

# Product Safety Data Sheet

Reference No. 085505-9

## 1. Product and company information

Name of chemical substance (product name): Sodium hypochlorite

Sodium hypochlorite conversion. Available chlorine concentration 0.0103%, 103g/L

Company name: ACUA Co. LTD

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Purpose of use: Microbicide

Preparation or revision October 18, 2010

## 2. Summary of danger and harmfulness

### GHS classification

PHYSical&chemical hazard	Metal corroding substance	outside classification
	Others are classified at this point in time as "not subject to classification", "cannot be classified" or "outside classification"	
Harmful to health	Skin damage&irritation	Cannot be classified
	Serious chemical burns & injury to eyes	Cannot be classified
	Specific targeted organ & whole body toxicity	Cannot be classified
	Others are classified at this point in time as "not subject to classification" "cannot be classified" or "outside classification"	
Harm to the environment	Aquatic environment, acutely harmful	Slightly
	Aquatic environment, chronically harmful	Slightly
Labeled ingredients	Not defined	
Caution evoking wordings	Not defined	
Information about danger and harmfulness	Toxic to aquatic life	
	Slightly toxic to aquatic life due to the long-term effects	
Cautionary instructions	[Safety measures]	
	Keep the container tightly sealed	
	Do not discard into Rivers or the ocean	
	[Emergency treatment]	
	Rinse with water if substance enters the eyes	
	[Storage]	
	Keep the container tightly sealed	
	[Disposal]	
	Dilute ten times and discard into the sewage system	

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### 3. Composition and constituent information

#### Chemical substance

Sodium hypochlorite (water solution, concentration of 0.0103% ± 0.0003)

Chemical formula Sodium hypochlorite, NaOCl CAS No. 7681-52-9 Molecular weight 74.44

Official gazette notification reference number None.

Dangerous and harmful constituent Dilute Sodium hypochlorite.

### 4. Emergency treatment

If substance has entered the eyes:

Rinse away with water.

Contact with the skin:

Nothing in particular.

Inhaled:

Nothing in particular.

Ingested:

Drink water.

Anticipated acute symptoms and delayed symptoms:

Inhalation None.

Skin None.

Eyes Slight irritation.

Oral ingestion None.

Most critical symptoms:

None.

### 5. Treatment in case of fire

Fire extinguishing agent

This product is incombustible

Fire extinguishing agents that may not be used

Unknown.

Fire extinguishing method

Not specified almost all this product is water.

Protection for person extinguishing fire

Not specified.

Particular danger and harmfulness

None.

### 6. Treatment in case of leakage

Precautions for the human body, protective gear and emergency measures:

Dilute with water

Precautions for the environment

Ensure that it is not discharged into rivers nor enters the environment.

Rinse away with water.

Collect and rinse away with neutral water.

Method and equipment for containment and decontamination

Stop leaks.

Rinse away with water.

Small amount of leakage: Dilute with water, ensuring precautions are implemented to prevent  
Entry into rivers or the ocean.

Preventative measures for secondary disasters

Nothing in particular.

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### 7. Precautions for handling storing

Precautions for handling:

Technical measures:

Not specified.

Precautions for storing

Keep container hermetically sealed and store it in a place away from direct sunlight.

Local ventilation and overall ventilation

Not specified.

Safe handling procedures

Do not inhale or ingest.

Contact avoidance Not specified.

Storage

Technical measures Not specified.

Contact dangerous substance

Nothing in particular

Storage conditions Keep the container sealed, avoid direct sunlight and store in a cool, dark location.

The product gradually loses available chlorine in light, heat and in contact with air (carbon dioxide).

Store the product in a light-tight container.

Store in a container made of synthetic resin.

### 8. Exposure prevention and protective measures

Standard control concentration Not established.

Permissible concentration Not established. Japan Society Occupational Health (2007 edition), ACGIH (2007 edition).

Facility measures Not established.

Protective gear Not established.

### 9. Physical and chemical characteristics

Extremal appearance and shape Colorless, clear liquid.

Odor Odorless

Density (specific gravity) 1.0

PH 9.5-10.5

Flash point incombustible.

Ignition point incombustible.

