PROJECT REPORT

Of

MAGNESIUM STEARATE

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Magnesium stearate**

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.

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PROJECT REPORT

On

MAGNESIUM STEARATE

INTRODUCTION:

Magnesium Stearate is a white soapy powder. It is solid at room temperature. It is combination of Stearic Acid and the essential mineral Magnesium. It is a Magnesium Salt of Fatty Acid [C16 to C18] and contains no trans fatty acids. Magnesium Stearate contains the equivalent of not less than 6.8 % and not more than 8.3 % of MgO and is a mixture of pure Stearic Acid and Palmitic Acid where the content of Stearic Acid is not less than 40% and the sum of the two acids is not less than 90 %. The British Pharmacopeias 1993 describes Magnesium Stearate as consisting mainly of Magnesium Stearate with variable proportions of Magnesium Palmitate and Magnesium Oleate.

Stearic Acid also called Octadecanoic Acid is one of the most common long chain fatty acids, found in both natural animal & vegetable fats, known also by its structural description of being an 18 – Carbon chain fatty acid (18:0) . The FDA has affirmed that Stearic Acid is GRAS (Generally Regarded As Safe) and can be added to foods in accordance with Goods Manufacturing Practices (GMP), now as a GMP certified manufacturer. Its IUPAC name is Magnesium Octadecanoate with a chemical structure of $C_{36}H_{70}MgO_4$.

MARKET POTENTIAL:

Metallic Stearates are used as additives in chemical industries, so as to import certain specific characteristics in product formulations. Important industries using stearates are given below:

- Paints and Varnishes,
- Cement paints
- Leather lacquers and sanding sealers.
- Manufacture of compound for PVC Pipes
- Rubber Industry
- Cosmetics Industry
- Pharmaceuticals

- Engineering Industries (wire drawing)
- Soap Industry.
- Tooth Paste

The primary use of Magnesium Stearte is as a pharmaceutical excipient, which means it is among the FDA list of 40 official categories of excipients. It is used as a glidant or granulating agent. A good number of chemical industries in the field of Pharmaceuticals, paints and varnishes, cement paints, cosmetics, PVC pipes manufacture etc. have come into existence throughout the country. These units are using a large quantity of Metallic Stearates especially Calcium Stearate, Zinc Stearate, Magnesium Stearate and Aluminum Stearate. In view of the above future growth of the user industries, the demand for metallic stearates is expected to grow at a faster rate.

Stearic Acid is a waxy oil fraction that acts as a lubricant to fill capsules, when a dry powdered ingredient is un cooperative, based on issues involving density, stickiness, flow ability under pressure etc. It is also used as an ingredient that helps tablets hold together and break apart properly.
Its major use in the industry as a lubricant, dusting powder, emulsifier, binder, paint and varnish drier etc.. It is used in pharmaceuticals drugs as binder in order to bind tablets and make them smooth. With no side effects known, it is also used as a common additive or preservative in several foods It is an effective emulsifier used in syrups, ketchups, sauces etc. Confectioneries use it for binding candies etc.
Baby cosmetic powder use it as it provides a softer texture than talcum powder.
When used as industrial binder, it is always taken in lower concentrations. It is an effective binder and even concentrations as low as 5- 15 %. Higher concentrations can cause compaction problems.
As a lubricant it is added in the powder blend. This is done so that powder blend does not adhere to the capsule or mould when it become s compact.
It is hydrophobic substance i.e. it has negative affinity with water.
Hence it can be used in designing firefighting equipments

BASIS AND PRESUMPTIONS:

a. The estimates are drawn for a production capacity generally considered techno economically viable for model type of manufacturing activity.
b. The production is based on single shift of eight hours and 300 working days per annum.
c. The cost in respect of Plan & Machinery has been taken at the time of preparation of Project Profile, which may vary from place to place and time to time.
d. The project is based on standard type of manufacturing activity utilizing conventional techniques of production at optimum levels of performance.

1. IMPLEMENTATION SCHEDULE:

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

Sr. No.	Activity	Estimated Period
1.	Registration under MSME Act	0-1 Month
2.	Preparation of scheme	0-1 Month
3.	Sanction of loan	1-5 Month
4.	Placement of Order for Plant & Machinery	5-6 Month
5.	Power & Water Connection	5-6 Month
6.	Installation of Plant & Machinery	6-7 Month
7.	Procurement of Raw material & Trial Run	7-8 Month
8.	Commercial Production	8th Month onwards

TECHNICAL ASPECTS:

a. Production Capacity : 120 M.T. Per Annum

b. Quality Control & Standards : As per Customer Specs.

c. Manufacturing Method:

Magnesium stearate is manufactured by the action of sodium stearate with the solution of Magnesium Chloride. The precipitate Magnesium Stearate is removed by the filtration washed thoroughly dried, powdered and packed.

