



## **PROJECT PROFILE ON SODIUM HYPOCHLORITE (SANITIZER)**

<b>Product Name</b>	<b>SODIUM HYPOCHLORITE</b>
<b>Product Standard-</b>	<b>IS-11673-1992</b>
<b>Production Capacity Per Annum</b>	<b>1200 K.L.</b>
<b>Value (In Rs Per Annum)</b>	<b>Rs 252 lakhs</b>
<b>Month &amp; Year of Preparation</b>	<b>June-2020</b>
<b>Prepared By</b>	<b>Sunil Kumar Asstt. Director ( Chem) Govt of India, Mimistry of MSME MSME- Development Institute 11-A, IDC, Kunjpura Road, Karnal Phone -0184-2208100 <i>Email-dcdi-karnal@dcmsme.gov.in</i></b>

## 1. INTRODUCTION :

- The WHO recommends home made bleach solutions of low concentration to clean hard surfaces to clear them of any presence of the novel corona virus. Cleaning hard surfaces with this solution can disinfect them not just from novel corona virus but also help prevent flu, food born illnesses, and more. Hypo chlorites are chemical compounds containing the chlorate (I) anion(  $[OCl]^-$  ). It is a greenish – yellowish liquid commonly referred to as “Bleach”. Sodium Hypochlorite (NaOCl) is a compound that can be effectively used for surface purification, water disinfectants ( Disinfectants are microbial agents that are applied to nonliving objects to destroy microorganisms, the process of hich is known as disinfection), bleaching, odour removal etc. It has a relative density of 1.1 [ 5.5% water solution]. It is unstable and Chlorine evaporates. It is strong oxidizer and reacts with flammable compounds however it's solution is a weak base that is inflammable. As per guidelines of MHA and WHO the use of Sodium hypochlorite for sanitation is as under-

1. All indoor areas such as entrance lobbies, corridors and staircases, escalators, elevators, security guard booths, office rooms, meeting rooms, cafeteria should be mopped with a disinfectant with 1% sodium hypochlorite or phenolic disinfectants.
2. High contact surfaces such elevator buttons, handrails / handles and call buttons, escalator handrails, public counters, intercom systems, equipment like telephone, printers/scanners, and other office machines should be cleaned twice daily by mopping with a linen/absorbable cloth soaked in 1% sodium hypochlorite. Frequently touched areas like table tops, chair handles, pens, diary files, keyboards, mouse, mouse pad, tea/coffee dispensing machines etc. should specially be cleaned.
3. In a meeting/conference/office room, if someone is coughing, without following respiratory etiquettes or mask, the areas around his/her seat should be vacated and cleaned with 1% sodium hypochlorite.

## 2. MARKET POTENTIAL:

In present situation due to covid-19 pandemic the use and demand of Sodium hypochlorite is increasing day by day as the 1% solution of product is being used in large scale to sanitize the objects of various commodities to contain coronavirus , apart from sanitization purpose the product may also use for following applications in general -

- It is the main ingredient in laundry bleach. It is used extensively as a bleaching agent in the textiles, detergents paper & pulp industries.
- It is used as disinfectant in water and waste water treatment plants and sanitary equipments.
- State Government, Corporations, Nagar Parishad etc. are the major customers of the product to use it as disinfectant in water.
- It is applied in swimming pools for water disinfection.
- In Food Processing Industry , it is used to sanitize food preparation equipments.

In petrochemical industry, it is used in petroleum products refining. Therefore , in the era of Covid-19 pandemic the demand of product is every family, Central govt organization and state Govt bodies, CPSUs are the big buyers of the product.