Range of explosion No data available.

Vapor pressure No data available.

Spontaneous ignition temperature

Incombustible.

Decomposition temperature No data available.

Evaporating temperature No data available.

Combustion characteristics No data available.

Viscosity No data available.

### 10. Stability and reactivity

Stability Stable at room temperature.

Easily decomposes when dissolved in hot water, 60°C or above.

Dangerous and harmful reaction potential

None.

Conditions to be avoided: Sunlight and heat.

Dangerous substance to mix Decomposed by acid.

Dangerous and harmful decomposition products:

None.

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## 11. Harmfulness information

Acute toxicity	<p>Oral ingestion, rat LD50=8910mg/kg (Patty, 2001), &gt;5000mg/kg (INCLID, 2000) all outside classification.</p> <p>Outside classification of percutaneous ingestion, rabbit LD50&gt;1000mg/kg (IUCHD, 2000).</p> <p>Inhalation (vapor), rat LC50&gt;10.5mg/l (IUCLID, 2000) data is available, however, it cannot be used for Classification since the exposure time is unknown.</p> <p>Inhalation (mist), no data available.</p>
Skin damage & irritation	<p>Test (OECDTG404) using rabbits resulted in an irritation (total 8 points) with erythema and edema, but considered outside the classification since a 2% solution is classified as 1 and 2.</p> <p>Serious chemical burns &amp; injuries to skin, outside classification.</p>
Serious injury and irritation to the eyes	<p>Test (OECDTG404) involving rabbits resulted in an irritation score (total 8 points) with Erythema and edema, but considered outside the classification, although a 2% solution is classified as 1 and 2.</p> <p>No serious injury to the eyes.</p>
Respiratory tract sensitivity	<p>No information available.</p>
Skin sensitivity	<p>Skin sensitivity test using guinea pigs indicated sensitivity, in part, but the majority Results were negative (IUCLID 2000) and considered unclassifiable.</p>
Generative cell mutagenicity	<p>A chromosomal aberration test using the mouse marrow cells and an aneuploidy test (IARC 1991) was negative. A micronucleus test in rats was also negative. Based on these results (IUCID 2000) it was therefore considered outside the classification.</p>
Carcinogenicity	<p>Considered outside the classification, since IARC has been classified as Group 3. No significant difference from the control group was recognized in terms of the survival Rate and tumor genesis rate, regardless of the concentration of Sodium hypochlorite. Results were obtained from the oral administration test (drinking) (IARC 1991) in rats.</p> <p>Which was conducted over a 104 week period and an oral administration test (drinking) in Mice over a 103 week period (IUCLID 2000).</p>
Reproductive toxicity	<p>No impact on the reproductive capacities of the parent animals, nor any effects on the Fetuses was seen from a seven generation breeding test with oral administration in rats (IARC 1991) therefore it was considered outside the classification.</p>
Specific targeted organ & whole body toxicity (one time exposure)	<p>Although records indicate that a fit of coughing occasionally occurs when mist is inhaled.</p> <p>Suggesting the possibility of triggering an irritation of the respiratory tract (HSDB 2003).</p> <p>It was considered outside the classification.</p> <p>Time threat of irritation of the respiratory tract is minimal.</p>
Specific targeted organ & whole body toxicity (repeated exposure)	<p>Although oral administration tests in rats and mice have been performed and because no Descriptions other than a slight change in the immunological parameters occurred (IUCLID 2000) (RTECS 2008), it was considered outside the classification.</p>
Harm to the respiratory tract by inspiration	<p>No information available.</p>

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## 12. Environmental sanitation information

## Acute harm to the aquatic environment

The reading of 24h-EC50=0.005mg/L (chlorine concentration EU RAR-2006) was found for crustacean (a variety of ceriodaphnia comuta) and therefore it was placed in Class 1. Strong toxicity for aquatic life (Classification 1)

## Chronic harm to the aquatic environment

This was regarded as Classification 1, because acute toxicity falls into this class and This organic substance is not believed to decompose rapidly.

Strong toxicity for aquatic life through long-term effects (Classification 1)

Residual and degradation property Residues remain, although these decompose by reaction with organic substances.

