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# SODIUM HYPOCHLORITE

<table>
<thead>
<tr>
<th>S No.</th>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Technical Name</td>
<td>Sodium Hypochlorite</td>
</tr>
<tr>
<td>2.</td>
<td>Chemical Formula</td>
<td>NaOCl</td>
</tr>
<tr>
<td>3.</td>
<td>Formation</td>
<td>Sodium Hypochlorite</td>
</tr>
<tr>
<td>4.</td>
<td>CAS Registry No.</td>
<td>7681-52-9</td>
</tr>
<tr>
<td>5.</td>
<td>HSN</td>
<td>2828</td>
</tr>
</tbody>
</table>
PRODUCT DESCRIPTION

<table>
<thead>
<tr>
<th>S No.</th>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Density (at 30° C) Min</td>
<td>1.200</td>
</tr>
<tr>
<td>2.</td>
<td>Available Chlorine as Cl(% M/V)</td>
<td>12.5 % to 15 %</td>
</tr>
<tr>
<td>3.</td>
<td>Free alkali as NaOH</td>
<td>15.0 to 30.0 g/L</td>
</tr>
</tbody>
</table>

**Technology**

Sodium Hypo Chlorite is manufactured by UHDE, Germany Technology

**Exclusive Features**

- Mercury free
- Strong Oxidizing and bleaching agent.

**Caution**

Chlorine gas is liberated at elevated temperature or if acidified.

**Packing**

In M.S.R.L. Tankers
Applications

- Bleaching agent in Paper and Textile Industry
- Disinfecting agent
- Food processing
- Manufacturing of Hydrazine
- Oxidizing agent
- Pharmaceutical Industry
- Sweating in Oil Refineries
- Waste water treatment

Advantages

- The A.S. Ltd., guarantees minimum specifications required by customers.
- Quality Control Lab is equipped with most modern instruments to analyze the product parameters.
MATERIAL SAFETY DATA

Material Identification

1. Technical Name | Sodium Hypochlorite
2. Chemical Formula | NaOCl
3. CAS Registry No. | 7681-52-9
5. Synonyms | Clorox Liquid Bleach
6. Chemical Classification | Inorganic Chemical, Salts of Hypochlorous acid
7. UN 'No | 1791
8. Hazard Class | CORROSIVE-8
9. Hazardous Waste Id no. | 16

Product Use

Used in Pulp paper, pharmaceuticals industries, manufacture of hydrazine, sanitation chemicals, dyes and water disinfectants.

Hazardous Ingredients

<table>
<thead>
<tr>
<th>Hazardous Ingredient</th>
<th>Chlorine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration</td>
<td>15%</td>
</tr>
<tr>
<td>LD50</td>
<td>-</td>
</tr>
<tr>
<td>LD50</td>
<td>-</td>
</tr>
<tr>
<td>CAS/UN no.</td>
<td>7782-50-5/1017</td>
</tr>
</tbody>
</table>
## Physical and Chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Greenish to Yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>Bleaching liquid odour</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Mixable</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>74.45</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.06 at 20 °C</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>-</td>
</tr>
<tr>
<td>Vapour density</td>
<td>-</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>-</td>
</tr>
<tr>
<td>Melting Point</td>
<td>-</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Decompose</td>
</tr>
<tr>
<td>pH</td>
<td>14</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
</tr>
</tbody>
</table>

## Fire/Explosion Hazard Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>NON- FLAMMABLE</td>
</tr>
<tr>
<td>Auto Ignition temperature</td>
<td>-</td>
</tr>
<tr>
<td>Sensitivity to chemical impact</td>
<td>None</td>
</tr>
<tr>
<td>TDG Flammability</td>
<td>-</td>
</tr>
<tr>
<td>Explosive range</td>
<td>-</td>
</tr>
<tr>
<td>Flash Points</td>
<td>-</td>
</tr>
<tr>
<td>Hazardous Combustion Products</td>
<td>-</td>
</tr>
<tr>
<td>Sensitivity to static discharge</td>
<td>None</td>
</tr>
</tbody>
</table>
**Reactivity Data**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemical Stability</strong></td>
<td>UNSTABLE</td>
</tr>
<tr>
<td><strong>Reactivity</strong></td>
<td>Powerful oxidizer particularly at high temperatures</td>
</tr>
<tr>
<td><strong>Incompatibility</strong></td>
<td>Heat, steams, acids, reducing agents</td>
</tr>
<tr>
<td><strong>Dangerous reaction product</strong></td>
<td>Chlorine derivatives</td>
</tr>
</tbody>
</table>
The Andhra Sugars Limited

