



ENGINEERS INDIA RESEARCH INSTITUTE
We Create Industrialists

DETAILED FEASIBILITY REPORT

(PROJECT FEASIBILITY REPORT)

ON

MALTODEXTRIN FROM MAIZE



IDENTIFICATION & EVALUATION DIVISION FOR HI-TECH PROJECTS

ENGINEERS INDIA RESEARCH INSTITUTE

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CODE : EIRI/DFR/0254
J.C. : 7782



C A U T I O N

This project report has been prepared on the basis of information available with **M/S. ENGINEERS INDIA RESEARCH INSTITUTE**. The intention here is to provide preliminary information to the prospective entrepreneur. Prior to making a firm decision for investment in the project the entrepreneur must verify the various feasibility aspects together along with the addresses for the procurement of plant & machinery and raw materials independently. The information supplied in this report is obtained from the reliable sources but it is not guaranteed and the money once paid will not be refunded back in any case. Claims for incomprehensiveness of the project report will not be entertained and no legal action in this regard would be entertained in any case (Subject to Delhi Jurisdiction only). Any matter relating to our standard points covered in the report may be modified with in 5 days time only from the date of purchase.

ENGINEERS INDIA RESEARCH INSTITUTE, 4449 NAI SARA, DELHI-110006.



(EIRI/DFR0254) (J.C.7782)

CONTENTS

PAGE

APPENDIX - A

1. COST OF PLANT ECONOMICS	A 1
2. LAND & BUILDING	A 2
3. PLANT AND MACHINERY	A 3
4. FIXED CAPITAL INVESTMENT	A 5
5. RAW MATERIAL	A 6
6. SALARY AND WAGES	A 7
7. UTILITIES AND OVERHEADS	A 8
8. TOTAL WORKING CAPITAL	A 9
9. COST OF PRODUCTION	A11
10. PROFITABILITY ANALYSIS	A12
11. BREAK EVEN POINT	A13
12. RESOURCES OF FINANCE	A14



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MALTO DEXTRIN FROM MAIZE

INTRODUCTION

Maltodextrins are products with a low Dextrose Equivalent (DE) from 3 to 20, obtained by enzyme Conversion (usually Alpha-amylase). They are usually spray dried powders (less than 5 percent moisture) as the corresponding liquids have extremely high viscosities and tend to become cloudy on storage. Among Maltodextrins, the very low DE product is prepared from waxy corn starch, a natural starch that is almost entirely the amylopectin polymer.

Maltodextrin is a purified concentrated aqueous solution of nutritive saccharides obtained from edible starch, or the dried product derived from said solution and having a dextrose equivalent (DE) less than 20:



USES AND MALTODEXTRINS

Maltodextrins act as stabilizers in aerated products such as marshmallows. They are used as protective glazes on hard candies and other confections. In some instances, maltodextrins may replace gum arabic.



PROPERTIES OF CHARACTERISTICS

Maltodextrins are the products having Dextrose Equivalent (DE) less than 20 (Range : From 3 to 20).

Usually Maltodextrins are spray- dried powders having less than 5% moisture.

When in liquid form, maltodextrins have high viscosities and low sweetness.

They inhibit sucrose crystallization maltodextrins have low hygroscopicity owing to their viscosity, maltodextrins impart a chewy texture to candies and other confections.



SACCHARIDE COMPOSITION OF COMMERCIAL MALTODEXTRINS

MALTODEXTRIN

Dextrose equivalent	Dextrose, %	Maltose, %	Saccharides from trito hepta, %	Polysaccharides, i.e. above the hepta-saccharides, %
5 DE	less than 1%	1-2	5-7	92
10-13DE	1-2	3-4	20	75
17DE	2-3	5-6	24	68
20DE	4-5	8-10	28	58



BIS SPECIFICATIONS

As such there are no BIS Specification on Maltodextrin.



MARKET SURVEY

In view of the field of application of maltodextrins, as stabilizers in alrated products such as marshmallows, as protective glazes as hard candies and other confections and food products, etc. their demand is increasing at considerable pace.

In order to cater to the artgrowing demand of the product, there is an imperative need to establish more number of units.

