PROJECT PROFILE

PRODUCT: Sodium Sulphate.

NIC CODE: 24177

ASICC CODE: 31569

QUALITY STANDARDS:
IS : 255 – 1982
Sodium Sulphate (Anhydrous) (Technical Grade (Second Revision) Reaffirmed 1999.

IS : 256 – 1972
Sodium Sulphate Decahydrate (Glauber Salt) 1st Revision, Reaffirmed 1999.

PRODUCTION CAPACITY:
Quantity: 420 MT Per Annum
Value: Rs. 36,54,000/-

MONTH & YEAR OF PREPARATION: December, 2011

Prepared By:
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A. INTRODUCTION:

Sodium Sulphate decahydrate (Na$_2$ SO$_4$.10H$_2$O) is available in transparent Crystalline small needles or granular form. Sodium sulphate decahydrate (Na$_2$ SO$_4$.10H$_2$O) is also called Glauber salt. Its specific gravity is 1.464 and melting point is 888ºC. It loses the water of hydration at 100ºC. It is neutral, non-toxic and highly soluble in water, insoluble in alcohol and non combustible. Anhydrous sodium sulphate is odourless, bitter saline taste, soluble in water and glycerrol. Sodium sulphate decahydrate (Na2 SO$_4$. 10H$_2$O) loses water of hydration at 100ºC and its Energy Storage capacity is over 7 times that of water.

B. MARKET POTENTIAL:

Sodium Sulphate is used as raw material in the manufacture of Kraft paper, paper board and glass. It is also used as filler in synthetic detergents, Sodium salts, Ceramic glazes, Processing textile fibres, dyes, tanning, pharmaceuticals, freezing mixtures laboratory reagent and food additive, sodium sulphate decahydrate is used in solar heat storage and air conditioning. With growing demand of above items the product has good market.

C. BASIS AND PRESUMPTIONS:

1. The scheme is based on single shift (8 hours) basis and 300 working days per annum.

2. The rate of interest is taken 12% on an average. This is however likely to vary depending on the financial outlay and location of the unit.

3. Labour wages have been taken on the basis of minimum applicable. These are likely to change depending upon the location of the location of the unit.

4. The cost of machines & equipments, raw material & selling price of finished product are those generally obtained at the time of preparation of project profile and may vary depending on the various factors.

5. The time period for achieving full envisaged capacity is three years.

6. The margin money is 25% for both fixed capital and working capital.

7. The rent of land and factory shed is taken on prevailing rates. The rent may vary from place to place.
D. IMPLEMENTATION SCHEDULE:

Following steps are involved in the implementation of this project-

(i) Preparation of project report 15 days
(ii) Selection of site/working shed 15 days
(iii) Filing of entrepreneurs memorandum 15 days
(iv) Obtaining NOC from State Pollution Control Board 15 days
(v) Arrangement of finance 1 month
(vi) Procurement of machinery & equipment 1 month
(vii) Plant Erection & electrification 1 month
(viii) Recruitment of staff 15 days
(ix) Trial run 15 days

Total 6 Months

E. TECHNICAL ASPECTS:

1. Manufacturing process:

Sodium Chloride (Common Salt) and concentrated Sulphuric Acid are heated in a furnace at high temperature and thereby Sodium Sulphate in the form of niter cake is formed. Hydrochloric Acid gas formed during the process is absorbed in water in fibre glass re-inforced plastics absorption tank. The nitre cake formed is dissolved in water as saturated solution. Decahydrate salt of sodium sulphate is crystallised by evaporating out the water.

2. Quality Specifications

IS : 255 – 1982 (Second Revision) Sodium Sulphate Anhydrous
   Reaffirmed 1999 (Technical Grade)

IS: 256 – 1972 (1st Revision) Sodium Sulphate
   Reaffirmed 1999 Decahydrate (Glauber Salt)

3. Production Capacity (Per Annum)

Sodium Sulphate - 420 M.T
Hydrochloric Acid (By product) - 567 M.T
### 4. Pollution Control Needs:

For manufacture of sodium sulphate the project would require clearance from Pollution Board.

### 5. Energy Conservation:

Proper maintenance of machinery and judicial use of them will conserve energy.