ISO CERTIFICATES

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

The Andhra Sugars Limited (Chemicals & Fertilisers Division)
Saggonda - 534 318, Gopalapuram Mandal, West Godavari District, Andhra Pradesh, India

has been found to conform to the Environmental Management System standard:

ISO 14001:2004

This certificate is valid for the following scope:

Manufacture and sales of caustic soda lye / flakes, liquid chlorine, hydrochloric acid, sodium hypochlorite, hydrogen gas, polyaluminium chloride & sulphuric acid;

Testing chlorine and hydrogen cylinders

Place and date:
Chennai, 23, April, 2015

For the issuing office
DNV-GL - Business Assurance
RDIA, Vandalur Road, Chennai - 600 063, India

The Andhra Sugars Limited

The RevA is a signatory to the IAF MLA

Shyam Prasad
Management Representative

The Andhra Sugars: Sodium Hypochlorite
Page 8
MANAGEMENT SYSTEM CERTIFICATE

Initial certification date: 08, May, 2012
Valid: 08, May, 2015 - 07, May, 2018

This is to certify that the management system of

The Andhra Sugars Limited
(Chemicals & Fertilisers Division)
Saggonda - 534 318, Gopalapuram Mandal, West Godavari District, Andhra Pradesh, India

has been found to conform to the Occupational Health and Safety Management System standard:
OHSAS 18001:2007

This certificate is valid for the following scope:
Manufacture and sales of caustic soda lye / flakes, liquid chlorine, hydrochloric acid, sodium hypochlorite, hydrogen gas, polyaluminium chloride & sulphuric acid;
Testing chlorine and hydrogen cylinders

Place and date:
Chennai, 23, April, 2018

For the issuing office:
DNV GL – Business Assurance
RDMA, No. 16, GST Road, Alandur,
Chennai, Pen - 600 016, India

Sri Pradeep Madhyastha
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACREDITED UNIT: DNV GL Business Assurance India Private Limited, RDMA, No. 10, GST Road, Alandur, Chennai, Pen - 600 016, India.
This is to certify that the management system of

The Andhra Sugars Limited (Chemicals & Fertilisers Division)
Sagonda - 534 318, Gopalapuram Mandal, West Godavari District, Andhra Pradesh, India

has been found to conform to the Quality Management System standard:

ISO 9001:2008

This certificate is valid for the following scope:

Manufacture and sales of caustic soda lye / flakes, liquid chlorine, hydrochloric acid, sodium hypochlorite, hydrogen gas, polyanaluminium chloride & sulphuric acid;
Testing chlorine and hydrogen cylinders

Place and date:
Chennai, 23, April, 2015

For the issuing office:
DNV GL – Business Assurance
RDMA, No. 30, GST Road, Alandur, Chennai, PIN - 600 016, India

Iaf

Sivadasan Mediyantha
Management Representative
The Andhra Sugars Limited.

BIS CERTIFICATES

BUREAU OF INDIAN STANDARDS
Under the Ministry of Consumer Affairs,
Food and Public Distribution, GOVT. OF INDIA
Website: www.bis.gov.in, E-mail: vbo@bis.gov.in, Fax: 0681-2712837,
Phones: 0681-2712831, 0681-271234

REGISTERED

Our Ref: MDV/823/L-4766179

Sub: RENEWAL OF CERTIFICATION MARKS LICENCE REVISED MARKING FEE CM/L NO.4766179 as per IS 11673:1992.

M/s The Andhra Sugars Limited,
Chemicals & Fertilisers Division
Kovvur,
Distt: West Godavari
Andhra Pradesh-534 350

Dear Sirs,

This is with reference to your application for renewal of licence mentioned above. We are glad to inform you that the Competent Authority of this Bureau has renewed the above said licence from 01-09-2017 to 31-08-2018.

It may please be noted that your licence shall expire at the end of the above mentioned period. You are, therefore, requested to send your application for its renewal at least two months before the expiry of the licence.

Endorsement No.03 regarding renewal of your licence and revised marking fee is enclosed. You are advised to attach it securely with the licence.

