

PROJECT REPORT

Of

SODIUM SULPHATE

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding Sodium sulphate.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]

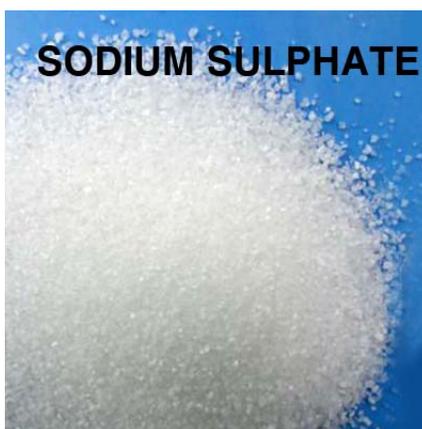


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PROJECT REPORT ON SODIUM SULPHATE



INTRODUCTION:

Sodium sulphate is the sodium salt of sulphuric acid. When anhydrous, it is a white crystalline solid, the decahydrate $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ has been known as Glauber's salt. Sodium sulphate is mainly used for the manufacture of detergents and in the Kraft process of paper pulping. About two-thirds of the world's production is from mirabilite, the natural mineral form of the decahydrate, and the remainder from by-products of chemical processes such as hydrochloric acid production. Sodium sulfate is chemically very stable, being unreactive toward most oxidizing or reducing agents at normal temperatures. Sodium sulfate is a neutral salt, which forms aqueous solutions with pH of 7. The neutrality of such solutions reflects the fact that Na_2SO_4 is derived, formally speaking, from the strong acid sulfuric acid and a strong base sodium hydroxide.

Its specific gravity is 1.464 and melting point is 888°C. It loses the water of hydration at 100°C. It is neutral, non-toxic and highly soluble in water, insoluble in alcohol and noncombustible. Anhydrous sodium sulphate is odorless, bitter saline taste, soluble in water and glycerol.

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.

BASIS AND PRESUMPTIONS:

The profile is drawn on the basis of following presumptions-

(i) No. of shifts per day	1
(ii) Working Hours per shift	8
(iii) Working days per annum	300
(iv) Working efficiency	60%
(v) Margin money	10% of capital investment
(vi) Rate of interest on fixed & Working Capital	11.50%

TECHNICAL ASPECTS:

PROCESS OUTLINES:

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 reinforced plastics absorption tank. The nitre cake formed is dissolved in water as saturated solution. Decahydrate sodium sulphate is crystallized by evaporating the water.

QUALITY SPECIFICATIONS:

Bureau of Indian Standards as formulated Indian Standard Specifications as follows-

IS : 255 – 1982 (Second Revision)
Reaffirmed 1999

Sodium Sulphate Anhydrous
(Technical Grade)

IS: 256 – 1972 (1st Revision)
Reaffirmed 1999

Sodium Sulphate
Decahydrate (Glauber Salt)

PRODUCTION CAPACITY (PER ANNUM):

	Quantity
Sodium Sulphate	420 M.T
Hydrochloric Acid (By product)	567M.T

POLLUTION CONTROL NEEDS:

The unit comes under the category of polluting Industries and thus a small effluent treatment device has to be installed under the able guidance of State Pollution Control Board.

ENERGY CONSERVATION:

Proper maintenance of machinery and judicious use of them will conserve energy. Proper maintenance of power operated machines and judicious use of them will conserve energy. However, pipelines of boiler shall be properly insulated and priority should be given to install energy efficient machinery and equipment.