Thus, in the lime light of the facts enumerated above, a new entrepreneur can venture into this field.

It is a lucrative trade with good future scope.



MANUFACTURING PROCESS FOR MALTODEXTRIN FROM MAIZE

This carried out in two parts.

- (I) Preparation of Starch from maize.
- (II) Conversion of starch into maltodextrin.

- (I) Preparation of Starch from maize.

PROCESS DESCRIPTION

Wet milling or the classical process is the only process is the only process for the manufacture of starch which is universally in commercial use. Starch manufactured by this process can be used by textiles, paper and food industries. Starch manufactured by dry milling can only be used by food industry and hence dry milling process does not have much scope.

The wet milling process can be divided into seven major steps. There are:

- 1) Cleaning and Seaking (steeping) of maize
- 2) Steep liquor concentration
- 3) Crude germ oil recovery
- 4) Fibre separation
- 5) Gluten (protein protion) separation and concentration
- 6) Mixed food processing for cattle feed
- 7) Starch washing, dewatering and drying



5.1 CLEANING AND SOAKING

The maize received at site is weighed, cleaned by grain cleaners and stored in silos. When required, it is again cleaned. This operation is known as dry cleaning of maize, which removes dust, broken grain and foreign matters. This eject from the grain is mixed with cattle feed. After cleaning, the grains is once again weighed before steeping.

Sulphur is burnt separately in a rotary burner. Generated sulphur dioxide is cooled and absorbed in an absorption tower. The sulphuours acid formed is known as steep acid. It is pumped to steep acid tank where weighed again as already been added. The grain is soaked for 48 hour in warm steep acid, the temperature being maintained at 50-55~C. The steep inhibits fermentation and softens the kernel.



5.2 STEEP LIQUOR CONCENTRATION

During the steeping period, solubles are leached out of the maize grain, including those from the germ fraction. The steep liquor is drawn off from the steeping tanks. It is concentrated to about 50% solids in three stages. Vapours coming out of evaporators are condensed and the hot water from condenser is used for making steep acid again.

5.3 CRUDE GEM OIL RECOVERY

The grain, after steeping is dewatered in a DSM dewatering screen. The softened corn kernels are degerminated between two studded steelplates, one rotating and one stationary, which tear the kernels apart and extricate the corn germs without crushing them. The germs are made into a slurry and are floated away from the rest of the kernel, because of their high oil content. They are then dewatered by DSM dewatering screen and go for expelling and oil recovery.

Primary grinding or determination is a difficult separation since maize has to be partially macerated to remove the pericarp (outer fibrous layers), free the germ from endosperm by breaking up the endosperm partially and at the same time not damage the germs.

5.4 FIBRE SEPARATION

Grain slurry is again dewatered in a DSM dewatering screen. The degerminated maize at this stage contains fibre, starch and protein. Fine grinding is done in a secondary grinding mill. The starch and gluten (protein) are reduced to a fine particle size while fibres is not reduced to the same degree and hence can be separated.



5.5 GLUTEN SEPARATION AND CONCENTRATION

Gluten is separated from starch particles by hydrocyclones, where the heavier starch granules settle out at the bottom while the lighter gluten particles are carried off in the overflow.

5.6 MIXED FEED PROCESSING

Washed and filtered fibres, from step 4, corn rejects from step 1, concentrated steep liquor from step 2 and gluten from the previous step are mixed in the required proportions to the desired protein content, suitable for making cattle feed. The mixed feed is dried in flash drier to and milled to the required size.

5.7 STARCH WASHING DEWATERING AND DRYING

Starch slurry free of gluten is washed with fresh water in a series of hydrocyclones.

It is then pumped to a dewatering centrifuge where water is removed and recycled to prime starch tank. Drying of starch is done in a flash driner.

Starch slurry can directly be sent to glucose, dextrose or modified starch manufacture, if required



CONVERSION OF STARCH INTO MALTODEXTRIN

The starch obtained from the above is then converted into Maltodextrin (having a dextrose equivalent (DE) less than 20).

Maltodextrin is prepared from starch by enzyme or acid process to products of 12-20 DE, clarified, refined, spray dried to a moisture content of 3-5 Wt. %.

