PROJECT REPORT

Of

DISPOSABLE PLASTIC SYRINGES

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Disposable Plastic Syringes**.

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 AT A GLANCE

1	Name of the Entreprenuer		xxxxxxxxxx
2	Constitution (legal Status)	:	xxxxxxxxxx
3	Father / Spouse Name		xxxxxxxxxxxx
4	Unit Address	:	xxxxxxxxxxxxxxxxxxxxxxx
			District : xxxxxxx
			Pin: xxxxxxx State: xxxxxxxxxx
			Mobile xxxxxxx
5	Product and By Product	:	**Disposable Plastic Syringes**
6	Name of the project / business activity proposed :		**Disposable Plastic Syringes Manufacturing Unit**
7	Cost of Project	:	Rs.34.44 Lakhs
8	Means of Finance		
	Term Loan		Rs.26 Lakhs
	Own Capital		Rs.3.44 Lakhs
	Working Capital		Rs.5 Lakhs
9	Debt Service Coverage Ratio	:	1.91
10	Pay Back Period	:	5 Years
11	Project Implementation Period	:	5-6 Months
12	Break Even Point	:	48%
13	Employment	:	15 Persons
14	Power Requirement	:	20 HP
15	Major Raw materials	:	Polypropylene, Ethylene Oxide, Packing Paper, Needles, Rubber Gaskets etc
16	Estimated Annual Sales Turnover (Max Utilized Capacity)	:	109.21 Lakhs
17	Detailed Cost of Project & Means of Finance		

COST OF PROJECT

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Building /Shed 2000 Sq ft	Own/Rented
Plant & Machinery	27.50
Furniture & Fixtures	1.39
Working Capital	5.55
Total	**34.44**

MEANS OF FINANCE

Particulars	Amount
Own Contribution	3.44
Term Loan	26.00
Working Capital	5.00
Total	**34.44**

DISPOSABLE PLASTIC SYRINGE

INTRODUCTION

Syringe is a device composed of a plunger-cylinder arrangement in which, the working side of plunger is attached to a nozzle through which the fluid is sucked in or forced out under effect of pressure gradient which is positive in case of fluid pumping and negative in case of fluid suction, which is generated by means of plunger which leads out of the cylinder.

The syringe is used for sucking or injecting a fluid under pressure hence the device has laboratory and medical applications, in laboratory it's used to inject metered quantity of chemical into an object for study like fruit, vegetable, microbe colony etc. or to extract samples from liquid substance. In medical field the device is used for variety of applications like cleaning wounds, injecting medicine into blood stream and extracting body fluid samples.

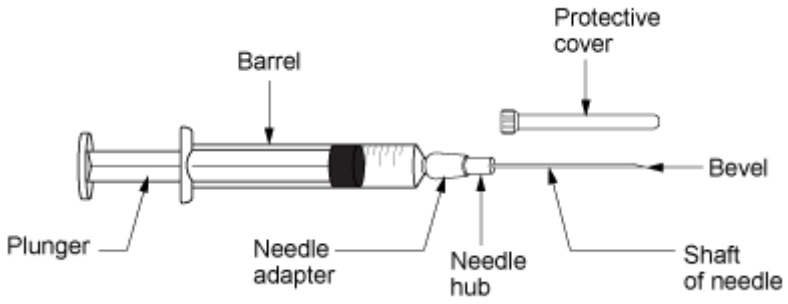

Figure 1.1 Parts of Syringe

The parts of syringe include Barrel, Plunger (Plunger Top, Plunger Shaft, Plunger Head & Plunger Seal) and Nozzle, if the syringe is to be used injecting or sucking fluid from within any body, then the needle attachment is used which includes Needle Adapter, Needle Hub, Needle Shaft, Needle Cover and Bevel.

The barrel generates operational or work volume of syringe thus ultimately holds the fluid to be extracted or injected; Plunger functionally constrains and controls the work volume, it's composed of four parts plunger top which receives the force from user without causing much discomfort and transfers it to plunger shaft, which in turn transfers this force to plunger head efficiently, the plunger head converts the applied force into positive or negative pressure so as to inject or suck fluid respectively via nozzle and plunger seal prevent any significant leakage via clearance of plunger and barrel; the nozzle is inbuilt within the barrel due to their manufacturing process and it simply converts pressure head into velocity head so as to obtain a jet of fluid at time of injection and visa-versa at time of suction to obtain a gradual influx within work volume.