MOTIVE POWER REQUIREMENT: 32 KVA

PROJECT AT A GLANCE

- 1 Name of the Entrepreneur : XXXXXXXX
- 2 Constitution (legal Status) : XXXXXXXX
- 3 Father's/Spouce's Name : XXXXXXXX
- 4 Unit Address : XXXXXXXX
- Taluk/Block: _____
- District : XXXXX
- Pin: XXXXX State:
- E-Mail : XXXXX
- Mobile : XXXXX
- 5 Product and By Product : **Sodium Sulphate(and Hcl as by product)**
- 6 Name of the project / business activity proposed : **Sodium Sulphate(and Hcl as by product)**
- 7 Cost of Project : Rs24.00lac
- 8 Means of Finance
- | | |
|-------------------|------------------------------|
| Term Loan | Rs.14.45 Lacs |
| KVIC Margin Money | - As per Project Eligibility |
| Own Capital | Rs.2.4 Lacs |
| Working Capital | Rs.7.14 Lacs |
- 9 Debt Service Coverage Ratio : 3.17
- 10 Pay Back Period : 5 Years
- 11 Project Implementation Period : 8 Months
- 12 Break Even Point : 31%
- 13 Employment : 10 Persons
- 14 Power Requirement : 32.00 HP
- 15 Major Raw materials : **Common Salt and Sulphuric Acid**
- 16 Estimated Annual Sales Turnover : 38.94 Lacs
- 16 Detailed Cost of Project & Means of Finance

COST OF PROJECT

(Rs. In Lacs)

Particulars	Amount
Land 5000 Sft	Rented/Owned
Building & Civil Work (3000 Sq Ft)	5.00
Plant & Machinery	9.78
Furniture & Fixtures	0.68
Pre-operative Expenses	0.60
Working Capital Requirement	7.94
Total	24.00

MEANS OF FINANCE

Particulars	Amount
Own Contribution @10%	2.40
Term Loan	14.45
Workign Capital Finance	7.14
Total	24.00

	General	Special
Beneficiary's Margin Monery (% of Project Cost)	10%	5%

PLANT & MACHINERY

	PARTICULARS	QTY.	RATE	AMOUNT IN RS.
1	Furnace	1	250,000.00	250,000.00
2	Filter	1	35000.00	35,000.00
3	Solution tank	1	50,000.00	50,000.00
4	Crystallizer	1	125,000.00	125,000.00
5	Steam Boiler	1	265,000.00	265,000.00
6	Centrifuge	1	100,000.00	100,000.00
7	Testing equipments	1.00	65,000.00	65,000.00
8	Installation & erection @ 10% of cost of machinery		88,000.00	88,000.00
	Total			978,000.00

PROJECTED BALANCE SHEET

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
<u>SOURCES OF FUND</u>					
Capital Account	2.40	2.40	2.40	2.40	2.40
Retained Profit	6.51	13.91	23.88	36.24	50.88
Term Loan	14.45	10.84	7.23	3.61	0.71
Cash Credit	7.14	7.14	7.14	7.14	7.14
Sundry Creditors	1.36	1.58	1.81	2.04	2.26
Provisions & Other Liab	0.36	0.40	0.44	0.48	0.53
TOTAL :	32.22	36.27	42.90	51.92	63.92
<u>APPLICATION OF FUND</u>					
Fixed Assets (Gross)	15.46	15.46	15.46	15.46	15.46
Gross Dep.	2.00	3.76	5.29	6.60	7.74
Net Fixed Assets	13.46	11.70	10.17	8.86	7.72
Current Assets					
Sundry Debtors	3.89	4.83	5.53	6.23	6.93
Stock in Hand	5.40	6.18	7.07	7.95	8.83
Cash and Bank	6.97	10.81	17.10	25.55	36.78
Deposits & Advances	2.50	2.75	3.03	3.33	3.66
TOTAL :	32.22	36.27	42.90	51.92	63.92
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
A) SALES					
Gross Sale	38.94	48.31	55.31	62.31	69.31
Total (A)	38.94	48.31	55.31	62.31	69.31
B) COST OF SALES					
Raw Mateiral Consumed	19.39	22.62	25.85	29.08	32.31
Electricity Expenses	2.75	3.21	3.67	4.13	4.58
Repair & Maintenance	-	0.48	0.55	0.62	0.69
Labour & Wages	4.75	5.23	5.75	6.32	6.96
Depreciation	2.00	1.76	1.52	1.32	1.14
Consumables and Other Expenses	1.17	1.45	1.66	1.87	2.08
Cost of Production	30.06	34.75	39.00	43.34	47.76
Add: Opening Stock /WIP	-	3.46	3.92	4.48	5.04
Less: Closing Stock /WIP	3.46	3.92	4.48	5.04	5.60
Cost of Sales (B)	26.60	34.29	38.44	42.78	47.20
C) GROSS PROFIT (A-B)	12.35	14.02	16.87	19.53	22.11
	32%	29%	31%	31%	32%
D) Bank Interest (Term Loan)	1.25	1.51	1.09	0.68	0.27
Bank Interest (C.C. Limit)	0.71	0.71	0.71	0.71	0.71
E) Salary to Staff	2.38	2.61	2.87	3.16	3.48
F) Selling & Adm Expenses Exp.	0.78	0.97	1.11	1.25	1.39
TOTAL (D+E)	5.12	5.80	5.79	5.80	5.85
H) NET PROFIT	7.23	8.22	11.08	13.74	16.26
I) Taxation	0.72	0.82	1.11	1.37	1.63
J) PROFIT (After Tax)	6.51	7.40	9.98	12.36	14.63