Maltodextrin obtained by enzyme conversion usually makes use of Alpha-amylase.,

In the acid/enzyme process, the starch slurry is partly converted by acid to a given DE, which indicates a low dextrin content. This is then treated with the appropriate enzyme (e.g. Alpha- Amylase) to complete the conversion.

Acidhydrolysis of maize starch is conducted by batch or continuous process. Batchwise conversion is carried out in cooker or converter, which is usually built of manganese bronze.

A suspension of starch at 35-40 wt. % dry solids in passed to the converter, hydrochloric acid is added to a concentration of 0.015-0.02n, and the converter is steam- heated until a temperature of 140-160oC is reached.

The mixture is held at this temperature for a period of time usually 15-20 minutes, to produce the desired degree of hydrolysis.

It is then treated with the enzyme Alpha- Amylase to achieve the Dextrose - Equivalent (DE) less than 20 to complete the conversion into maltodextrin.

The starch slurry is pumped at a constant rate through a heat exchanger. The hydrolysate is neutralized to pH of 4-5.5 by addition of soda ash.



It is then clarified by centrifugation or filtration, carbon- treated to remove colour and acid degradation products, and concentrated by vacuum evaporator to 77-85 wt. % solids . Sulphur dioxide is added during evaporation to same grades of syrup to reduce colour development.

It is spray dried to a moisture content of 3-5 Wt.%.

The product maltodextrin checked for quality & packed, stored/ dispatched for marketing.



SUPPLIERS OF PLANT & MACHINERY

Centrifugal Separator

Trema RJA Processes (P) Ltd,
Jukaso House
Andhere-Kurla Road,
Saki Naka
Andheri(E)
Mumbai-400072
Ph:(022)-8510171, 8511171
Fax:(022)-8511515,8515814
Email: rjasso@giasbm01.vsnl.net.in

Autoclove

Anup Engineering Ltd,
Behind 66 KV Electrical Sub-Station
Odhav Road,
Ahmedabad-382415
Gujarat
Ph:(079)-2870622, 2872823
Fax:(079)-2870622, 2872823

Godrej & Boyce Mfg Co.Ltd
Pirojshanagar,
Vikhroli
Mumbai - 400079
Ph.(022)-5172230,5170442,5171166
Fax:(022)-5172230, 5170442,5171166
Email:(022)-5171969,5174432



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CENTRIFUGE/VACUUM PAN EVAPORATOR

Chemo Fab Industries,
Ram Baug,
S.Y.Road,
Chinchoti
Behind S.B.I.
Malad (W)
Mumbai-400064
Ph:(022)-8821401,8821695,
Fax:(022)-8827840

Alfa Laval (I) Ltd.
Mumbai-Pune Road,
Dapodi,
Pune-411012
Ph:(020)-797721
Fax:(022)-797711,

Fabchem Engineering Works,
Plot No. A/2, Sector-A,
Sanwer Road,
Industrial Area,
Indore-452003
Ph:(0731)-420467, 421951
Fax: (0731)-423087



FILTER PRESS

1. Alfa Engg. Works,
Fact- Station Road,
Bhandup,
Mumbai-400078
Maharashtra
2. Chemi Filter Corporation
Shop No. 3, Avanti Apartments,
Laxman Mhatre Road,
Navagaon,
Dahisar (West)
Mumbai-400068
Maharashtra
Tel- 8932392, 8917758
Fax: 91-22-8917758
3. Industrial Filter Corporation,
1/405/1 82, Road No. 4 GIDC
Panoli -394116
Gujarat
Ph.(02646)-72635
Fax-(02646)-29762
Email:rkm@ic.xecbch.xcemail.com

SPRAY DRIER

1. Alfa Lavel (India) Ltd.
Mumbai-Pune Road,
Dapodi,
Pune-411 012
Ph:(020)-7127741, 7127742
Fax:(020)-7128962
Email-alsi@pn2.vsnl.net.in



2. B.M.T. Industries,
15-16-17, Neelkanth Shopping Arcade,
Ist Floor, New Vijaya Bank,
B.C. Marg,
Chember,
Mumbai-400 071
Ph-(022)-5280131, 5288035
Fax- (022)-5288126, 5281136
Email:(bmt@bom2.vsnl.net.in