The syringe can be made out of many materials like Aluminum, Steel, Different Plastics etc. each having its own special application, advantage and limitation; this work only emphasizes disposable plastic syringe which are excessively used in medical field for drug injection and body fluid sample extraction.

Stainless Steel Syringe Aluminum Syringe Plastic Syringe

Figure 1.2 Types of Syringe

Disposable Plastic Syringe is a class of syringe made from plastic and designed for single use, these type syringe are widely used by medical professionals because single time use prevents transmission of any bacteria, fungus, virus, other parasites and blood strain to enter the patient's body because though the sanitization and sterilization are effective way to dissolve the outer membrane and thus kill the pathogen but, genetic material still lingers which can cause mutation of other non-pathogenic microbes into pathogenic strains.

1. Raw Material

What actually makes the syringe disposable is its low manufacturing cost which can only be derived from mass production of product and cheap raw material which in case of disposable plastic syringes is Polyethylene and Polypropylene mostly.

For a complete module of disposable plastic syringe the raw material required are:

1) High Purity Polyethylene (PE) or Polypropylene (PP) Pellets

Polyethylene

Polypropylene

Figure 2.1 Plastic Pellets

2) Stainless Steel Needle Tube

Figure 2.2 Syringe Needle

3) Ink for graduation scale printing and package printing
4) Medical Grade Syringe Rubber Seal

Figure 2.3 Syringe Rubber Seal

5) Additives (Stabilizers, Plasticizers etc.)
6) Packaging Material

2. Machine Required

The manufacturing process employed are Mixing, Grinding, Injection Moulding, Printing and Packaging thus machine required are:

1) Tube Cutting Machine
2) Tube Grinding Machine
3) Honing Machine
4) Water Jet Cleaner
5) Mixer with Heating and Cooling Arrangement
6) Weighing Machine
7) Grinder
8) Injection Moulding machine
9) Moulds of Barrel, Plunger, Needle Cover and Needle Adapter
10) Graduation Printing Machine
11) Syringe Assembly Machine
12) Sterilization Chamber
13) Packaging machine

3. Manufacturing Process

The Needle tubes are feed to Tube Cutting Machine which cuts the needle tube into the size of the needles of syringe followed by which these tubes are feed to a Honing Machine in order to enhance their surface finish; followed by which tubes are feed to grinding machine which grinds a small section of needles at an angle generating bevel; then they are cleaned in a water jet cleaner followed by which they are sent to assembly area.

The PP or PE pellets along with various additives are weighed using a weighing machine and feed to mixer in metered quantities, which has an inbuilt heating mechanism to melt various raw materials into their semi-solid states followed by which it mixes these reagents with raw material so as to obtain plastic mixture required for moulding.

This plastic is then cooled to its solid state and plastic solid is internally feed to a grinder which makes small pellets of this plastic which are then feed to Injection Moulding Machine after mounting respective mould in it.

The Injection Moulding machine generates various plastic parts which include barrel with nozzle, needle adapter, needle cover and plunger from their respective prepared plastic pellets utilizing appropriate moulds, by melting these pellets into semi-solid state and reforming them back into shape of the mould, followed by cooling them to obtain the parts.

The barrel is then sent to Graduation Printing Machine which prints the scale of volume on it followed by which barrel along with all parts are taken to assembly area where all the parts of syringe are assembled.

For assembling usually a Syringe Assembly Machine is used which fits all the parts into their respective orientation and location so as to obtain a finished syringe, the separate machine for assembly of individual modules are also available like Needle Module Assembly Machine, Plunger Seal Assembly Press and Plunger Barrel Assembly Machine, but a Syringe Assembly Machine is most advisable as it reduces probability of defect.

The manufactured syringe is then feed to sterilization chamber which essentially sterilizes the syringes followed by which, they are checked for quality and then they are feed to Packaging machine which packs them into individual packs followed by which they are filled in carton boxes and sent for sale.

MARKET POTENTIAL

The advent of Corona Virus, AIDS, serum Hepatitis and other dreaded infectious diseases have added now dimension and this let to rapid increased use of disposable syringes in developing countries. Use of disposable syringes is fast catching in India also and therefore offers good scope. In view of this, the new units will not face any problems in marketing their product in future.

Disposable syringe has a wide market potential. The age-old glass syringes are very fast becoming obsolete. In the Eastern region of the country there is no unit manufacturing this product. Some of the units manufacturing this product are in other parts of the country.