PROJECTED CASH FLOW STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
<u>SOURCES OF FUND</u>					
Share Capital	2.40	-	-	-	-
Reserve & Surplus	7.23	8.22	11.08	13.74	16.26
Depriciation & Exp. W/off	2.00	1.76	1.52	1.32	1.14
Increase in Cash Credit	7.14	-	-	-	-
Increase In Term Loan	14.45	-	-	-	-
Increase in Creditors	1.36	0.23	0.23	0.23	0.23
Increase in Provisions	0.36	0.04	0.04	0.04	0.05
TOTAL :	34.95	10.25	12.87	15.32	17.68
<u>APPLICATION OF FUND</u>					
Increase in Fixed Assets	15.46	-	-	-	-
Increase in Stock	5.40	0.78	0.88	0.88	0.88
Increase in Debtors	3.89	0.94	0.70	0.70	0.70
Increase in Deposits & Adv	2.50	0.25	0.28	0.30	0.33
Repayment of Term Loan	-	3.61	3.61	3.61	2.91
Taxation	0.72	0.82	1.11	1.37	1.63
TOTAL :	27.98	6.40	6.58	6.87	6.45
Opening Cash & Bank Balance	-	6.97	10.81	17.10	25.55
Add : Surplus	6.97	3.84	6.29	8.45	11.23
Closing Cash & Bank Balance	6.97	10.81	17.10	25.55	36.78

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
<u>Finished Goods</u>					
(30 Days requirement)	3.46	3.92	4.48	5.04	5.60
<u>Raw Material</u>					
(30Days requirement)	1.94	2.26	2.58	2.91	3.23
Closing Stock	5.40	6.18	7.07	7.95	8.83

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars			Total
			Amount
Stock in Hand			5.40
Sundry Debtors			3.89
		Total	9.29
Sundry Creditors			1.36
Working Capital Requirement			7.94
Margin			0.79
Working Capital Finance			7.14

BREAK UP OF LABOUR

Particulars		Wages	No of	Total
		Per Month	Employees	Salary
Chemist		12,000.00	1	12,000.00
Skilled Worker		8,000.00	2	16,000.00
Unskilled Worker		5,000.00	4	20,000.00
				36,000.00
Add: 10% Fringe Benefit				3,600.00
Total Labour Cost Per Month				39,600.00
Total Labour Cost for the year (In Rs. Lakhs)				4.75

7.00

BREAK UP OF SALARY

Particulars		Salary	No of	Total
		Per Month	Employees	Salary
Accountant		8,000.00	1	8,000.00
Sales		10,000.00	1	10,000.00
Total Salary Per Month				18,000.00
Add: 10% Fringe Benefit				1,800.00
Total Salary for the month				19,800.00