3. Swirl Flow Process Systems
401-Solaris,
Building No. 2,
Saki Vihar Road,
Pawai,
Mumbai-400 072
Ph:(022)-8571642, 8573790
Fax:(023)-8504421

Washing Tank

Analpa Industries,
Plot No. 4938
GIDC Estate,
Ankleshwar-393002
Gujarat
Ph-(02646)-51465



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Chemi Plant Engineering Co.
114, Guru Gobind Singh Industrial Estate,
Jay Coach Western Exp. Highway
Jogeshwari(E)
Mumbai-400063
Ph:(022)-8735205, 8735626
Fax:(022)-8738759,

Doshi Engineering Works,
Mogra Village Road,
Andheri (E)
Mumbai-400069
Ph-(022)-8328787, 8322463
Fax:(022)-8361748

HEAT EXCHANGER

Aristo Engineers
701-702, Megh Apartments,
L.T.Road,
Borivli (W)
Mumbai-400092
Ph: (022)-8981789,8981745

Bharat Heavy Plates of Vessels Ltd.,
BHPV Post Office,
Visakhapatnam-530012
Andhra Pradesh
Ph:(0891)-517381,517621
Fax:(0891)-517626
Email:bhvp.ec@rmj.sprintrpg.ems.vsnl.net.in



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Boiler

Fluidtech Boilers Pvt.Ltd
2703, Phase-IV,
GIDC, Vatva
Ahmedabad-382445
Gujarat:(079)-5830105, 5830106
Fax: (079)-5830041
Email:fluidltd@vsnl.com

Chemtex Engineering Enterprises
Plot No. 277278
Opp.Shed No.L-1,
G.I.D.C. Industrial Estate,
Odhav Ahmedabad-382415
Ph:(079)-2871180, 2871280
Email:Chemtex@ad1.vsnl.net.in



SUPPLIERS OF RAW MATERIALS

Maize

It may be procured from the local market.

ACTIVATED CARBON

Apex Chemicals,
28, Vithaldas Road,
Mumbai-400002
Ph:(022)-2053560, 2054833

Finar Chemicals (India) Pvt.Ltd.
208, Shail,
Opp. Madhusadan House,
Off. C.G. Road, Ellisbridge,
Ahmedabad-380006
Ph:(079)-6400027
Fax:(079)-6405325

Hytech Carbons
Near Dungi,
P.O. Mustapur,
Mehngrowal Road,
Hoshiarpur-144218
Punjab:Fax:(01882)-30252
Email:pinex@jla.vsnl.net.in



SODA ASH

DCW Ltd.
Nirmal 3rd Floor,
Nariman Point,
Mumbai-400021
Ph:(022)-2871914, 2871916
Fax:(022)-2028838
Email:mktg@dcwindia.com

Tata Chemicals Ltd.
Bombay House,
24, Homi Mody Street,
Mumbai-400001
Ph:(022)-2049131
Fax:(022)-2042947

HYDROCHLORIC ACID

Allied Chemical Corpn.
658, GIDC Estate Road No.-54
Makarpura,
Vadodara-390010
Gujarat
Ph-(0265)-642945
Fax-(0265)-332953

Bharat Organics
8/11, Samartha Nagar
Opposite (E)
Sion, Mumbai-400022
Ph:(022)-5231670, 5231335
Fax:(022)-5231335



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Century Textiles & Industries Ltd,
(Chemicals Div)
Industry House,
159, Churchgate Reclamation
Mumbai-400020
Ph:(022)-2027570
Fax:(022)-2025109,2028892



PLANT ECONOMICS

Rated Plant capacity = 5.00 MT/DAY/day
= 1500.00 MT/DAY/annum
MALTODEXTRIN FROM MAIZE

Basis

No. of working days = 25 days/month
= 300 days/annum

No. of shifts = 2 per day

One shift = 8 hours

Currency - Rs.