Physical & Chemical Properties :

Physical Form : White Powder
Odor : Odorless Molecular Weight :591.27
Melting /Freezing Point : 54^0C
Solubility in Water : Insoluble in Water
Sp. Gravity : 1.028

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PROJECT AT A GLANCE

1	Name of the Entreprenuer	XXXXXXX		
2	Constitution (legal Status)	XXXXXXX		
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	: **Magnesium Stearate**		
6	Name of the project / business activity proposed	**Magnesium Stearate**		
7	Cost of Project	: Rs24.00lac		
8	Means of Finance			
	Term Loan	Rs.13.1 Lacs		
	KVIC Margin Money	- As per Project Eligibility		
	Own Capital	Rs.2.4 Lacs		
	Working Capital	Rs.8.51 Lacs		
9	Debt Service Coverage Ratio	: 3.34		
10	Pay Back Period	: 5	Years	
11	Project Implementation Period	: 8	Months	
12	Break Even Point	: 34%		
13	Employment	: 10	Persons	
14	Power Requirement	: 10.00	HP	
15	Major Raw materials	: Stearic acid ,soda Ash,Magnesium chloride		
16	Estimated Annual Sales Turnover	: 68.04	Lacs	
16	Detailed Cost of Project & Means of Finance			

COST OF PROJECT

(Rs. In Lacs)

Particulars	Amount
Land 3000 Sqft	Rented/Owned
Building /shed (1800 Sq Ft)	4.50
Plant & Machinery	8.85
Furniture & Fixtures	0.61
Pre-operative Expenses	0.60
Working Capital Requirement	9.45
Total	**24.00**

MEANS OF FINANCE

Particulars	Amount
Own Contribution @10%	2.40
Term Loan	13.10
Workign Capital Finance	8.51
Total	**24.00**

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

PLANT & MACHINERY

PARTICULARS	QTY.	RATE	AMOUNT IN RS.
S.S. Reaction vessel cylindrical 1500 literscapacity.	1 No.	100,000.00	100,000.00
S.S. Tanks Rectangular with conical bottom and fitted with outlet value 500Kg. Cap.	3 Nos.	50,000.00	150,000.00
Filter press plate and frame 18"x18"(24 plates)	1 No.	60,000.00	60,000.00
Drier 100 trays with heating arrangementand with exhaust fan	2 Nos.	125,000.00	250,000.00
Boiler 100 psi and 100 Kg/hr.	1 No.	120,000.00	120,000.00
Misc. equipments viz. Portable stirrer with motor , Centrifugal pump with motor,Pulveriser with motor Weighing balance etc	1 No.	100,000.00	100,000.00
Laboratory equipment	L.S.	25,000.00	25,000.00
Installation charges @ 10% of the cost ofPlant & Machinery		80,000.00	80,000.00
Total			885,000.00

PROJECTED CASH FLOW STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Share Capital	2.40	-			
Reserve & Surplus	6.77	9.30	12.26	15.09	17.76
Depriciation & Exp. W/off	1.81	1.59	1.38	1.19	1.03
Increase in Cash Credit	8.51	-	-	-	-
Increase In Term Loan	13.10	-	-	-	-
Increase in Creditors	4.80	0.80	0.80	0.80	0.80
Increase in Provisions	0.36	0.04	0.04	0.04	0.05
TOTAL :	**37.75**	**11.72**	**14.48**	**17.12**	**19.64**
APPLICATION OF FUND					
Increase in Fixed Assets	13.96	-	-	-	-
Increase in Stock	10.85	1.81	1.81	1.81	1.81
Increase in Debtors	3.40	0.95	0.63	0.63	0.63
Increase in Deposits & Adv	2.50	0.25	0.28	0.30	0.33
Repayment of Term Loan	-	3.28	3.28	3.28	2.74
Taxation	0.68	0.93	2.45	3.02	3.55
TOTAL :	**31.39**	**7.21**	**8.44**	**9.03**	**9.06**
Opening Cash & Bank Balance	-	6.36	10.87	16.91	25.00
Add : Surplus	6.36	4.51	6.04	8.09	10.58
Closing Cash & Bank Balance	**6.36**	**10.87**	**16.91**	**25.00**	**35.58**