Total Salary for the year (In Rs. Lakhs)

2.38

3.00

COMPUTATION OF DEPRECIATION

Description	Land	Building/shed	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation		10.00%	15.00%	10.00%	
Opening Balance	Leased	-	-	-	-
Addition	-	5.00	9.78	0.68	15.46
	-	5.00	9.78	0.68	15.46
Less : Depreciation	-	0.50	1.47	0.03	2.00
WDV at end of Ist year	-	4.50	8.31	0.65	13.46
Additions During The Year	-	-	-	-	-
	-	4.50	8.31	0.65	13.46
Less : Depreciation	-	0.45	1.25	0.06	1.76
WDV at end of IIInd Year	-	4.05	7.07	0.58	11.70
Additions During The Year	-	-	-	-	-
	-	4.05	7.07	0.58	11.70
Less : Depreciation	-	0.41	1.06	0.06	1.52
WDV at end of IIIrd year	-	3.65	6.01	0.52	10.17
Additions During The Year	-	-	-	-	-
	-	3.65	6.01	0.52	10.17
Less : Depreciation	-	0.36	0.90	0.05	1.32
WDV at end of IV year	-	3.28	5.11	0.47	8.86
Additions During The Year	-	-	-	-	-
	-	3.28	5.11	0.47	8.86
Less : Depreciation	-	0.33	0.77	0.05	1.14
WDV at end of Vth year	-	2.95	4.34	0.42	7.72

REPAYMENT SCHEDULE OF TERM LOAN

11.5%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	CI Balance
IST YEAR	Opening Balance						
	Ist Quarter	-	14.45	14.45	-	-	14.45
	Iind Quarter	14.45	-	14.45	0.42	-	14.45
	IIIrd Quarter	14.45	-	14.45	0.42	-	14.45
	Ivth Quarter	14.45	-	14.45	0.42	-	14.45
					1.25	-	
IIND YEAR	Opening Balance						
	Ist Quarter	14.45	-	14.45	0.42	0.90	13.55
	Iind Quarter	13.55	-	13.55	0.39	0.90	12.65
	IIIrd Quarter	12.65	-	12.65	0.36	0.90	11.74
	Ivth Quarter	11.74		11.74	0.34	0.90	10.84
					1.51	3.61	
IIIRD YEAR	Opening Balance						
	Ist Quarter	10.84	-	10.84	0.31	0.90	9.94
	Iind Quarter	9.94	-	9.94	0.29	0.90	9.03
	IIIrd Quarter	9.03	-	9.03	0.26	0.90	8.13
	Ivth Quarter	8.13		8.13	0.23	0.90	7.23
					1.09	3.61	
IVTH YEAR	Opening Balance						
	Ist Quarter	7.23	-	7.23	0.21	0.90	6.32
	Iind Quarter	6.32	-	6.32	0.18	0.90	5.42
	IIIrd Quarter	5.42	-	5.42	0.16	0.90	4.52
	Ivth Quarter	4.52		4.52	0.13	0.90	3.61
					0.68	3.61	
VTH YEAR	Opening Balance						
	Ist Quarter	3.61	-	3.61	0.10	0.90	2.71
	Iind Quarter	2.71	-	2.71	0.08	0.90	1.81
	IIIrd Quarter	1.81	-	1.81	0.05	0.55	1.26
	Ivth Quarter	1.26		1.26	0.04	0.55	0.71
					0.27	2.91	

CALCULATION OF D.S.C.R

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
<u>CASH ACCRUALS</u>	8.51	9.16	11.50	13.68	15.78
Interest on Term Loan	1.25	1.51	1.09	0.68	0.27
Total	9.75	10.67	12.59	14.35	16.05
<u>REPAYMENT</u>					
Instalment of Term Loan	3.61	3.61	3.61	2.91	2.91
Interest on Term Loan	1.25	1.51	1.09	0.68	0.27
Total	4.86	5.12	4.70	3.58	3.18
DEBT SERVICE COVERAGE RATIO	2.01	2.08	2.68	4.01	5.05
AVERAGE D.S.C.R.			3.17		

