dilute. Consult a physician if feeling unwell.
<i>If inhaled:</i>	Bring immediately to fresh air. In case of persistent dizziness or nausea, consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

<i>Symptoms and effects, both acute and delayed:</i>	In case of contact with eyes, may cause a burning sensation and red eyes. If swallowed, may cause heartburn and abdominal pain. No known symptoms and delayed effects.
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4.3. Indication of any immediate medical attention and special treatment needed

<i>Medical monitoring:</i>	To be made in the case of known delayed effects.
<i>Known antidotes:</i>	Sodium Thiosulfate , at a rate of 5 mL of a 1% solution for every 50 mL of anolyte ingested.
<i>Contraindications:</i>	None.
<i>Immediate specific treatment:</i>	In case of contact with eyes, rinse immediately with water. If swallowed, drink water. DO NOT give alcohol; possibly administer a 1% sodium thiosulfate solution (see above "known antidotes")

SECTION 5: FIRE-FIGHTING MEASURES

It does not apply, as the Ecas4 Anolyte is composed of water for more than 99% (non-combustible material).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Minimise the exposure to the product (see Section 8). In case of accidental contact, dilute with water.

6.2. Environmental precautions

The Ecas4 Anolyte is a biodegradable solution, with a limited shelf life, so there are no potential risks to the environment.

6.3. Methods and materials for containment and cleaning up

Collect the liquid with absorbent material (paper, sand, universal binder, sawdust). No special precautions are required for the disposal of the contaminated material.

6.4. Reference to other Sections

See also Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

NO special precautions required. In the area where the solution is produced, it is appropriate to ensure a good ventilation.

7.1. Precautions for safe handling

<i>Handling recommendations:</i>	For those with very sensitive skin, it may be advisable to wear gloves. Avoid contact with materials/substances incompatible. DO NOT use in combination with other products, especially acids; may release dangerous gases (chlorine).
<i>Occupational Health Recommendations:</i>	DO NOT eat, drink and smoke in work areas. Remove contaminated clothing before entering areas where you eat.

7.2. Conditions for safe storage, including any incompatibilities

The modalities of risk management reported in this Section depend on the classification that results from the properties listed in Section 9. The mixture is **NOT** classified for any chemical-physical properties and does not provide for any particular method of risk management.

<i>Recommendations for storage:</i>	The optimum effectiveness of the product can be extended by means of conservation to protect from light and in sealed containers, watertight, made of HDPE or opaque glass. Make sure that the container is properly labelled, and store preferably between 5 and 10 °C. DO NOT store together with acids or easily oxidisable material.
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7.3. Specific end use(s)

<i>Recommendation for end-use(s):</i>	Avoid direct eye contact and inhalation of vapours
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SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Avoid prolonged contact with skin. Use good personal hygiene practices. Neutral analytes have been extensively tested on animals, and do not constitute danger to the safety of operator or of the animals. The accumulation of vapours should be prevented, especially in environments with poor ventilation; mechanical suction may be appropriate in such situations.

8.1. Control parameters

Occupational Exposure Limits:	Reference is made to the ACGIH values ⁽¹⁾ reported for chlorine: TLV – TWA (Chlorine): 0,5 ppm / 1,5 mg/m ³ (ACGIH 2012) TLV – STEL (Chlorine): 1 ppm / 3 mg/m ³ (ACGIH 2012)
Environmental monitoring procedures:	The measurements of chemical agents in workplace atmospheres should be performed with standardised methods (e.g. UNI EN 689:1997 Workplace Atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy; UNI EN 482:2006 Workplace Atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) or, in their absence, with appropriate methods.

DNEL values (components):

Component	Route of exposure	Workers				Consumers			
		acute effects		chronic effects		acute effects		chronic effects	
		local	systemic	local	systemic	local	systemic	local	systemic
Sodium hypochlorite ⁽²⁾	Oral (mg/kg w.b./day) Dermal - % in mixture (weight basis) Inhalation (mg/m ³)	3.1	3.1	0.5% 1.55	1.55	3.1	3.1	0.5% 1.55	0.26 1.55

In accordance with Regulation (EEC) 793/93 on the evaluation and control of the risks of existing substances, the risk assessment has been carried out on *sodium hypochlorite*⁽³⁾; the following values are available:

AEL: 0,5 mg/kg weight body derived from the value of NOAL = 50 mg/kg weight body derived from a study with a 104-week administration in drinking water in rats (Hasegawa 1986) and the inclusion of a safety factor = 100.