PROJECTED BALANCE SHEET

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Capital Account	2.40	2.40	2.40	2.40	2.40
Retained Profit	6.09	14.46	24.27	36.34	50.55
Term Loan	13.10	9.83	6.55	3.28	0.54
Cash Credit	8.51	8.51	8.51	8.51	8.51
Sundry Creditors	4.80	5.60	6.40	7.20	8.00
Provisions & Other Liab	0.36	0.40	0.44	0.48	0.53
TOTAL :	**35.26**	**41.19**	**48.56**	**58.20**	**70.52**
APPLICATION OF FUND					
Fixed Assets (Gross)	13.96	13.96	13.96	13.96	13.96
Gross Dep.	1.81	3.40	4.78	5.97	7.00
Net Fixed Assets	12.15	10.56	9.18	7.99	6.96
Current Assets					
Sundry Debtors	3.40	4.35	4.98	5.61	6.24
Stock in Hand	10.85	12.66	14.47	16.27	18.08
Cash and Bank	6.36	10.87	16.91	25.00	35.58
Deposits & Advances	2.50	2.75	3.03	3.33	3.66
TOTAL :	**35.26**	**41.19**	**48.56**	**58.20**	**70.52**
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
A) SALES					
Gross Sale	68.04	86.94	99.54	112.14	124.74
Total (A)	**68.04**	**86.94**	**99.54**	**112.14**	**124.74**
B) COST OF SALES					
Raw Mateiral Consumed	48.01	56.01	64.02	72.02	80.02
Elecricity Expenses	0.86	1.00	1.15	1.29	1.43
Repair & Maintenance	-	0.87	1.00	1.12	1.25
Labour & Wages	5.28	5.81	6.39	7.03	7.73
Depriciation	1.81	1.59	1.38	1.19	1.03
Consumables,packaging and Other Expenses	3.40	4.35	4.98	5.61	6.24
Cost of Production	59.36	69.63	78.90	88.25	97.70
Add: Opening Stock /WIP	-	6.05	7.06	8.06	9.07
Less: Closing Stock /WIP	6.05	7.06	8.06	9.07	10.08
Cost of Sales (B)	53.31	68.62	77.89	87.25	96.69
C) GROSS PROFIT (A-B)	14.73	18.32	21.65	24.89	28.05
	22%	**21%**	**22%**	**22%**	**22%**
D) Bank Interest (Term Loan)	1.13	1.37	0.99	0.61	0.24
Bank Interest (C.C. Limit)	0.98	0.98	0.98	0.98	0.98
E) Salary to Staff	4.49	4.94	5.43	5.97	6.57
F) Selling & Adm Expenses Exp.	1.36	1.74	1.99	2.24	2.49
TOTAL (D+E)	**7.96**	**9.02**	**9.39**	**9.81**	**10.29**
H) NET PROFIT	6.77	9.30	12.26	15.09	17.76
I) Taxation	0.68	0.93	2.45	3.02	3.55
J) PROFIT (After Tax)	6.09	8.37	9.81	12.07	14.21

COMPUTATION OF MANUFACTURING OF Magnesium Stearate

Items to be Manufactured **Magnesium Stearate**

Manufacturing Capacity per day	-	0.40	MT
	-		
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		120.00	MT
Year		Capacity	MT
		Utilisation	
IST YEAR		60%	72
IIND YEAR		70%	84
IIIRD YEAR		80%	96
IVTH YEAR		90%	108
VTH YEAR		100%	120

COMPUTATION OF RAW MATERIAL

Item Name		Quantity of	Recovery	Unit Rate of	Total Cost
		Raw Material		/MT	Per Annum (100%)
	100%	MT			
Stearic acid		160.00	100.00%	45,000.00	7,200,000.00
Soda ash		33.00	100.00%	18,000.00	594,000.00
Magnesium chloride		26.00	100.00%	8,000.00	208,000.00
		-		-	-
			Total (Rounded off in lacs)		8,002,000.00

Annual Consumption cost (In Lacs) 80.02

Raw Material Consumed	Capacity Utilisation	Amount (Rs.)
IST YEAR	60%	48.01
IIND YEAR	70%	56.01
IIIRD YEAR	80%	64.02
IVTH YEAR	90%	72.02
VTH YEAR	100%	80.02