RUPEES



MALTODEXTRIN FROM MAIZE [EIRI/DFR/0254] (J.C.: 7782)
J.C. 7782

Page A- 2

LAND & BUILDING

1. Land required 2500 sq. mts. @ Rs. 1000/- per sq. mt.	Rs.	25,00,000.00
2. Production shed 900 sq. mts. @ Rs.2500/- per sq. mt.	Rs.	22,50,000.00
3. Raw materials storage 100 sq. mts. @ Rs. 2500/- per sq.mt.	Rs.	2,50,000.00
4. Finished goods storage 100 sq.mts. @ Rs. 2500/- per sq.mt.	Rs.	2,50,000.00
5. Lab 50 sq. mts. @ Rs. 4000/- sq.mt.	Rs.	2,00,000.00
6. Administrative Building 50 sq.mts. @ Rs. 4000/- sq.mt.	Rs.	2,00,000.00
7. Bondary wall, gate & other miscellaneous construction	Rs.	2,50,000.00

TOTAL	Rs.	59,00,000.00



MALTODEXTRIN FROM MAIZE [EIRI/DFR/0254] (J.C.: 7782)
J.C. 7782

Page A- 3

PLANT & MACHINERY

1. Washing tank with paddles	2 No.	Rs.	2,50,000.00
2. Wet Milling Machine	2 No.	Rs.	3,00,000.00
3. Centrifugal Separator.	2 No.	Rs.	2,00,000.00
4. Slurry tank complete with agitator and motor	2 No.	Rs.	1,50,000.00
5. Converter (Autoclave) made of manganese Bronze vessel, pressure 30 psi Cap. 7.50 mt.	1 No.	Rs.	20,00,000.00
6. Filter press\Centrifuge	2 No.	Rs.	2,50,000.00
7. Refining tank with complete accessories.	2 No.	Rs.	3,00,000.00
8. Neutralisation tank with agitator.	1 No.	Rs.	1,50,000.00
9. Vacuum pan evaporator with vacuum pump	2 No.	Rs.	10,00,000.00
10. Meat Exchanger	1 No.	Rs.	5,00,000.00
11. Packing Machine	1 No.	Rs.	2,50,000.00
12. Spray Drier	1 No.	Rs.	20,00,000.00
13. Boiler 500 kg steam capacity	1 No.	Rs.	4,00,000.00
14. Weighing machine, pumps, tanke etc.		Rs.	2,00,000.00
15. Miscellaneous Viz pipe fittings, motor		Rs.	1,00,000.00
	TOTAL	Rs.	80,50,000.00



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J.C. 7782

Page A- 4

OTHER FIXED ASSETS

1. Office equipment, furniture plus other equipment & accessories	Rs.	50,000.00
2. Installation costs for water, electricity, fuel etc.	Rs.	6,50,000.00
3. Technical know-how	Rs.	25,000.00
4. Preliminary & Preperative expanses	Rs.	50,000.00
5. Miscellaneous	Rs.	25,000.00

TOTAL	Rs.	8,00,000.00



MALTODEXTRIN FROM MAIZE [EIRI/DFR/0254] (J.C.: 7782)
J.C. 7782

Page A- 5

FIXED CAPITAL

1. LAND & BUILDING	Rs.	59,00,000.00
2. PLANT & MACHINERY	Rs.	80,50,000.00
3. OTHER FIXED ASSETS	Rs.	8,00,000.00

	TOTAL	Rs. 1,47,50,000.00



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J.C. 7782

Page A- 6

WORKING CAPITAL REQUIREMENT/MONTH

RAW MATERIALS

1. Maize 208 Tons @ Rs. 5000/- per Ton	Rs.	10,40,000.00
2. Activated Carbon 5100 Kgs. @ Rs. 45/- per Kg.	Rs.	2,29,500.00
3. Soda Ash & Hydrochloric Acid and chemicals	Rs.	40,000.00
4. Packing Material	Rs.	45,000.00

TOTAL	Rs.	13,54,500.00



MALTODEXTRIN FROM MAIZE [EIRI/DFR/0254] (J.C.: 7782)
J.C. 7782

Page A- 7

SALARY & WAGES / MONTH

1. Manager	1 No.	Rs.	8,000.00
2. Supervisor	2 No.	Rs.	10,000.00
3. Chemist	2 No.	Rs.	10,000.00
4. Skilled worker	8 No.	Rs.	32,000.00
5. Unskilled Worker	10 No.	Rs.	30,000.00
6. Clerk/Typist	1 No.	Rs.	4,000.00
7. Accountant	1 No.	Rs.	5,000.00
8. Marketing Personnel	1 No.	Rs.	5,000.00
9. Peon/Chowkidar	2 No.	Rs.	7,000.00

TOTAL Rs. 1,11,000.00

Plus perks @ 25% p.a.