IMPLEMENTATION SCHEDULE

	NATURE OF ACTIVITIES	***ESTIMATED PERIOD***
1.	Market Survey & Preparation of project report	One Month
2.	Enterprise registration from DIC	Two weeks
3.	Sanction of loan from bank or state financial institution	One Month
4.	Approval from drug controller & Clearance from Pollution Control Board	Two Weeks
5.	Placement for order for delivery of Plant & machinery	One Month
6.	Installation of plant & machinery	Two Month
7.	Power connection	One Month
8.	Trial run	Two weeks
9.	Commencement of production	Seventh Month onwards

PROJECTED BALANCE SHEET

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Capital Account					
Opening Balance	-	3.39	5.41	9.72	13.42
Add: Additions	3.44	-	-	-	-
Add: Net Profit	1.95	5.01	8.31	11.21	14.64
Less: Drawings	2.00	3.00	4.00	7.50	10.00
Closing Balance	3.39	5.41	9.72	13.42	18.06
CC Limit	5.00	5.00	5.00	5.00	5.00
Term Loan	23.11	17.33	11.56	5.78	-
Sundry Creditors	0.38	0.44	0.50	0.56	0.63
TOTAL :	**31.87**	**28.17**	**26.77**	**24.76**	**23.68**
APPLICATION OF FUND					
Fixed Assets (Gross)	28.89	28.89	28.89	28.89	28.89
Gross Dep.	4.26	7.90	10.99	13.62	15.87
Net Fixed Assets	24.63	20.99	17.90	15.27	13.02
Current Assets					
Sundry Debtors	3.26	3.83	4.33	4.87	5.46
Stock in Hand	2.85	3.20	3.59	4.00	4.45
Cash and Bank	1.14	0.15	0.95	0.61	0.75
TOTAL :	**31.87**	**28.17**	**26.77**	**24.76**	**23.68**
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	I	II	III	IV	V
A) SALES					
Gross Sale	65.25	76.58	86.58	97.49	109.21
Total (A)	**65.25**	**76.58**	**86.58**	**97.49**	**109.21**
B) COST OF SALES					
Raw Mateiral Consumed	22.55	26.33	29.93	33.75	37.80
Electricity Expenses	2.15	2.33	2.51	2.69	2.87
Repair & Maintenance	0.33	0.38	0.43	0.49	0.55
Labour & Wages	11.02	12.12	13.34	14.67	16.14
Depreciation	4.26	3.63	3.09	2.63	2.24
Cost of Production	40.31	44.79	49.30	54.23	59.59
Add: Opening Stock /WIP	-	1.34	1.45	1.59	1.75
Less: Closing Stock /WIP	1.34	1.45	1.59	1.75	1.93
Cost of Sales (B)	38.96	44.69	49.15	54.07	59.42
C) GROSS PROFIT (A-B)	26.29	31.90	37.43	43.42	49.79
	40.29%	**41.65%**	**43.23%**	**44.54%**	**45.59%**
D) Bank Interest (Term Loan)	2.82	2.30	1.67	1.03	0.40
ii) Interest On Working Capital	0.55	0.55	0.55	0.55	0.55
E) Salary to Staff	7.92	8.71	9.58	10.54	11.60
F) Selling & Adm Expenses Exp.	13.05	15.32	17.32	19.50	21.84
TOTAL (D+E)	**24.34**	**26.88**	**29.12**	**31.62**	**34.38**
H) NET PROFIT	1.95	5.01	8.31	11.80	15.41
	3.0%	**6.5%**	**9.6%**	**12.1%**	**14.1%**
I) Taxation	-	-	-	0.59	0.77
J) PROFIT (After Tax)	1.95	5.01	8.31	11.21	14.64

PROJECTED CASH FLOW STATEMENT

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Own Contribution	3.44	-			
Net Profit	1.95	5.01	8.31	11.80	15.41
Depreciation & Exp. W/off	4.26	3.63	3.09	2.63	2.24
Increase In Cash Credit	5.00				
Increase In Term Loan	26.00	-	-	-	-
Increase in Creditors	0.38	0.06	0.06	0.06	0.07
TOTAL :	**41.03**	**8.71**	**11.46**	**14.50**	**17.72**
APPLICATION OF FUND					
Increase in Fixed Assets	28.89	-	-	-	-
Increase in Stock	2.85	0.36	0.39	0.41	0.44
Increase in Debtors	3.26	0.57	0.50	0.55	0.59
Repayment of Term Loan	2.89	5.78	5.78	5.78	5.78
Taxation	-	-	-	0.59	0.77
Drawings	2.00	3.00	4.00	7.50	10.00
TOTAL :	**39.89**	**9.70**	**10.66**	**14.83**	**17.58**
Opening Cash & Bank Balance	-	1.14	0.15	0.95	0.61
Add : Surplus	1.14	- 0.99	0.80	- 0.33	0.14
Closing Cash & Bank Balance	**1.14**	**0.15**	**0.95**	**0.61**	**0.75**