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Finished Goods					
(30Days requirement)	6.05	7.06	8.06	9.07	10.08
Raw Material					
(30 Days requirement)	4.80	5.60	6.40	7.20	8.00
Closing Stock	**10.85**	**12.66**	**14.47**	**16.27**	**18.08**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars			Total
			Amount
Stock in Hand			10.85
Sundry Debtors			3.40
		Total	14.25
Sundry Creditors			4.80
Working Capital Requirement			**9.45**
Margin			0.95
Working Capital Finance			**8.51**

BREAK UP OF LABOUR

Particulars		Wages Per Month	No of Employees	Total Salary
Chemist/Supervisor		12,000.00	1	12,000.00
Skilled Worker		8,000.00	2	16,000.00
Unskilled Worker		6,000.00	4	24,000.00
				40,000.00
Add: 10% Fringe Benefit				4,000.00
Total Labour Cost Per Month				44,000.00
Total Labour Cost for the year (In Rs. Lakhs)			7	5.28

BREAK UP OF SALARY

Particulars		Salary Per Month	No of Employees	Total Salary
Manager		15,000.00	1	15,000.00
Accountant		9,000.00	1	9,000.00
Sales		10,000.00	1	10,000.00
Total Salary Per Month				34,000.00
Add: 10% Fringe Benefit				3,400.00
Total Salary for the month				37,400.00
Total Salary for the year (In Rs. Lakhs)			3	4.49

COMPUTATION OF DEPRECIATION

Description	Land	Building/shed	Plant & Machinery	Furniture	**TOTAL**
Rate of Depreciation		**10.00%**	**15.00%**	**10.00%**	
Opening Balance	Leased	-	-	-	-
Addition	-	4.50	8.85	0.61	13.96
	-	4.50	8.85	0.61	13.96
Less : Depreciation	-	0.45	1.33	0.03	1.81
WDV at end of Ist year	-	4.05	7.52	0.58	12.15
Additions During The Year	-	-	-	-	-
	-	4.05	7.52	0.58	12.15
Less : Depreciation	-	0.41	1.13	0.06	1.59
WDV at end of IInd Year	-	3.65	6.39	0.52	10.56
Additions During The Year	-	-	-	-	-
	-	3.65	6.39	0.52	10.56
Less : Depreciation	-	0.36	0.96	0.05	1.38
WDV at end of IIIrd year	-	3.28	5.44	0.47	9.18
Additions During The Year	-	-	-	-	-
	-	3.28	5.44	0.47	9.18
Less : Depreciation	-	0.33	0.82	0.05	1.19
WDV at end of IV year	-	2.95	4.62	0.42	7.99
Additions During The Year	-	-	-	-	-
	-	2.95	4.62	0.42	7.99
Less : Depreciation	-	0.30	0.69	0.04	1.03
WDV at end of Vth year	-	2.66	3.93	0.38	6.96

REPAYMENT SCHEDULE OF TERM LOAN 11.5%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
IST YEAR	Opening Balance						
	Ist Quarter	-	13.10	13.10	-	-	13.10
	Iind Quarter	13.10	-	13.10	0.38	-	13.10
	IIIrd Quarter	13.10	-	13.10	0.38	-	13.10
	Ivth Quarter	13.10	-	13.10	0.38	-	13.10
					1.13	-	
IIND YEAR	Opening Balance						
	Ist Quarter	13.10	-	13.10	0.38	0.82	12.29
	Iind Quarter	12.29	-	12.29	0.35	0.82	11.47
	IIIrd Quarter	11.47	-	11.47	0.33	0.82	10.65
	Ivth Quarter	10.65		10.65	0.31	0.82	9.83
					1.37	3.28	
IIIRD YEAR	Opening Balance						
	Ist Quarter	9.83	-	9.83	0.28	0.82	9.01
	Iind Quarter	9.01	-	9.01	0.26	0.82	8.19
	IIIrd Quarter	8.19	-	8.19	0.24	0.82	7.37
	Ivth Quarter	7.37		7.37	0.21	0.82	6.55
					0.99	3.28	
IVTH YEAR	Opening Balance						
	Ist Quarter	6.55	-	6.55	0.19	0.82	5.73
	Iind Quarter	5.73	-	5.73	0.16	0.82	4.91
	IIIrd Quarter	4.91	-	4.91	0.14	0.82	4.10
	Ivth Quarter	4.10		4.10	0.12	0.82	3.28
					0.61	3.28	
VTH YEAR	Opening Balance						
	Ist Quarter	3.28	-	3.28	0.09	0.82	2.46
	Iind Quarter	2.46	-	2.46	0.07	0.82	1.64
	IIIrd Quarter	1.64	-	1.64	0.05	0.55	1.09
	Ivth Quarter	1.09		1.09	0.03	0.55	0.54
					0.24	2.74	