### F. FINANCIAL ASPECTS

#### 1. Fixed Capital

**Land & Building**

<table>
<thead>
<tr>
<th>Land 500 Sq. Meter</th>
<th>Rented Rs.10,000/- p.m.</th>
</tr>
</thead>
</table>

Factory Shed area 300 Sq. Meter  
(Consisting of workshop shed, godown office etc.)

The rental value may vary from place to place.

#### 2. Machinery & Equipment:

<table>
<thead>
<tr>
<th>Name of Machinery</th>
<th>Indigenous/ imported</th>
<th>Qty.</th>
<th>Cost.(Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Furnace</td>
<td>Indigenous</td>
<td>1</td>
<td>1,76,000/-</td>
</tr>
<tr>
<td>ii) Filter</td>
<td>-do-</td>
<td>1</td>
<td>20,000/-</td>
</tr>
<tr>
<td>iii) Solution tank</td>
<td>-do-</td>
<td>1</td>
<td>55,000/-</td>
</tr>
<tr>
<td>iv) Crystallizer</td>
<td>-do-</td>
<td>1</td>
<td>90,000/-</td>
</tr>
<tr>
<td>v) Steam Boiler</td>
<td>-do-</td>
<td>1</td>
<td>1,50,000/-</td>
</tr>
<tr>
<td>vi) Centrifuge</td>
<td>-do-</td>
<td>1</td>
<td>80,000/-</td>
</tr>
<tr>
<td>vii) Installation &amp; erection</td>
<td>-do-</td>
<td></td>
<td>57,100/- @ 10% of cost of machinery</td>
</tr>
</tbody>
</table>
viii) Testing equipments
      50,000/-
ix) Office furniture & equipments
      40,000/-

Pre-operative expenses
Total fixed capital
Rs.7,18,100/-
Rs.7,88,100/-
Say Rs. 7,88,000/-

3. Working Capital (Per Month):

(i) Staff & Labour (Per Month):

<table>
<thead>
<tr>
<th>Designation</th>
<th>No.</th>
<th>Salary(Rs.)</th>
<th>Total (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemist</td>
<td>1</td>
<td>6,000/-</td>
<td>6,000/-</td>
</tr>
<tr>
<td>Skilled Worker</td>
<td>2</td>
<td>4,000/-</td>
<td>8,000/-</td>
</tr>
<tr>
<td>Semi Skilled Worker</td>
<td>3</td>
<td>3,500/-</td>
<td>10,500/-</td>
</tr>
<tr>
<td>Accountant cum Clerk</td>
<td>1</td>
<td>5,000/-</td>
<td>5,000/-</td>
</tr>
<tr>
<td>Watchman</td>
<td>2</td>
<td>3,500/-</td>
<td>7,000/-</td>
</tr>
</tbody>
</table>

Total                    36,500/-
Perquisites @ 15%
Total                    5,025/-
Say                      Rs.41,500/-

(ii) Raw Materials (Per Month):

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Rate (Rs.)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Salt</td>
<td>26.10 M.T</td>
<td>1,000/- per MT</td>
<td>26,100/-</td>
</tr>
<tr>
<td>Sulphuric Acid</td>
<td>24 M.T</td>
<td>4,200/- per MT</td>
<td>1,00,800/-</td>
</tr>
</tbody>
</table>

Total Rs. 1,26,900/-
Say Rs. 1,27,000/-
(iii) **Utilities (Per Month):**

<table>
<thead>
<tr>
<th>Utility</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>10,000/-</td>
</tr>
<tr>
<td>Coal</td>
<td>40,000/-</td>
</tr>
<tr>
<td>Water</td>
<td>5,000/-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Rs. 55,000/-</strong></td>
</tr>
</tbody>
</table>

(iv) **Other Contingent Expenses (P.M.):**

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>10,000/-</td>
</tr>
<tr>
<td>Telephone, Postage and Stationery</td>
<td>3,000/-</td>
</tr>
<tr>
<td>Transport Charges</td>
<td>6,000/-</td>
</tr>
<tr>
<td>Advertisement &amp; Publicity</td>
<td>4,000/-</td>
</tr>
<tr>
<td>Miscellaneous Expenses</td>
<td>5,000/-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Rs. 28,000/-</strong></td>
</tr>
</tbody>
</table>

