

Project Profile **On** **Sodium Hypochlorite**

1. Quality Control & Standards : As per IS 11673:1992
2. Production Capacity : 1200 K.L. per Annum
3. Month & Year of Preparation : January, 2010



Prepared By

Govt. of India

Ministry of Micro, Small & Medium Enterprises

MSME – Development Institute

C.G.O. Complex, Block “C”, Seminary Hills,
Nagpur – 440006 (M.S.)

Tel. No. (0712)2510046, 2510352, Fax No.(0712)2511985

Visit us at : www.dcmsme.gov.in, www.msmedinagpur.gov.in

E – mail : dcdi-nagpur@dcmsme.gov.in

1. INTRODUCTION :

Hypochlorites are chemical compounds containing the chlorate (I) anion ($[\text{OCl}]^-$). 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 which 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 its solution is a weak base that is inflammable.

2. MARKET POTENTIAL:

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

Wt % of Sodium Hypochlorite	Common Uses
2 %	Shock Chlorination of Wells
3-6 %	Household Disinfectant, Laundering Clothes, Dentistry Root Canal Treatment Disinfectant in Hospitals, Food Processing, Fish Processing etc.
12-16 %	Disinfectant in Swimming Pools, Water Treatment, Waste Water Treatment etc.

3. BASIS & PRESUMPTIONS :

- a. The production is based on single shift of eight hours and 300 working days per annum.
- b. The cost in respect of Plant & Machinery has been taken at the time of preparation of Project Profile, which may vary from place to place and time to time.
- c. Labour charges has been taken as per Govt. norms.

- d. It is presumed that plant will work at 50% efficiency in the first year, 60% in the third year and 70% in the third year.

4. IMPLEMENTATION SCHEDULE :

It will take about eight months to start commercial production as under :

Sr. No.	Activity	Estimated Period
01.	Registration under MSME Act	0 – 1 Month
02.	Preparation of Scheme	0 –1 Month
03.	Sanction of Loan	1 – 5 Month
04.	Placement of Order for Plant & Machinery	5 – 6 Month
05.	Power & Water Connection	5 – 6 Month
06.	Installation of Plant & Machinery	6 – 7 Month
07.	Procurement of Raw material & Trial Run	7 – 8 Month
08.	Commercial Production	8 th Month onwards

4. TECHNICAL ASPECTS:

- a. **Production Capacity** : **1200 K.L. per Annum**
b. **Quality Control & Standards** : **As per IS 11673:1992**

The requirements for Sodium Hypochlorite Solution are as under :

Sr. No.	Charateristics	Requirements	
		Grade 1	Grade 2
01.	Relative density (at 25° / 25° C)	1.07 to 1.118	1.20 Min.
02.	Available Chlorine (as Cl), percent by mass by volume	4.0 to 6.0	12.5 to 15.0
03.	Total Chlorine, percent by volume (as Cl)	4.0 to 6.0	12.5 to 15.0
04.	Free Alkali (as NaOH), g/l. Min.	1.0	5.0
05.	Free Sodium Carbonate (as Na ₂ CO ₃), g/l, Min.	0.5	0.5
06.	Iron (as Fe), ppm, Max.	0.4	1.0
07.	Sodium Chlorate, percent by mass, Max.	0.05	0.3

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 plastic tank 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. 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.



(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.

5. FINANCIAL ASPECTS :

Sr. No.	Description	Quantity	Value (Rs.)
a.	Land & Building Total Area of 2000 Sq. Feet including 1000 Sq Feet covered area on Rent		5,000.00
b.	Machinery & Equipments		
i)	PVC Tank Capacity 2000 Ltrs each	2 Nos.	70,000.00
ii)	Laboratory Equipments	L.S.	50,000.00
iii)	Other Misc. material handling equipments	L.S.	10,000.00
iv)	Office Furniture & Equipments	L.S.	25,000.00
v)	Installation of Machinery & Equipments	L.S.	10,000.00
vi)	Preoperative Expenses	L.S.	20,000.00
		Total	1,85,000.00

c. RAW & PACKING MATERIAL PER MONTH :

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Caustic Soda Flakes @ Rs.25 per Kg.	12500 Kg.	3,12,500.00
02.	Chlorine gas @ Rs.14 per Kg.	7500 Kg.	1,05,000.00
03.	Plastic cans 40 Ltrs. Capacity @ Rs.120 per can.	1250 Nos.	1,50,000.00
04.	Other Misc items	L.S.	10,000.00
		Total	5,77,500.00

d. SALARY & WAGES PER MONTH :