CALCULATION OF D.S.C.R

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
CASH ACCRUALS	7.90	9.96	11.18	13.26	15.24
Interest on Term Loan	1.13	1.37	0.99	0.61	0.24
Total	9.03	11.32	12.17	13.87	15.48
REPAYMENT					
Instalment of Term Loan	3.28	3.28	3.28	2.74	2.74
Interest on Term Loan	1.13	1.37	0.99	0.61	0.24
Total	4.41	4.64	4.26	3.35	2.98
DEBT SERVICE COVERAGE RAT	**2.05**	**2.44**	**2.85**	**4.14**	**5.19**
AVERAGE D.S.C.R.			**3.34**		

COMPUTATION OF SALE

Particulars	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Op Stock	-	7.20	8.40	9.60	10.80
Production	72.00	84.00	96.00	108.00	120.00
	72.00	91.20	104.40	117.60	130.80
Less : Closing Stock	7.20	8.40	9.60	10.80	12.00
Net Sale	64.80	82.80	94.80	106.80	118.80
Sale Price per MT	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00
Sale (in Lacs)	**68.04**	**86.94**	**99.54**	**112.14**	**124.74**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	10	
Load Factor			0.7460	
Electricity Charges		per unit	8.00	
Total Working Days			300	
Electricity Charges (8 Hrs Per day)				143,232.00
Add : Minimim Charges (@ 10%)				
(B) DG 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%				1.43
Year		**Capacity**		**Amount**
				(in Lacs)
IST YEAR		60%		0.86
IIND YEAR		70%		1.00
IIIRD YEAR		80%		1.15
IVTH YEAR		90%		1.29
VTH YEAR		100%		1.43

BREAK EVEN POINT ANALYSIS

Year	I	II	III	IV	V
Net Sales & Other Income	68.04	86.94	99.54	112.14	124.74
Less : Op. WIP Goods	-	6.05	7.06	8.06	9.07
Add : Cl. WIP Goods	6.05	7.06	8.06	9.07	10.08
Total Sales	**74.09**	**87.95**	**100.55**	**113.15**	**125.75**
Variable & Semi Variable Exp.					
Raw Material & Tax	48.01	56.01	64.02	72.02	80.02
Electricity Exp/Coal Consumption at 85%	0.73	0.85	0.97	1.10	1.22
Manufacturing Expenses 80%	2.72	4.17	4.78	5.38	5.99
Wages & Salary at 60%	5.86	6.45	7.09	7.80	8.58
Selling & adminstrative Expenses 80%	1.09	1.39	1.59	1.79	2.00
Intt. On Working Capital Loan	0.98	0.98	0.98	0.98	0.98
Total Variable & Semi Variable Exp	**59.39**	**69.86**	**79.43**	**89.07**	**98.78**
Contribution	**14.70**	**18.09**	**21.12**	**24.08**	**26.97**
Fixed & Semi Fixed Expenses					
Manufacturing Expenses 20%	0.68	1.04	1.19	1.35	1.50
Electricity Exp/Coal Consumption at 15%	0.13	0.15	0.17	0.19	0.21
Wages & Salary at 40%	3.91	4.30	4.73	5.20	5.72
Interest on Term Loan	1.13	1.37	0.99	0.61	0.24
Depreciation	1.81	1.59	1.38	1.19	1.03
Selling & adminstrative Expenses 20%	0.27	0.35	0.40	0.45	0.50
Total Fixed Expenses	**7.93**	**8.80**	**8.86**	**8.99**	**9.20**
Capacity Utilization	**60%**	**70%**	**80%**	**90%**	**100%**
OPERATING PROFIT	**6.77**	**9.30**	**12.26**	**15.09**	**17.76**
BREAK EVEN POINT	**32%**	**34%**	**34%**	**34%**	**34%**
BREAK EVEN SALES	**39.96**	**42.76**	**42.17**	**42.25**	**42.92**

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