Thanking You,

Yours faithfully,

(Asish Vasant Rao Urewar)
Scientist ‘B’

Encl: As above
<table>
<thead>
<tr>
<th>CM/L No. 4766179</th>
<th>Name of the Licensee with Address: M/s The Andhra Sugars Limited, Chemicals &amp; Fertilisers Division, Kovur, Distt: West Godavari, Andhra Pradesh-534 350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the Product: Sodium Hypochlorite Solution Grade-1 &amp; Grade-2</td>
<td></td>
</tr>
<tr>
<td>IS No. &amp; Year: IS 11673 : 1992</td>
<td></td>
</tr>
</tbody>
</table>

**ENDORSEMENT NO : 03 DATED 18/7/17**

Renewed for a further period of One Year from First September Two Thousand Seventeen to Thirty First August Two Thousand Eighteen.

Consequent upon the revision of rate of marking fee, column (3) of the Second Schedule of the licence has been revised as under with effect from 20.12.2016.

Rs.15.00 per unit for all units (Unit = 1 K L)

With the minimum marking fee of Rs. 63000.00 during an operative period of twelve months.

Other terms and conditions of Licence remain the same.

(J A SIDDQUI)
Se ‘F’ & HEAD
BUREAU OF INDIAN STANDARDS
VISAKHAPATNAM BRANCH OFFICE
ANALYSIS PROCEDURE

SODIUM HYPO CHLORITE SOLUTION

(1) Determination of Available Chlorine: - Dissolve 2 to 3 gr. of Potassium Iodide Crystals in 50 ml of water in a 250 ml conical flask. Add 10 ml of Acetic Acid, then pipette out the aliquot of sample into the solution, keeping the tip of the pipette beneath the surface of the solution until drained. Titr at once with 0.1 N standard sodium thiosulphate solution until the iodine colour is nearly gone, then add 1 ml of starch indicator solution and complete the titration to the disappearance of the blue colour.

(a) Available Chlorine (as Cl) = A N X 3.546
Percent mass by Volume V
(b) Sodium Hypochlorite (as NaOCl) = A N X 3.722
Percent mass by Volume V
A: Volume in ml of standard sodium Thiosulphate Solution required for titration of the sample.
N: Normality of the standard sodium Thiosulphate solution
V: Volume in ml of original sample in aliquot used.

(2) Determination of Free Alkali: - Place 50 ml of 10% Barium Chlorine solution and 30 ml of 3% Hydrogen peroxide solution in a 250 ml conical flask add 10 drops of phenolphthalein indicator solution and neutralize with Caustic Soda solution. Introduce into this neutral mixture 10 ml of the sample, shake or stir vigorously for 1 minute, and titrate with 0.1 N Hydrochloric Acid until the pink colour disappears.
Free Alkali (as NaOH) g/L = (V1N X 40)/ V

V1 = Volume in ml of standard hydrochloric acid solution required for titration of sample
N = Normality of standard Hydrochloric Acid.
V = Volume in ml of sample solution

(3) Determination of Sodium Chlorate: - Pipette out an aliquot of the sample (same amount as used for available chlorine determination) into a 250 ml stoppered conical flask add. 20 ml of 10% potassium bromide solution followed by 80 ml of concentrated Hydrochloric Acid. Stopper the conical flask and shake well. Allow to stand for 10 minutes. Add 20 ml of 10% Potassium Iodide solution and titrate the liberated iodine against 0.1 n Sodium Thiosulphate solution using a few drops of starch indicator solution.

Run a blank with all the reagents except the sample by producing in the same manner as that of the test.

Sodium Chlorate (as NaClO3 ) = ((V2-V1-A) X N X 17.75)/V

V2 = Volume in ml of Sodium Thiosulphate solution used for the test.
V1 = Volume in ml of Sodium Thiosulphate solution used for the blank.
A = Volume in ml of Sodium Thiosulphate solution used in available chlorine test.
N = Normality of the Sodium Thiosulphate Solution
V = Volume in ml of original sample solution in aliquot used
(4) **Determination of Iron**: Weigh 50 grams of the sample and evaporate it almost to dryness. Dilute it to 30 ml, add about 30 mg of ammonium persulphate and 15 ml of butanolic potassium thiocyanate solution. Make up to 50 ml, shake vigorously for about 30 seconds and allow the layers to separate. Carry out a control test in another Nessler cylinder using standard Iron solution. Compare the intensity of the colour produced in the butanol layers in the two cylinders.

Iron ppm = \((V \times 0.1 \times 1000)/50 = 2 \times V\)

\(V = \) Volume of 0.1 mg per ml standard Iron solution required for the colour comparison of sample.
The Andhra Sugars Limited.