COMPUTATION OF SALE**Sodium Sulphate**

Particulars	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Op Stock	-	25.20	29.40	33.60	37.80
Production	252.00	294.00	336.00	378.00	420.00
	252.00	319.20	365.40	411.60	457.80
Less : Closing Stock	25.20	29.40	33.60	37.80	42.00
Net Sale	226.80	289.80	331.80	373.80	415.80
Sale Price per MT	11,500.00	11,000.00	11,000.00	11,000.00	11,000.00
Sale (in Lacs)	26.08	31.88	36.50	41.12	45.74

Hydrochloric acid(HCL) By Product

Particulars	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Op Stock	-	34.02	39.69	45.36	51.03
Production	340	397	454	510	567.00
	340.20	430.92	493.29	555.66	618.03
Less : Closing Stock	34.02	39.69	45.36	51.03	56.70
Net Sale	306.18	391.23	447.93	504.63	561.33
Sale Price per MT	4,200.00	4,200.00	4,200.00	4,200.00	4,200.00
Sale (in Lacs)	12.86	16.43	18.81	21.19	23.58

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	32	
Load Factor			0.7460	
Electricity Charges		per unit	8.00	
Total Working Days			300	
Electricity Charges (8 Hrs Per day)				458,342.40
Add : Minimim Charges (@ 10%)				
(B) D.G. SET				
No. of Working Days			300	days
No of Working Hours			-	Hour per day
Total no of Hour			-	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			-	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			-	
Add : Lube Cost @15%			-	
Total			-	
Total cost of Power & Fuel at 100%				4.58
Year		Capacity		Amount (in Lacs)
IST YEAR		60%		2.75
IIND YEAR		70%		3.21
IIIRD YEAR		80%		3.67
IVTH YEAR		90%		4.13
VTH YEAR		100%		4.58

BREAK EVEN POINT ANALYSIS

Year	I	II	III	IV	V
Net Sales & Other Income	38.94	48.31	55.31	62.31	69.31
Less : Op. WIP Goods	-	3.46	3.92	4.48	5.04
Add : Cl. WIP Goods	3.46	3.92	4.48	5.04	5.60
Total Sales	42.40	48.77	55.87	62.87	69.87
Variable & Semi Variable Exp.					
Raw Material & Tax	19.39	22.62	25.85	29.08	32.31
Electricity Exp/Coal Consumption at 85%	2.34	2.73	3.12	3.51	3.90
Manufacturing Expenses 80%	0.93	1.55	1.77	1.99	2.22
Wages & Salary at 60%	4.28	4.70	5.17	5.69	6.26
Selling & administrative Expenses 80%	0.62	0.77	0.88	1.00	1.11
Intt. On Working Capital Loan	0.71	0.71	0.71	0.71	0.71
Total Variable & Semi Variable Exp	28.27	33.08	37.51	41.98	46.51
Contribution	14.13	15.69	18.36	20.89	23.36
Fixed & Semi Fixed Expenses					
Manufacturing Expenses 20%	0.23	0.39	0.44	0.50	0.55
Electricity Exp/Coal Consumption at 15%	0.41	0.48	0.55	0.62	0.69
Wages & Salary at 40%	2.85	3.14	3.45	3.79	4.17
Interest on Term Loan	1.25	1.51	1.09	0.68	0.27
Depreciation	2.00	1.76	1.52	1.32	1.14
Selling & administrative Expenses 20%	0.16	0.19	0.22	0.25	0.28
Total Fixed Expenses	6.90	7.47	7.28	7.15	7.10
Capacity Utilization	60%	70%	80%	90%	100%
OPERATING PROFIT	7.23	8.22	11.08	13.74	16.26
BREAK EVEN POINT	29%	33%	32%	31%	30%
BREAK EVEN SALES	20.71	23.21	22.14	21.53	21.25

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