Mobility in soil: No information available.

Accumulation in living organisms:

No information available.

## 13. Precautions for disposal

Dilute ten times or more and discharge into sewage system.

Reducing agents, such as sodium sulfite, must be used for processing and then thorough

Dilution with water should be done before disposal. The substance has a detrimental

Impact on fish and shellfish.

Contaminated containers and packaging.

Clean and recycle containers.

The contents must be completely removed before disposing of empty containers.

## 14. Precautions for transportation

## International regulations

## Maritime regulatory information

No information available.

UN No.

None.

Proper shipping name

Hypochlorite solution

Class

Outside classification

Packing group

outside classification

Marine pollutant

Not applicable.

## Aviation regulatory information

Abiding by regulations of ICAO/IATA

UN No.

None.

Proper shipping name

Hypochlorite solution

Class

Unknown.

Packing group

Unknown.

## Domestic regulations

Overland regulatory information

Not applicable.

Maritime regulatory information

Not applicable.

UN No.

None.

Description

Diluted sodium hypochlorite (water solution)

Class

Unknown.

Container class

Unknown.

Marine contaminant

Impacts aquatic life.

Aviation regulatory information

Chlorine solutions may not be loaded.

UN No.

None.

Description

Diluted hypochlorite.

Class

None.

Grade

None.

Special safety measures

Not specified.

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## 15. Applicable laws

Industrial Safety and Health Law	Inapplicable.
Law concerning Pollutant Release and Transfer Register (PRTR)	Inapplicable.
Poisonous and Harmful Substances Control Law	Inapplicable.
Fire Defense Law	Inapplicable.
Marine Pollution Prevention Law	Substances that impact aquatic life.
Law for Safety of Vessels	Inapplicable.
Aviation Law	Slightly corrosive substance

## 16. Other information

## Reference documents

Application	Microbicide and fungicide.
Characteristics of stable sodium hypochlorite	Effective against Escherichia coli, Pseudomonas aeruginosa, Staphylococcus, Salmonella, etc. Also effective against influenza viruses. Provides superior deodorizing characteristics for per excrement. Much less chlorine odor in comparison with common sodium hypochlorite. Almost no corrosion of metals (excluding aluminum) Provides superior deodorizing capacity.
Measuring method for available chlorine	Amperometric analysis when available chlorine reacts with potassium iodide. The potassium iodide oxidizes and releases iodine. This released iodine is then Titrated with a reducing agent. When the electrode of an amperometric titration Apparatus is immersed in the test water that contains available chlorine (residual Chlorine), a direct current flows if the water contains released iodine. As a Reducing agent is added to the test water, the current flow gradually drops and The end point of the titration is reached when no further reduction is seen. The concentration of available chlorine (residual chlorine) is calculated from The amount of reducing agent required for the titration. It is possible to minimize measurement errors by adding a soluble starch, which, In the presence of iodine, turns the water dark blue or black. The solution becomes Clear just before the endpoint is reached.

## References

Handbook of Dangerous and Harmful Chemical Substances	Edited by Japan Industrial Safety and health Association (JISHA)
Encyclopedic Dictionary of Chemistry	Kyodo Shuppan joint publishers
Material Safety Data Book	Ohmsha
Law concerning Pollutant Release and Transfer Register (PRTR) and Material Safety Data Sheet (MSDS) Applicable Substances	The Chemical Daily
Industrial Safety and Health Law	The Chemical Daily
Registry of Toxic Effects of Chemical Substances	NIOSH
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Classification Results Database	National Institute of Technology and Evaluation Website
MSDS information of GHS Models	Japan Advanced information Center For Safety and Health Website
Showa Chemical industry Co., Ltd	Sodium hypochlorite MSDS Website
Material Safety Data Sheet (MSDS) for compound materials (Product Safety Data Sheet)	
Related Laws and Regulations	

## #Note

In order to ensure proper handling, a Product Safety Data Sheet is provided as reference information to businesses that handle dangerous and harmful chemical products. Those handling such products are requested to utilize these sheets as references only. They must take the responsibility for the implementation of measures appropriate for the individual products and the actual conditions under which they are handled. These sheets are not safety guarantees.