ADI: 0,5 mg/kg weight body derived from the value of NOAL = 50 mg/kg weight body derived from a study with a 104-week administration in drinking water in rats (Hasegawa 1986) and the inclusion of a safety factor = 100.

PNEC values (components):

In accordance with Regulation (EEC) 793/93 on the evaluation and control of the risks of existing substances, the risk assessment has been carried out on *sodium hypochlorite*⁽⁴⁾; the following values are available:

PNEC aquatic = 2.1 µg FAC/L :50 = 0.042 µg FAC/L

PNEC sediments = 0.033 µg FAC/kg calculated on the aquatic PNEC using the equilibrium partitioning method in accordance with the technical guidelines.

PNEC terrestrial = 0.005 µg FAC/kg calculated on the aquatic PNEC using the equilibrium partitioning method in accordance with the technical guidelines.

8.2. Exposure controls

Under normal conditions of use, there is **NO** need to apply specific exposure control measures. Provide adequate ventilation in the place of use. In accordance with Regulation (EEC) 793/93 on the evaluation and control of the risks of existing substances, the risk assessment has been carried out on *sodium hypochlorite* and **NO** significant risks were identified in the scenarios of professional use developed under the Technical Guideline for human exposure.⁽⁴⁾

Eye/face protection	NO special protection required during normal use of the product; in case of manipulation of large quantities, wear eye protection.
Skin protection	NO special protection required during normal use of the product; in case of prolonged contact and manipulation of large quantities, wear protective gloves made of latex or rubber.
Respiratory protection	NO special protection required during normal use of the product; in case of handling of large quantities and in situations of inadequate ventilation in the production area, with consequent possibility of accumulation of vapours, wear suitable breathing equipment.
Environmental exposure controls	NO special precautions are required: at the concentration present in the mixture (≤ 0.05%), the active chlorine degrades very quickly in the environment in the presence of light and/or organic substances.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Homogeneous, clear, transparent liquid (like water)
Colour:	Colourless
Odour:	Very slight chlorine smell
pH:	7.0 ± 0.5
Melting point / freezing point:	about 0 °C
Initial boiling point and boiling range:	about 100 °C
Flash point:	not applicable
Evaporation rate:	no data available
Upper/lower flammability or explosive limits:	not applicable
Vapour pressure:	~ 17.5 hPa at 20 °C

Vapour density:	between 1,001 and 1,009
Relative density:	about 1.000 g/cm ³ at 25 °C
Water solubility:	Completely soluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	not applicable
Decomposition temperature:	no data available
Viscosity:	no data available
Explosive properties:	not explosive

9.2. Other safety information

No data available

SECTION 10: STABILITY AND REACTIVITY

The Ecas4 Anolyte is stable under normal ambient conditions of temperature and pressure. If properly stored (in sealed containers, watertight, made of HDPE or opaque glass, and preferably at temperatures between 5 and 10 °C), the mixture maintains its optimal (i.e., bactericidal activity) Oxidation-Reduction Potential (ORP) for a period up to 6 months.

10.1. Reactivity

Avoid contact with strong acids, amines, ammonia, ammonium salts, reducing agents and reactive metals.

10.2. Chemical stability

As a dilute aqueous solution, the Ecas4 Anolyte is stable under the normal conditions of temperature and pressure and in unopened containers stored in a cool, ventilated place.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid

The solution can degrade / decompose if stored improperly. **DO NOT** expose neither to direct sunlight and heat sources, nor to extreme low temperatures. **DO NOT** mix with other products. Avoid contact with acids and other reducing agents. Contact with acids may release toxic gases (chlorine gas).

10.5. Incompatible materials

Polyamide, low alloy steel, iron and reactive metals.

10.6. Hazardous decomposition products

Chlorine vapours; small amounts of trihalomethanes may be formed in the presence of organic substances.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of exposure:

Inhalation:

Ingestion:

Skin contact:

Eye contact:

	YES	NO
Inhalation:	X	
Ingestion:	X	
Skin contact:	X	
Eye contact:	X	

Symptoms and effects for each route of exposure:

<i>Inhalation:</i>	breathing in mists or aerosols may produce respiratory irritation
<i>Ingestion:</i>	large amounts may cause heartburn, nausea or abdominal pain
<i>Skin contact:</i>	contact with skin may result in irritation
<i>Eye contact:</i>	contact may cause a burning sensation and redness of the eye

Toxicokinetic effects (Absorption, Distribution, Metabolism, Excretion):