- The following table shows some of the varying strengths of the product and how the variations are typically used :

### **3. IMPLEMENTATION SCHEDULE :**

Project Implementation will take approx four to six month from the date of approval of scheme, However breakup of activities are given as under. More than one activities can be run simultaneously-

<b>S.No</b>	<b>Name of the Activity</b>	<b>Proposed Time</b>
1.	Market Survey and preparation of Project Profile	One Month
2.	MSME registration from Concerned DIC	Two Weeks
3.	Finance /Loan approval from financial institutions/ Bankers	Two Months
4.	Power connection and Construction of Building	Four Months
5.	Machinery Procurement and Trial Run	One Months
6.	Recruitment of Staff & Labour	Two Weeks
7.	Trial Run and actual production	Two Weeks

### **4. BASIS AND PRESUMPTIONS :-**

The project has been drafted taking into account of the following aspects:-

1.	No. Of Working Days in a Day	One
2.	Duration of the Shift in a day	Hours
3.	Number of Working Days in a Year	300 Days
4.	Working Efficiency of the Unit	75%

5. Construction of Building will be as per the requirement of Manufacturing Activity
6. The estimates are drawn from a production capacity generally considered techno economically viable for a modern type of manufacturing unit.
7. The quality Standard must be followed as per specification
8. The wages of staff and labour is taken as per the prevailing labour wages in the market.
9. The rate of Interest will be as per prevailing in the market
10. Plant and Machinery ,Testing Equipments & all other equipments used in manufacturing of products have been taken to manufacture modern type of manufacturing setup and to manufacture Quality product.
11. Although Unit is free from Pollution and effluent discharge but still provision of exhaust fan may ensure the fresh environment.
12. In case of non availability of fund for construction of building such type of enterprises may be start in rented building also. In the said project we have taken premise on rent

5. **TECHNICAL ASPECTS:** The product may be used in following areas as per given concentration and procedure to be adoped is as under during Covid-19 pandemic

Areas	Agents / Toilet cleaner	Procedure
Toilet pot/ commode	Sodium hypochlorite 1%/ detergent Soap powder / long handle angular brush	<ul style="list-style-type: none"> <li>• Inside of toilet pot/commode: <ul style="list-style-type: none"> <li>• Scrub with the recommended agents and the long handle angular brush.</li> </ul> </li> <li>• Outside: clean with recommended agents; use a scrubber.</li> </ul>
Lid/ commode	Nylon scrubber and soap powder/detergent  1% Sodium Hypochlorite	<ul style="list-style-type: none"> <li>• Wet and scrub with soap powder and the nylon scrubber inside and outside.</li> <li>• Wipe with 1% Sodium Hypochlorite</li> </ul>
Toilet floor	Soap powder /detergent and scrubbing brush/ nylon broom 1% Sodium Hypochlorite	<ul style="list-style-type: none"> <li>• Scrub floor with soap powder and the scrubbing brush</li> <li>• Wash with water</li> <li>• Use sodium hypochlorite 1% dilution</li> </ul>
Sink	Soap powder / detergent and nylon scrubber 1% Sodium Hypochlorite	<ul style="list-style-type: none"> <li>• Scrub with the nylon scrubber.</li> <li>• Wipe with 1% sodium hypochlorite</li> </ul>
Showers area / Taps and fittings	Warm water Detergent powder Nylon Scrubber 1% Sodium Hypochlorite/ alcohol 70%	<ul style="list-style-type: none"> <li>• Thoroughly scrub the floors/tiles with warm water and detergent</li> <li>• Wipe over taps and fittings with a damp cloth and detergent.</li> <li>• Care should be taken to clean the underside of taps and fittings.</li> <li>• Wipe with 1% sodium hypochlorite/ 70% alcohol</li> </ul>
Soap dispensers	Detergent and water	<ul style="list-style-type: none"> <li>• Should be cleaned daily with detergent and water and dried.</li> </ul>

## Is the chemical safe?

- Sodium hypochlorite is corrosive and is meant largely to clean hard surfaces.
- It is not recommended to be used on human beings, certainly not as a spray or shower. Even a 0.05% solution could be very harmful for the eyes.
- A 1% solution can cause damage to the skin of anyone who comes in contact with it. If it gets inside the body, it can cause serious harm to lungs.