COMPUTATION OF DISPOSABLE PLASTIC SYRINGES MANUFACTURING UNIT

Items to be Manufactured Disposable Plastic Syringes

Manufacturing Capacity per Day		7,500.00	pcs
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		2,250,000	pcs
Year		Capacity	Disposable Plastic Syringes
		Utilisation	
I		60%	1,350,000
II		65%	1,462,500
III		70%	1,575,000
IV		75%	1,687,500
V		80%	1,800,000

COMPUTATION OF RAW MATERIAL

Item Name		**Quantity of Raw Material**	**Unit**	**Unit Rate of**	**Total CostPer Annum (100%)**
Polyropylene		50.00	tonne	75,000.00	3,750,000.00
Rubber Gaskets		22.50	lakh	0.50	11.25
Needle		22.50	lakh	0.50	11.25
Total		**72.50**			**3,750,022.50**

Total Raw material in Rs lacs	at 100% Capacity		37.50
Cost per Syringe		(In Rs)	**1.67**

Raw Material Consumed	**Capacity Utilisation**	**Rate**	**Amount (Rs.)**
I	60%	1.67	22.55
II	65%	1.80	26.33
III	70%	1.90	29.93
IV	75%	2.00	33.75
V	80%	2.10	37.80

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	I	II	III	IV	V
Finished Goods					
(10 Days requirement)	1.34	1.45	1.59	1.75	1.93
Raw Material					
(20 Days requirement)	1.50	1.76	2.00	2.25	2.52
Closing Stock	**2.85**	**3.20**	**3.59**	**4.00**	**4.45**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars	Amount	Margin(10%)	Net Amount
Stock in Hand	2.85		
Less:			
Sundry Creditors	0.38		
Paid Stock	**2.47**	**0.25**	**2.22**
Sundry Debtors	3.26	0.33	2.94
Working Capital Requirement			**5.16**
Margin			0.57
MPBF			**5.16**
Working Capital Demand			**5.00**

BREAK UP OF LABOUR

Particulars		Wages Per Month	No of Employees	Total Salary
Plant Operator		15,000.00	1	15,000.00
Unskilled Worker		8,500.00	6	51,000.00
Helper		5,000.00	2	10,000.00
Security Guard		7,500.00	1	7,500.00
				83,500.00
Add: 10% Fringe Benefit				8,350.00
Total Labour Cost Per Month				91,850.00
Total Labour Cost for the year (In Rs. Lakhs)			10	11.02

BREAK UP OF SALARY

Particulars		Salary Per Month	No of Employees	Total Salary
Accountant cum store keeper		10,000.00	1	10,000.00
Administrative Staffs		12,500.00	4	50,000.00
Total Salary Per Month				60,000.00
Add: 10% Fringe Benefit				6,000.00
Total Salary for the month				66,000.00
Total Salary for the year (In Rs. Lakhs)			5	7.92

COMPUTATION OF DEPRECIATION

Description	Land	Building/shed	Plant & Machinery	Furniture	**TOTAL**
Rate of Depreciation			**15.00%**	**10.00%**	
Opening Balance	Own/Rented		-	-	-
Addition	-		27.50	1.39	28.89
	-		27.50	1.39	28.89
TOTAL		-	27.50	1.39	28.89
Less : Depreciation	-	-	4.13	0.14	4.26
WDV at end of Ist year	-	-	23.38	1.25	24.63
Additions During The Year	-	-	-	-	-
	-	-	23.38	1.25	24.63
Less : Depreciation	-	-	3.51	0.13	3.63
WDV at end of IInd Year	-	-	19.87	1.13	20.99
Additions During The Year	-	-	-	-	-
	-	-	19.87	1.13	20.99
Less : Depreciation	-	-	2.98	0.11	3.09
WDV at end of IIIrd year	-	-	16.89	1.01	17.90
Additions During The Year	-	-	-	-	-
	-	-	16.89	1.01	17.90
Less : Depreciation	-	-	2.53	0.10	2.63
WDV at end of IV year	-	-	14.36	0.91	15.27
Additions During The Year	-	-	-	-	-
	-	-	14.36	0.91	15.27
Less : Depreciation	-	-	2.15	0.09	2.24
WDV at end of Vth year	-	-	12.20	0.82	13.02