Rs. 27,750.00

TOTAL Rs. 1,38,750.00



MALTODEXTRIN FROM MAIZE [EIRI/DFR/0254] (J.C.: 7782)
J.C. 7782

Page A- 8

UTILITIES AND OVERHEADS

1. Power Consumption of 10000 Kwatt hrs @ Rs. 4.50 per Kwatt hr.	Rs.	45,000.00
2. Stationery, Postage, Telephone etc.	Rs.	5,000.00
3. Conveyance & Transportation etc.	Rs.	7,000.00
4. Publicity & Sales Promotion	Rs.	10,000.00
5. Repairs & maintenance	Rs.	10,000.00
6. Fuel for boiler 3200 Ltrs. @ 20/- ltr.	Rs.	64,000.00
7. Miscellaneous	Rs.	4,000.00

	TOTAL	Rs. 1,45,000.00

Total load is 28 Kwatts



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J.C. 7782

Page A- 9

TOTAL WORKING CAPITAL/MONTH

1. RAW MATERIAL	Rs.	13,54,500.00
2. SALARY & WAGES	Rs.	1,38,750.00
3. UTILITIES & OVERHEADS	Rs.	1,45,000.00

	TOTAL	Rs. 16,38,250.00

1. WORKING CAPITAL FOR 3 MONTHS	Rs.	49,14,750.00
2. MARGIN MONEY FOR W/C LOAN	Rs.	12,28,687.50

COST OF PROJECT

TOTAL FIXED CAPITAL	Rs.	1,47,50,000.00
MARGIN MONEY	Rs.	12,28,687.50

	TOTAL	Rs. 1,59,78,687.50



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J.C. 7782

Page A- 10

TOTAL CAPITAL INVESTMENT

TOTAL FIXED CAPITAL Rs. 1,47,50,000.00

TOTAL WORKING CAPITAL FOR 3 MONTHS
Rs. 49,14,750.00

TOTAL -----
Rs. 1,96,64,750.00



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J.C. 7782

Page A- 11

COST OF PRODUCTION/ANNUM

1. Working Capital for 1 year	Rs. 1,96,59,000.00
2. Interest @ 12.00% on T.C.I	Rs. 23,59,770.00
3. Depreciation @ 10.00% on buildings	Rs. 3,40,000.00
4. Depreciation @ 25.00% on Plant and Machinery	Rs. 20,12,500.00
5. Depreciation @ 30.00% on office equipment & furnitures	Rs. 15,000.00
TOTAL	Rs. 2,43,86,270.00



MALTODEXTRIN FROM MAIZE [EIRI/DFR/0254] (J.C.: 7782)
J.C. 7782

Page A- 12

TURN OVER/ANNUM

1. By selling Malto Dextrin 1500 Tons,
@ Rs. 19,000/- per Ton Rs. 2,85,00,000.00

TOTAL Rs. 2,85,00,000.00

$$\begin{aligned}\text{PROFIT} &= \text{RECEIPTS} - \text{COST OF PRODUCTION} \\ &= 2,85,00,000.00 - 2,43,86,270.00 \\ &= 41,13,730.00\end{aligned}$$

$$\begin{aligned}\text{PROFIT SALES RATIO} &= \text{Profit} / \text{Sales} \times 100 \\ &= \frac{41,13,730.00}{2,85,00,000.00} \times 100 \\ &= \mathbf{14.43 \%}\end{aligned}$$

$$\begin{aligned}\text{RATE OF RETURN} &= \text{Operating profit} / \text{T.C.I} \times 100 \\ &= \frac{41,13,730.00}{1,96,64,750.00} \times 100 \\ &= \mathbf{20.92 \%}\end{aligned}$$



BREAK EVEN POINT (B.E.P)