- a. **Production Capacity** :---1200 KL  
b. **Quality Control & Standards** :--- IS11673-1992

### c. **Manufacturing Method :**

It is produced by Hooker process in the large scale. At the small scale it is produced by reacting Caustic Soda Lye (35%) with dosing of Chlorine gas accompanied by cooling. In a reactor first we take Caustic Soda Lye (35%) and then chlorine dosing is done. After 7-8 hours of chemical reaction, sodium hypochlorite (NaOCl) is produced. The temperature is to be control through chillers. It is exothermic reaction and temperature is about 35 – 40°C. The sample is taken out for checking Chlorine percentage and only after Q.C. approval the product is packed in suitable plastic containers. The product so manufactured in concentrate in nature which may be further diluted at the time of application



### (d) **Packaging, Marking & Storing**

The material shall be packed in air tight plastic containers or as agreed between the purchaser and the supplier. The containers used shall be dry and free from grease, dirt or other foreign matter likely to cause decomposition of the material. Each package shall bear legibly and indelibly the following information :

- Name & Grade of the Material
- Indication of the source of the manufacture.
- Gross & Net mass.
- Date of Packing.
- Lot Number
- Available Chlorine i.e. the measure of the oxidizing power of the chlorine present as hypochlorite expressed in terms of chlorine with a gram equivalent mass of 35.46 ( to be declared by the manufacturer.)

The material shall be stored in a cool and dark place. While shipping, the material shall be stored away from boilers or any other source of emanating heat and light.

## 6. **FINANCIAL ASPECTS :**

Land and building : total area 1000 Sq. mtr. Having minimum 300 Sq.mtr. covered area on rent @35,000/- p.m.

<b>Machinery &amp; Equipments</b>				
<b>S.No</b>	<b>Description of Machinery &amp; Equipments</b>	<b>Qty.</b>	<b>Rate Unit Price (In Rs.)</b>	<b>Value (Rs. In lac)</b>
1	Scrubber/Reactor 2000 Ltrs each	2 Nos.	5,00000	10,00,000.00
2	Chiller Capacity 35 TR		15,00000	15,00000.00
3	Storage Tank for storage of Raw material and finished products cap 10000 liter each	6 Nos.	50,000	3,00000.00
4	Heat Exchanger 40 plate	1 No.	6,00000	6,00000.00
5	Laboratory Equipments as per requirement of BIS norms	L.S.		300,000.00
6	Other Misc. material handling equipments	L.S.		10,000.00
			<b>Total</b>	<b>37,10000.00</b>
7	Installation of Machinery & Equipments @ 10%			37,1000.00
				<b>40,81,000.0</b>
8	Office Furniture & fixture, computer and other Equipments	L.S.		80,000.00
9.	Preoperative Expenses	L.S.		20,000.00

**Total cost of fixed Capital Investment = Rs. 40,81,000 + 1,00000 = Rs. 41,81,000/-**

**WORKING CAPITAL (PER MONTH):**

**c. RAW MATERIAL**

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>	<b>Rate</b>	<b>Amount (Rs.)</b>
01.	Caustic Soda Flakes	25,000 Kg.	45/-	11,25,000
02.	Chlorine gas.	15,000 Kg.	8/-	1,20,000
03.	Plastic cans 40 Ltrs. Capacity	2500 Nos.	150/-	3,75,000
04.	Other Misc items	L.S.	10,000.00	10,000
			<b>Total</b>	<b>16,30,000</b>

**d. STAFF AND LABOUR (PER MONTH) :**

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Manager	01	Self
02.	Supervisor / Chemist	01	15,000.00
03.	Skilled worker	02	20,000.00
04.	Unskilled Worker	02	15,000.00
04.	Accountant	01	7,000.00
		<b>Total Rs.</b>	<b>57,000.00</b>

**e. UTILITIES (PER MONTH):**

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Electricity	L.S	16,000.00
02.	Water & Fuel	L.S	1,000.00
		<b>Total</b>	<b>17,000.00</b>

**f. OTHER EXPENSES PER MONTH :**

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Rent		35,000.00
02.	Telephone Expenses	L.S.	1,000.00
03.	Postage & Stationery	L.S.	500.00
04.	Transportation & Travelling Expenses	L.S.	10,000.00
05.	Maintenance	L.S.	500.00
06.	Other Misc. Expenses	L.S.	1,000.00
		<b>Total Rs</b>	<b>48,000.00</b>