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Manager	01	Self
02.	Supervisor / Chemist	01	5,000.00
03.	Skilled worker	01	3,000.00
04.	Unskilled Worker	02	5,000.00
04.	Accountant	01	3,000.00
		Total	16,000.00

e. UTILITIES PER MONTH:

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Power @ Rs.5.50 per unit	10 H.P.	6,000.00
02.	Water & Fuel	L.S	1,000.00
		Total	7,000.00

f. OTHER EXPENSES PER MONTH :

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Rent		5,000.00
02.	Telephone Expenses	L.S.	1,000.00
03.	Postage & Stationery	L.S.	500.00
04.	Marketing & Traveling Expenses	L.S.	5,000.00
05.	Maintenance	L.S.	500.00
06.	Other Misc. Expenses	L.S.	1,000.00
		Total	13,000.00

6. WORKING CAPITAL PER MONTH : **6,13,500.00**
(c + d + e + f)

7. TOTAL CAPITAL INVESTMENT :

Sr. No.	Description	Amount (Rs.)
01.	Fixed Capital	1,85,000.00
02.	Working Capital for three Months	18,40,500.00
	Total	20,25,500.00

8. FINANCIAL ANALYSIS :

a. COST OF PRODUCTION PER ANNUM:

Sr. No.	Description	Amount (Rs.)
01.	Raw & Packing Materials	69,30,000.00
02.	Salary & Wages	1,92,000.00
03.	Utilities	84,000.00
04.	Other Expenses	1,56,000.00
05.	Interest on borrowed capital @ 13% p.a.	2,63,315.00
06.	Depreciation on Machinery & Equipments @ 10 % p.a.	15,500.00
	Total	76,40,815.00
	Or say	76,41,000.00

b. TURNOVER PER ANNUM :

Total 600 K.L.. of Sodium Hypochlorite
@ Rs. 14 Per Ltrs.

84,00,000.00

c. PROFIT PER ANNUM :

$$\begin{aligned}\text{Profit} &= \text{Total Turnover} - \text{Cost of Production} \\ &= 84,00,000 - 76,41,000 \\ &= 7,59,000\end{aligned}$$

d. PROFIT ON SALES :

$$\begin{aligned}\% \text{ Profit} &= \frac{\text{Profit}}{\text{Total Turnover}} \times 100 \\ &= \frac{7,59,000}{84,00,000} \times 100 \\ &= \mathbf{9.0 \%}\end{aligned}$$

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

$$\begin{aligned}\text{ROR} &= \frac{\text{Profit}}{\text{Total Capital Investment}} \times 100 \\ &= \frac{7,59,000}{20,25,500} \times 100 \\ &= 37.5 \%\end{aligned}$$

f. BREAK EVEN ANALYSIS :

FIXED COST :

Sr. No.	Particulars	Amount (Rs.)
01.	Interest on borrowed capital @ 13% p.a.	2,63,315.00
02.	Depreciation on Machinery & Equipments @ 10 % p.a	15,500.00
03.	40% of Salary & Wages	76,800.00
04.	40% of other Expenses	62,400.00
	Total	4,18,015.00
	Or say	4,18,000.00

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

$$\begin{aligned}\text{B.E.P.} &= \frac{\text{Fixed Cost}}{\text{Fixed cost} + \text{Profit}} \times 100 \\ &= \frac{4,18,000}{4,18,000 + 7,59,000} \times 100 \\ &= 35.5 \%\end{aligned}$$

NAME & ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS:

01. 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
Tel. No.(07104)235675,(0712)2224362
Visit us at : <http://www.uniquepulveriser.com> ,
E – mail : uniquepulveriser@mahamail.com
02. 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
03. M/s. Vaibhav Plastimoulds Pvt. Ltd.
J – 2, MIDC Area, Nagpur - 440016
Cont. Person : Shri Vishal Agrawal Mb:09890016601
Tel. No. (07104)395486, 395487
Vist us at: www.vaibhavplastimoulds.com , E-mail :plastotanks@yahoo.com

NAME & ADDRESSES OF RAW & PACKING MATERIAL SUPPLIERS:

01. 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
02. M/s. Jain Acids & Chemicals
19 / A, Central Avenue Road, Gandhibagh, Nagpur.
Cont. Person : Shri Suraj Jain / Shri Satish Jain
Tel No.(0712)2766923, 2761233
03. M/s. Vaibhav Plastimoulds Pvt. Ltd.
J – 2, MIDC Area, Nagpur - 440016
Cont. Person : Shri Vishal Agrawal Mb:09890016601
Tel. No. (07104)395486, 395487
Vist us at: www.vaibhavplastimoulds.com , E-mail :plastotanks@yahoo.com

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