Sodium hypochlorite: The substance is absorbed by oral, dermal and inhalation. Peak plasma levels are reached within 2 hours after oral administration to the young animal. The elimination half-life is 44 hours. A study in rats indicates that it is metabolized into chloride ions, which are distributed, in descending order and within 96 hours after exposure, in plasma, total blood, bone marrow, testes, kidneys and lungs. Only 51.2% of the dose is excreted 96 hours after exposure, 36.4% in the urine and 14.8% in the faeces. After 120 hours, the elimination is not yet complete. ⁽⁵⁾

Toxicological information on hazardous components:

Acute toxicity:

<i>Oral:</i>	LD ₀ (rat) > 10.5 g/kg (3.6% active chlorine solution); LD ₅₀ (rat) > 5,000 mg/kg (12.5% active chlorine solution)	(4) Sodium hypochlorite
<i>Dermal:</i>	LD ₅₀ (rat) > 2,000 mg/kg (5.25% active chlorine solution); danger of sensitization	(4) Sodium hypochlorite
<i>Inhalation:</i>	LC ₀ > 10.5 mg/Lxh (commercial solution having an unspecified concentration)	(4) Sodium hypochlorite
<i>Further information</i>	The toxic effects in humans depend on the concentration of the solution. Ingestion of small quantities of the Ecas4 Anolyte may cause mild digestive disorders. The commercial sodium hypochlorite solutions, much more concentrated, can cause irritation of the digestive tract accompanied by vomiting sometimes haemorrhagic; They can also cause necrosis, perforation and complications accompanied by shock and haemolysis; regarding inhalation, they may cause pulmonary edema. Lowest published toxic dose (oral woman) = 1,000 mg/kg	(6) Sodium hypochlorite

Corrosion / irritation:

Sketches of concentrated *sodium hypochlorite* on the skin can cause severe burns. ⁽⁵⁾
Based on the overall evaluation of the data resulting from dermal irritation tests in animals and humans, the Ecas4 Anolyte, as well as commercial products containing <5% *sodium hypochlorite*, may cause mild irritation. ⁽⁴⁾

Serious eye damage / eye irritation

Based on the assessment of the available data, including those deriving from human exposure, there is a low risk of marked irritating effects due to accidental exposure to the Ecas4 Anolyte, as well as to commercial products containing <5% *sodium hypochlorite*. ⁽⁴⁾

Sensitization:

<i>Cutaneous:</i>	<i>Sodium hypochlorite</i> showed no sensitising power in three separate tests on guinea pigs or in standardised tests on volunteers (patch test). ⁽⁴⁾
<i>Respiratory:</i>	Not available

Specific target organ toxicity (STOT) - single exposure:

Sodium hypochlorite: aerosols may be irritating to the respiratory system. Exposure to aerosols of products containing <3% of active chlorine concentration does not cause any significant risk of irritation of the respiratory tract. ⁽⁴⁾

Specific target organ toxicity (STOT) - repeated exposure:

Sodium hypochlorite: prolonged use can cause dermatitis. ⁽⁵⁾ In the various studies performed with NaOCl administered orally, a reduction of body weight was observed but no systemic effect to target organs, and a NOAEL value of about 14 mg/kg body weight / day (based on the content of chlorine) was established for rats. The dermal exposure to concentrations of up to 10,000 mg/L of *sodium hypochlorite* did not cause systemic effects; a NOEL value of 1% was established for dermal exposure. For the assessment of the effects of exposure by repeated inhalation to *sodium hypochlorite* aerosols, see the data relating to chlorine: the NOAEL for the repeated exposure to chlorine gas is 0.5 ppm, as confirmed by studies of rhesus monkeys and on human volunteers. ^{(4) (7)}

CMR effects:

Mutagenicity: *Sodium hypochlorite* showed mutagenic activity in vitro. It increased the chromosomal aberrations in Chinese hamster cells but not on lymphocytes or human fibroblasts. In vivo, assays performed on mouse bone marrow were negative. ^{(4) (5)}

Carcinogenicity: *Sodium hypochlorite*: a study conducted with administration of sodium hypochlorite in drinking water to mice and rats showed no increase in tumour incidence. The dermal application in mice did not induce tumours. In a multi-generation study (6 generations) performed on rats, the administration of sodium hypochlorite in drinking water did not cause any increase in tumour incidence. ⁽⁴⁾ The *International Agency for Research on Cancer* (IARC) has placed the substance in Group 3 (not classifiable as a human carcinogen), based on the absence of human data and sufficient evidence of carcinogenicity in experimental animals. ⁽⁵⁾

Reproductive toxicity: *Sodium hypochlorite*: based on the limited data derived from studies in animals that received the *sodium hypochlorite* in the drinking water or from epidemiological studies on subjects who consumed chlorinated drinking water, the substance does not cause effects on fertility or on development. ⁽⁴⁾

Aspiration hazard: based on the typical uses of the mixture, no aspiration dangers are expected.