**WORKING CAPITAL PER MONTH :-**

**6. Rs 16.30 +0.57 +0.17 + 0.48 = Rs.17,52000/-**

**Working capital for 3 Months-17.52 x 3 =52.56 Lacs**

**7. TOTAL CAPITAL INVESTMENT :**

Sr. No.	Description	Amount (Rs.)
01.	Fixed Capital	41,81000
02.	Working Capital for three Months	52.56000
	<b>Total</b>	<b>94,37000</b>

**COST OF PRODUCTION (PER ANNUM) :**

<b>Sr. No.</b>	<b>Description</b>	<b>Amount (Rs.in lac)</b>
01.	Raw & Packing Materials	210.24
02.	Interest on borrowed capital @ 10% p.a.	9.44
03.	Depreciation on Machinery & Equipments @ 10 % p.a.	4.11
	<b>Total</b>	<b>223.79</b>

**TURNOVER by sale of 1200 K.L. of Sodium Hypochlorite @ Rs.21Per Ltrs.  
= 2.52 Cr.**

**PROFIT PER ANNUM :**

$$\begin{aligned} \text{Profit} &= \text{Total Turnover} - \text{Cost of Production} \\ &= 2.52 \text{ Cr} - 2.24 \text{ Cr} = \mathbf{0.28 \text{ Cr}} \end{aligned}$$

**PERCENT PROFIT ON SALES :**

$$\% \text{ Profit} = \frac{\text{Profit}}{\text{Total Turnover}} \times 100$$



$$= \frac{0.28}{2.52} \times 100 = 11.2 \%$$

e. **RATE OF RETURN ON TOTAL CAPITAL INVESTMENT (ROR):**

$$\begin{aligned} \text{ROR} &= \frac{\text{Profit}}{\text{Total Capital Investment}} \times 100 \\ &= \frac{28}{94.37} \times 100 \\ &= 29 \% \end{aligned}$$

f. **BREAK EVEN ANALYSIS :**

**FIXED COST :**

Sr. No.	Particulars	Amount (Rs.in lac)
01.	Interest on Total capital Investment	9.44
02.	Depreciation on Machinery & Equipments @ 10 % p.a	4.11
03.	40% of Salary & Wages	2.73
04.	40% of other Expenses	3,12
	<b>Total</b>	<b>19.40</b>

**BREAK EVEN POINT (B.E.P.) :-**

**Fixed Cost x 100**

**Fixed cost**

$$\frac{19.40 \times 100}{19.40 + 28} = \frac{1940}{47.4} = 41\%$$

## **NAME & ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS:**

1. M/s. Unique Enterprises, 201, Konarka Mugdha Apartment, Plot No.36, Saraswati Cooperative Housing Society, Deendayal Nagar, Nagpur - 22.  
Cont. Person : Dr. Mukund Moholkar, Mb: 09823116709  
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Visit us at : <http://www.uniquepulveriser.com> , E –  
mail : [uniquepulveriser@mahamail.com](mailto:uniquepulveriser@mahamail.com)
2. M/s. Plasto Containers (India) Pvt. Ltd. J –  
3, MIDC, Hingna, Nagpur – 440016.  
Cont. Person : Shri Neelesh Agrawal. Mb: 09373104501  
Tel No. (07104)236672, 236671
3. M/s. Vaibhav Plastimoulds Pvt. Ltd. J  
– 2, MIDC Area, Nagpur - 440016  
Cont. Person : Shri Vishal Agrawal Mb:09890016601  
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## **NAME & ADDRESSES OF RAW & PACKING MATERIAL SUPPLIERS:**

1. M/s. Swastik Acids & Chemicals,  
Near Sai Mandir, Opp: Methi Hospital, Chandrashekhar Azad Square,  
Behind Arafat Hotel, Central Avenue, Nagpur – 440032.  
Tel. No.(0712)2764908, 2763548, Fax No. No. (0712)2770343. E  
– mail: [swachem@gmail.com](mailto:swachem@gmail.com)
2. M/s. Jain Acids & Chemicals  
19 / A, Central Avenue Road, Gandhibagh, Nagpur.  
Cont. Person : Shri Suraj Jain / Shri Satish Jain Tel  
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