Project Profile
On
Magnesium Stearate

1. Quality Control & Standards : As per customer Specs.

2. Production Capacity : 120 M.T. per Annum

3. Month & Year of Preparation : March, 2010

Govt. of India,
Ministry of MSME

MSME-Development Institute

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1. 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 (Genrally 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 $C_{36}H_{70}MgO_4$.

2. 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

3. 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. Labor charges has been taken as per State Govt. norms.
e. The project is based on standard type of manufacturing activity utilizing conventional techniques of production at optimum levels of performance.

4. 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

5. 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

6. FINANCIAL ASPECTS :

Sr. No.	Description	Quantity	Value (Rs.)
a.	**Land 300 Sq.mtr.** Building covered area 180 Sq.mtrs. on rental basis	L.S	10,000.00
b.	**Machinery & Equipments**		
i)	S.S. Reaction vessel cylindrical 1500 liters capacity.	1 No.	1,00,000.00
ii)	S.S. Tanks Rectangular with conical bottom and fitted with outlet value 500 Kg. Cap.	3 Nos.	1,50,000.00
iii)	Filter press plate and frame 18"x18" (24 plates)	1 No.	60,000.00
iv)	Drier 100 trays with heating arrangement and with exhaust fan	2 Nos.	2,50,000.00
v)	Boiler 100 psi and 100 Kg/hr.	1 No.	1,20,000.00
vi)	Misc. equipments viz. Portable stirrer with motor , Centrifugal pump with motor, Pulveriser with motor Weighing balance etc.	1 No.	1,00,000.00
vii)	Laboratory equipment	L.S.	25,000.00
viii)	Office furniture	L.S.	25,000.00
ix)	Installation charges @ 10% of the cost of Plant & Machinery		80,500.00
x)	Preoperative Expenses	L.S.	25,000.00
		Total:	**9,35,500.00**

c. RAW & PACKING MATERIALS PER MONTH:

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Stearic acid @ Rs. 45 Per kg.	13.2 M.T.	5,94,000.00
02.	Soda ash @ Rs. 20 per kg.	2.76 M.T.	55,200.00
03.	Magnesium chloride @ Rs. 8 per Kg.	2.17 M.T.	17,360.00
04.	Packaging material L.S.	L.S.	6,000.00
		Total	**6,72,560.00**

d. SALARY & WAGES PER MONTH:

Sr. No.	Description	Quantity	Amount (Rs.)
01.	Manager / Chemist	1 No.	5,000.00
02.	Supervisor	1 Nos.	4,000.00
03.	Accountant	1Nos.	4,000.00
04.	Skilled workers	2 Nos.	6,000.00
05.	Unskilled Workers	4 Nos.	10,000.00
		Total	**29,000.00**

e. UTILITIES PER MONTH:

Sr. No.	Description		Amount (Rs.)
01.	Electricity @ Rs.5.50 per unit.	10 HP	6,000.00
02.	White Coal	6,500 Kg.	19,500.00
03.	Water	L.S.	1,500.00
		Total	**27,000.00**

f. OTHER EXPENSES PER MONTH:

Sr. No.	Description	Amount (Rs.)
01.	Rent	10,000.00
02.	Telephone Expenses	1,000.00
03.	Postage & Stationery	1,000.00
04.	Marketing & Traveling Expenses	10,000.00
05.	Repairs & Maintenance @ Rs.100 per M.T.	3,750.00
06.	Insurance 2% of the cost of Plant & Machinery	1,175.00
07.	Other Misc. Expenses	1,000.00
	Total	**27,925.00**

g. WORKING CAPITAL PER MONTH: **7,56,485.00**

or say 7,56,500.00

(c + d + e + f)

h. TOTAL CAPITAL INVESTMENT:

Sr. No.	Description	Amount (Rs.)
01.	Fixed Capital	9,35,500.00
02.	Working capital Three Months	22,69,500.00
	Total	**32,05,000.00**

7. FINANCIAL ANALYSIS:

a. COST OF PRODUCTION PER ANNUM:

Sr. No.	Description	Amount (Rs.)
01.	Raw & Packing Materials	80,70,720.00
02.	Salary & Wages	3,48,000.00
03.	Utilities	3,24,000.00
04.	Other Expenses	3,35,100.00
04.	Interest on borrowed Capital @ 13 % per annum	4,16,650.00
05.	Depreciation on machinery & equipment @ 10%	80,500.00
	Total:	**95,74,970.00**
	Or Say	**95,75,000.00**

b. TURNOVER PER ANNUM :

120 MTS Magnesium Stearate @ Rs.90,000/- per M.T. **1,08,00,000.00**

c. PROFIT PER ANNUM:

Profit = Total Turnover - Cost of Production

= Rs.1,08,00,000 - Rs.95,75,000

= **Rs.12,25,000**

d. PROFIT ON SALES:

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

$$= \frac{12,25,000}{1,08,00,000} \times 100$$

= **11.3 %**

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

$$ROR = \frac{\text{Profit}}{\text{Total Capital Investment}} \times 100$$

$$= \frac{12,25,000}{32,05,000} \times 100$$

$$= \mathbf{38.2\ \%}$$

f. BREAK EVEN ANALYSIS :

FIXED COST :

Sr. No.	Description	Amount (Rs.)
01.	Interest on borrowed capital @ 13 % p.a.	4,16,650.00
02.	Depreciation on Machinery & Equipments @ 10% p.a.	80,500.00
03.	40% of Salary & Wages	1,39,200.00
04.	40 % of Other Expenses	1,34,040.00
	Total	**7,70,390.00**
	Or say	**7,70,000.00**

BREAK – EVEN POINT (B.E.P.) :

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

$$= \frac{\text{Rs. 7,70,000}}{\text{Rs. 7,70,000 + Rs.12,25,000}} \times 100$$

$$= \mathbf{38.6\ \%}$$

NAMES AND ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS:

01. M/s. Mani Agro Chem.
5 - A, Sengalpatty 4th Street, Karungalpatty,
Salem – 636006, **Tamilnadu.**
Tel. No. (0427)2466010, 2469599 Fax No. (0427)2465889
Cont. Person : Shri V. Rasappan Mani / Shri Prem Mani
Mobile No. : 09842716688 / 09943068899
E – mail : maniagrochem@eth.net, maniagrochem@gmail.com

02. M/s. Unique Enterprises
201, Konarka Mugdha Apartment,
36, Saraswati Cooperative Housing Society,
Deendayal Nagar,
Nagpur – 22.
Tel. No. (0712)2224362, (07104)235675
Cont. Person : Dr. Mukund Moholkar, Mb: 09823116709
Website: www.uniquepulveriser.com,
E – mail: uniquepulveriser@mahamail.com

03. M/s. Qazi Engineering Pvt. Ltd.
G-21, Upsidc Industrial Area, Site No.1, Panki,
Kanpur – 208022 (U.P.)
Tel. No.(0512)2692353, 3242808, 6456117, Fax. No. (0512)2692353
Cont. Person: Shri S.H.Qazi, Mb: 9336118246
Website : www.qaziengineering.org.

NAMES AND ADDRESSES OF RAW MATERIAL SUPPLIERS:

1. M/s. Almora Magnestite Ltd., Magnesite House , Ranidhara Road, **Almora - 263601 (Uttaranchal).**
Tel. No.(05962)233010, 233023, Fax No. (05962)234164.
Cont. Persons :
(i) Shri B.Misra, Managing Director, Mb: 09412093642
(ii) Shri Ashish Pandey, Company Secretary, Mb: 09412093642
(iii) Shri P.S.Rawat, General Manager, (05963)255012
Website : www.almoramagnesite.com ,
E-mail:almora_magnesite@rediffmail.com

2. M/s. Swastik Acids & Chemicals, Near Sai Mandir, Opp: Methi Hospital, Chandrashekar Azad Square, Behind Arafat Hotel, Central Avenue, **Nagpur – 440032.**
Tel No. (0712)2764908, 2763548, Fax No. 2770343.
E – mail: swachem@gmail.com

3. 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

4. M/s. Tata Chemicals
Bombay House, 24, Homy Mody Street, Fort,
Mumbai – 400001
Tel No. (022)66658282, Fax : (022)66658143/44
Website: www.tatachemicals.com