(v) **Working Capital (Per month):**

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff &amp; Labour</td>
<td>41,500/-</td>
</tr>
<tr>
<td>Raw material</td>
<td>1,27,000/-</td>
</tr>
<tr>
<td>Utilities</td>
<td>55,000/-</td>
</tr>
<tr>
<td>Other contingent expenditure</td>
<td>28,000/-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Rs. 2,51,500/-</strong></td>
</tr>
</tbody>
</table>

(vi) **Working Capital for three months:**

\[
= 2,51,500 \times 3 = Rs.7,54,500/-
\]

5.4 **Total Capital Investment:**

<table>
<thead>
<tr>
<th>Capital Type</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Capital</td>
<td>7,88,000/-</td>
</tr>
<tr>
<td>Working Capital (3 months)</td>
<td>7,54,500/-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Rs. 15,42,500/-</strong></td>
</tr>
</tbody>
</table>

: 6 :
MACHINERY UTILISATION:

Furnace is the bottleneck equipment which determines the entire output.

FINANCIAL ANALYSIS:

1. Cost of Production (Per Year):

   Total recurring cost = 30,18,000/-
   Depreciation on machinery & equipment @ 10% of cost = 57,100/-
   Interest on capital investment @ 12% p.a. = 1,85,100/-

   __________________________
   Total                      Rs.32,60,200/-
   Say                        Rs.32,60,000/-

2. Turnover (Per Year):

   Item           Quantity  Rate (Rs.)  Value (Rs.)
   Sodium Sulphate 420 MT  6000/- Per MT  25,20,000/-
   Hydrochloric Acid 567 MT 2000/- Per MT  11,34,000/-

   Total           Rs.36,54,000/-

3. Net Profit per annum:

   Net Profit = Turnover - Cost of production
   = 36,54,000 - 32,60,000 = Rs.3,94,000/-

4. Net Profit Ratio:

   Net Profit per year x 100 = 3,94,000 x 100 = 10.78%
   Turnover per year     36,54,000

5. Rate of Return:

   Net Profit per year x 100 = 3,94,000 x 100 = 25.54%
   Total capital investment 15,42,500
6. **BREAK EVEN POINT:**

Fixed Cost.

i) Rent 1,20,000/-

ii) Depreciation on Plant & Machinery @ 10% of cost. 57,100/-

iii) Interest on total capital Investment @ 12% 1,85,100/-

iv) 40% salary & wages and other contingent expenses excluding rent 2,85,600/-

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>1,20,000/-</td>
</tr>
<tr>
<td>Depreciation on Plant &amp; Machinery @ 10% of cost.</td>
<td>57,100/-</td>
</tr>
<tr>
<td>Interest on total capital Investment @ 12%</td>
<td>1,85,100/-</td>
</tr>
<tr>
<td>40% salary &amp; wages and other contingent expenses excluding rent</td>
<td>2,85,600/-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Rs.6,47,800/-</strong></td>
</tr>
<tr>
<td><strong>Say</strong></td>
<td><strong>Rs.6,48,000/-</strong></td>
</tr>
</tbody>
</table>

**B.E.P.** = \[
\frac{\text{Fixed Cost}}{\text{Fixed Cost} + \text{Profit}} \times 100
\]

\[
= \frac{648000}{648000 + 394000} \times 100
\]

\[
= \frac{648000}{1042000} \times 100 = 62.1\%
\]

**Addresses of Suppliers of Plant & Machinery:**

1. M/s. T.S. Enterprises, E-416, Road No.14, Vishwakarma Industrial Area, Jaipur-302013
2. M/s. Yojana Machine Tools, GIDC Estate, Odhav Road, Ahmedabad-382415
3. M/s. Chemtex Engineering Enterprises, Plot No.277-278, GIDC Estate, Odhav, Ahmedabad-382415

**Addresses of Raw Material Suppliers.**

1. M/s. Sambhar Salts Ltd., Pradhan Marg, Malviyanagar, Jaipur-30217
2. M/s. Hindustan Zinc Ltd, Udaipur (Rajasthan)