REPAYMENT SCHEDULE OF TERM LOAN 11.0%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
I	Opening Balance						
	Ist Quarter	-	26.00	26.00	0.72	-	26.00
	Iind Quarter	26.00	-	26.00	0.72	-	26.00
	IIIrd Quarter	26.00	-	26.00	0.72	1.44	24.56
	Ivth Quarter	24.56	-	24.56	0.68	1.44	23.11
					2.82	2.89	
II	Opening Balance						
	Ist Quarter	23.11	-	23.11	0.64	1.44	21.67
	Iind Quarter	21.67	-	21.67	0.60	1.44	20.22
	IIIrd Quarter	20.22	-	20.22	0.56	1.44	18.78
	Ivth Quarter	18.78		18.78	0.52	1.44	17.33
					2.30	5.78	
III	Opening Balance						
	Ist Quarter	17.33	-	17.33	0.48	1.44	15.89
	Iind Quarter	15.89	-	15.89	0.44	1.44	14.45
	IIIrd Quarter	14.45	-	14.45	0.40	1.44	13.00
	Ivth Quarter	13.00		13.00	0.36	1.44	11.56
					1.67	5.78	
IV	Opening Balance						
	Ist Quarter	11.56	-	11.56	0.32	1.44	10.11
	Iind Quarter	10.11	-	10.11	0.28	1.44	8.67
	IIIrd Quarter	8.67	-	8.67	0.24	1.44	7.22
	Ivth Quarter	7.22		7.22	0.20	1.44	5.78
					1.03	5.78	
V	Opening Balance						
	Ist Quarter	5.78	-	5.78	0.16	1.44	4.33
	Iind Quarter	4.33	-	4.33	0.12	1.44	2.89
	IIIrd Quarter	2.89	-	2.89	0.08	1.44	1.44
	Ivth Quarter	1.44		1.44	0.04	1.44	- 0.00
					0.40	5.78	

Door to Door Period	60	Months
Moratorium Period	6	Months
Repayment Period	54	Months

CALCULATION OF D.S.C.R

PARTICULARS	I	II	III	IV	V
CASH ACCRUALS	6.21	8.65	11.40	13.84	16.88
Interest on Term Loan	2.82	2.30	1.67	1.03	0.40
Total	9.03	10.95	13.07	14.88	17.28
REPAYMENT					
Repayment of Term Loan	2.89	5.78	5.78	5.78	5.78
Interest on Term Loan	2.82	2.30	1.67	1.03	0.40
Total	5.71	8.08	7.45	6.81	6.18
DEBT SERVICE COVERAGE RATIO	**1.58**	**1.35**	**1.76**	**2.18**	**2.80**
AVERAGE D.S.C.R.			**1.91**		

COMPUTATION OF SALE

Particulars	I	II	III	IV	V
Op Stock	-	45,000.00	48,750.00	52,500.00	56,250.00
Production	1,350,000.00	1,462,500.00	1,575,000.00	1,687,500.00	1,800,000.00
	1,350,000.00	1,507,500.00	1,623,750.00	1,740,000.00	1,856,250.00
Less : Closing Stock(10 Days)	45,000.00	48,750.00	52,500.00	56,250.00	60,000.00
Net Sale	1,305,000.00	1,458,750.00	1,571,250.00	1,683,750.00	1,796,250.00
Avg Sale Price per Syringe	5.00	5.25	5.51	5.79	6.08
Sale (in Lacs)	**65.25**	**76.58**	**86.58**	**97.49**	**109.21**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	20	
Load Factor			0.7460	
Electricity Charges		per unit	7.50	
Total Working Days			300	
Electricity Charges				2.69
Add : Minimim Charges (@ 10%)				
(B) DG set				
No. of Working Days			300	days
No of Working Hours			0.5	Hour per day
Total no of Hour			150	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			1,200	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			0.78	
Add : Lube Cost @15%			0.12	
Total			**0.90**	
Total cost of Power & Fuel at 100%				3.58
Year		**Capacity**		**Amount**
				(in Lacs)
I		60%		2.15
II		65%		2.33
III		70%		2.51
IV		75%		2.69
V		80%		2.87

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