Reason for the failure to classify:

The mixture cannot be classified in a particular hazard class due to the lack of data, the availability of information / data inconclusive or insufficient for classification according to the criteria laid down in the regulations mentioned in this SDS.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

The Ecas4 Anolyte degrades slowly, generating a dilute salt solution. The product's active ingredients can be toxic to certain organisms (e.g. microorganisms). Given their low concentration in solution, it is unlikely that mammals or other warm-blooded organisms are affected as a result of an accidental contact with the product. Aquatic organisms, amphibians and reptiles may be more susceptible.

Toxicity to aquatic organisms (short-term effects and long-term effects):

Toxicity to fish: LC₅₀ fish = 5.9 mg/L - 96 h

Toxicity to *Daphnia Magna*: CE₅₀ *Daphnia* > 1 mg/L tested on a mixture containing sodium hypochlorite at 5% (immobilization test of *Daphnia*, in accordance with OECD 202).

Toxicity to algae: The standard acute toxicity tests of *sodium hypochlorite* for algae are not considered technically feasible. ⁽³⁾

12.2. Bioaccumulative potential

Information related to *sodium hypochlorite* ⁽⁸⁾

Persistence in atmospheric compartment is considered irrelevant. At environmental pHs (~7.5), 50% of the active chlorine is present as hypochlorous acid, and the hypochlorite anion is the remaining 50%. Only the hypochlorous acid portion is volatile. The Henry's constant measured for the hypochlorous acid is equal to 0.0097 Pa m³ mol⁻¹; it indicates that the concentration in air is very low. Therefore, the atmospheric compartment does not represent a significant exposure route.

Persistence in soil is deemed very low (Koc coefficient calculated with QSAR = 12:57)

The **persistence in the aquatic compartment** is poor, given the rapid degradation of the substance; hypochlorites degrade very quickly (about 300 seconds) in the presence of organic matter. ⁽⁸⁾

Photo-oxidation, photolysis: *sodium hypochlorite* is sensitive to light; the half-life of a solution at 10-15% of free chlorine is reduced by 3-4 times by the effect of sunlight.

Degradability: not applicable - *sodium hypochlorite* is a completely biodegradable inorganic substance.

Degradation of metabolites: not relevant, *sodium hypochlorite* is reduced to chloride.

12.3. Persistence and degradability

There is no bioaccumulation. The partition coefficient of *sodium hypochlorite* is 0.87 at pH 7.

12.4. Mobility in soil

Active chlorine mixtures are soluble in water; therefore, they may be mobile in the soil. Given the low active chlorine content present in the Ecas4 Anolyte, the mixture is expected to be readily degraded in contact with the environment.

12.5. Results of PBT and vPvB assessment

Based on the information obtained from a bibliographic research on sodium hypochlorite, the substance does not meet the PBT and vPvB criteria. It is not persistent, nor bioaccumulative. ⁽⁹⁾

12.6. Other adverse effects

No other adverse effects are expected.

SECTION 13: DISPOSAL CONSIDERATIONS

NO special precautions required. Dilution with water can be taken into account. Where permitted, the solution may be disposed of into the sewer system without negative effects. The oxidising activity of the product can be neutralised by adding a surplus of organic material.

Dispose of containers and unused product in accordance with regulations.

13.1. Waste treatment methods

	Incineration	Recycling	Landfilling
Substance wastes:	X		
Contaminated packaging	X	X	

Refer to the Community / National / Local provisions for waste disposal.

SECTION 14: TRANSPORT INFORMATION

The mixture does not fall within the scope of the transport legislation (**NON-DANGEROUS GOODS**).

The product is normally produced and consumed locally (on-site), and is classified as **non**-hazardous.

We recommend the use of dark containers, in order to protect the product from light.

SECTION 15: REGULATORY INFORMATION

Below is some information on the regulations for the mixture that have not been already provided in the safety data sheet.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, and subsequent amendments and national implementations.
- Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment, and subsequent amendments and national implementations.
- Council Directive 98/24/EEC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

15.2. Chemical Safety Assessment

Specific provisions for the product: refer to Sections 1, 2, 3 and 4.