Fixed Costs of the plant are as under -

1. Interests	Rs.	23,59,770.00
2. Depreciation	Rs.	23,67,500.00
3. 40.00% of salaries	Rs.	6,66,000.00
4. 40.00% of overheads	Rs.	6,96,000.00
	TOTAL	Rs. 60,89,270.00

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{FIXED COSTS}}{\text{FIXED COSTS} + \text{PROFIT}} \times 100 \\ &= \frac{60,89,270.00}{60,89,270.00 + 41,13,730.00} \times 100 \\ &= \mathbf{59.68 \%} \end{aligned}$$

LAND MAN RATIO = Total land / Manpower

$$2500 : 28 :: 89 : 1$$



RESOURCES FOR FINANCE

1. Term loans from Financial institutions
(80.00 % of fixed capital)
at @12.00% p.a rate of interest Rs. 1,18,00,000.00

2. Bank loans for 3 months
(75.00 % of working capital)
at @ 12.00% p.a rate of interest Rs. 36,86,062.50

3. Self raised capital from even
funds & loans from close ones to
meet the margin money needs at a
@ 12.00% p.a rate of interest Rs. 41,78,687.50

TOTAL Rs. 1,96,64,750.00



We hope **Detailed Feasibility Report** in your possession at the time, must have conveyed you the elementary idea on process data, market and economics. We feel you must have now taken a decision to finalize your project plan for ultimate implementation in a successful manner. Before you go ahead, we suggest you to take our **MARKET SURVEY CUM DETAILED TECHNO ECONOMIC FEASIBILITY REPORT**.

"EIRI" offer you **MARKET SURVEY CUM DETAILED TECHNO ECONOMIC FEASIBILITY REPORT** on this project.

Brief contents of MARKET SURVEY CUM DETAILED TECHNO ECONOMIC FEASIBILITY REPORT are as under :

- Introduction
- Properties
- BIS (Bureau of Indian Standard) Specifications & Requirements
- Uses & Applications
- Present Indian Market Position
- Expected Future Demand
- Export & Import Statistics Data
- Names and Addresses of Existing Units (Present Manufactures)
- List of Plant & Machineries
- Miscellaneous Items and Accessories
- Instruments, Laboratory Equipments and Accessories
- Electrification, Electric Load and Water
- Maintenance, Suppliers/Manufacturers of Plant and Machineries
- Process of Manufacture with formulae if applicable
- Flow Sheet Diagram
- List of Raw Materials
- Availability of Raw Materials
- Requirement of Staff & Labour
- Personnel Management
- Skilled & Unskilled Labour
- Requirement of Land Area
- Built up Area
- Plant Layout.

along with financial details as under:

Summary of Capital Cost of Project
Land & Side Development Exp.
Buildings
Plant & Machineries
Misc. Fixed Assets
Technical Know how Fees & Exp.
Preliminary Expenses
Pre-operative Expenses
Provision for Contingencies

below mentioned financial statements (Annexure) will be for 5 to 10 Years

- Annexure :: Cost of Project and Means of Finance
- Annexure :: Output, Profitability and Cash Flow Chart
- Annexure :: Assessment of Working Capital requirements



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Annexure ::	Sources of Finance
Annexure ::	Balance Sheets
Annexure ::	Break-Even Analysis and profitability analysis.
Annexure ::	Quantitative Details-Output/Sales/Stocks
Annexure ::	Sales Realisation
Annexure ::	Raw Material Cost
Annexure ::	Other Raw Material Cost
Annexure ::	Packing Material Cost
Annexure ::	Consumables, Store etc.,
Annexure ::	Employees Expenses
Annexure ::	Fuel Expenses
Annexure ::	Power/Electricity Expenses
Annexure ::	Repairs & Maintenance Exp.
Annexure ::	Other Mfg. Expenses
Annexure ::	Administration Expenses
Annexure ::	Selling Expenses
Annexure ::	Depreciation Charges - Profitability
Annexure ::	Depreciation Charges
Annexure ::	Interest and Repayment - Term Loans
Annexure ::	Tax on Profit
Annexure ::	Assumptions for Profitability workings
Annexure ::	Assessment of Working Capital

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