The hypochlorous acid contained in the product is an EPA registered biocide: chemical substance with code 129054.

In accordance with Regulation (EEC) 793/93 on the evaluation and control of the risks of existing substances, the risk assessment has been carried out on sodium hypochlorite and **NO** significant risks were identified in the scenarios of professional use developed under the Technical Guideline for human exposure. ⁽⁴⁾

SECTION 16: OTHER INFORMATION

The Ecas4 Anolyte is an alternative, clean and environmentally friendly disinfectant that can be used for the sanitation of water and of hot and cold water networks, as well as for cleaning and disinfecting most surfaces, both inside and outside. The information contained herein is based on data (current state of knowledge and experience) considered accurate at the time of publication and are provided for free.

The document is intended to describe the product only to health and safety requirements. Therefore, it shall not be interpreted as a guarantee of any specific quality for the product; these qualities depend on the conditions of the test or sale contract.

It is the user's responsibility to safely use the product, checking its suitability, and to proceed to a proper disposal.

NO DECLARATIONS OR WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY, OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO THIS INFORMATION AND TO THE PRODUCT TO WHICH THIS INFORMATION REFERS.

The information contained in this SDS are in accordance with the provisions of Regulation (EC) No. 1907/2006 and subsequent amendments.

Bibliographic references

- (1) ACGIH 2012, TLVs and BEIs based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological exposure Indices
- (2) Sodium hypochlorite, ECHA Database
- (3) A.I.S.E, Environmental classification of sodium hypochlorite containing bleach products
- (4) European Union Risk Assessment Report, Sodium Hypochlorite, Final report, November 2007
- (5) <http://modellisds.iss.it/bitstream/123456789/1260/1/127.pdf>, Safety Data Sheet in accordance with Annex II of Regulation 1907/2006 (REACH), Sodium hypochlorite, solution ...%
- (6) NIOSH The Registry of Toxic Effects of Chemical Substances, RTECS:NH3486300, Hypochlorous acid, sodium salt
- (7) GESTIS Substance database, Sodium hypochlorite, solution ... percent Cl active, ZVG No: 1410
- (8) Evaluation Report on Sodium Hypochlorite (CAS 7681-52-9) for inclusion of the Active Substance in Annex I to Directive 98/8/EC – Draft March 2010
- (9) Eurochlor registration group, Sodium Hypochlorite, Final Assessment 2007

Abbreviations and acronyms

- ACGIH: American Conference of Governmental Industrial Hygienists
- ADI: Admissible Daily Intake
- AEL: Admissible Exposure Level
- CAS: Chemical Abstract Service (division of the American Chemical Society)
- CMR: substances classified as Carcinogenic, Mutagenic, or toxic for Reproduction
- LC₀: concentration determining the death of the 0% of individuals in acute toxicity tests for environmental exposure
- LD₀: Dose that does not cause any mortality of the population
- LD₅₀: median lethal dose causing death in 50% of individuals in the essay
- DNEL: Derived Non Effect Level
- EINECS: European Inventory of Existing Commercial Chemical Substances
- EPA: US Environmental Protection Agency
- FAC: Free Available Chlorine
- IARC: International Agency for Research on Cancer
- NOAEL: No Observed Adverse Effect Level
- NOAL: No Observed Adverse Level
- PBT: Persistent, Bioaccumulative and Toxic
- PNEC: Predicted Non Effective Concentration
- TLV-STEL: Threshold Limit Value - Short Term Exposure Limit (15 minutes)
- TLV-TWA: Threshold Limit Value - Time Weight Average, weighted average concentration over time, on a conventional eight-hour workday and a 40-hour working week
- vPvB: very Persistent and very Bioaccumulative

Information relating to health, safety, and environmental protection in accordance with Regulation (EC) No 1272/2008 on hazardous components:

Full text of H-Statements referred to under Section 2:

- EUH031 Contact with acids liberates toxic gas
H290 May be corrosive to metals

Classification and procedure used for its derivation in accordance with Regulation (EC) 1272/2008 (CLP), in relation to mixtures:

Classification in accordance with Regulation (EC) No. 1272/2008:	Classification procedure:
Not classified	

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Date of preparation: August 2011	Date of revision: March 2020 (revision 3)
Date of revision: April 2015 (revision 1)	
Date of revision: February 2016 (revision 2)	