PROJECT REPORT

Of

BLOOD BAGS

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Blood Bags**.

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.]

SAMADHAN
Nurturing Dreams - Innovative Solutions

Lucknow Office: Sidhivinayak Building , 27/1/B, Gokhlley Marg, Lucknow-226001

Delhi Office : Multi Disciplinary Training Centre, Gandhi Darshan Rajghat, New Delhi 110002

Email : info@udyami.org.in
Contact : +91 7526000333, 444, 555

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	:	**BLOOD BAGS**		
6	Name of the project / business activity proposed :		**BLOOD BAGS UNIT**		
7	Cost of Project	:	Rs.22.94 Lakhs		
8	Means of Finance				
	Term Loan		Rs.16.65 Lakhs		
	Own Capital		Rs.2.29 Lakhs		
	Working capital		Rs.4 Lakhs		
9	Debt Service Coverage Ratio	:	2.83		
10	Pay Back Period	:	5	Years	
11	Project Implementation Period	:	5-6	Months	
12	Break Even Point	:	27%		
13	Employment	:	9	Persons	
14	Power Requirement	:	30.00	HP	
15	Major Raw materials	:	PVC DEHP Pellets, PVC DEHP Tubing		
16	Estimated Annual Sales Turnover (Max Capacity)	:	135.55	Lakhs	
17	Detailed Cost of Project & Means of Finance				

COST OF PROJECT

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Building /Shed 1000 Sq ft	4.00
Plant & Machinery	13.50
Furniture & Fixtures	1.00
Working Capital	4.44
Total	**22.94**

MEANS OF FINANCE

Particulars	Amount
Own Contribution	2.29
Working Capital(Finance)	4.00
Term Loan	16.65
Total	**22.94**

BLOOD BAGS

Introduction: Blood Bags are the apparatus for the contamination and coagulation free collection, storage and infusing of whole blood. It comprising a deformable hermetically sealed bag to contain the blood, a diaphragm-sealed delivery tube on the bag and adapted to receive a seal-piercing coupling needle to afford egress from the bag, and a collecting line comprising flexible tubing. The blood bags are manufactured from bio-compatible PVC, compounded with suitable additives. Blood bags must be flexible to permit filling(blood collection), transfer of components (expression), and complete emptying (transfusion) without the need to vent. Blood bags must also be able to withstand exposure to low temperatures, e.g., during the preparation of fresh frozen plasma in which temperatures down to –70°C can be encountered. Blood bag plastics cannot contain any toxic substances that could enter the transfusion product and possibly harm the patient.

Market Potential & uses: The increasing demand for healthcare services with the better facilities and reduced costs is always a challenging task to manage the resources in its supply chain. The blood service has been recognized as a global business and the products are becoming commodities. Blood Bag Market was valued at $279 million in 2016, and is estimated to reach at $580 million by 2023, registering a CAGR of 11.0% from 2017 to 2023. The volume of disposable blood bag market was 275 million units in 2016 and is expected to reach by 556 million units by 2023, registering a CAGR of 10.5%. Disposable blood bag can be defined as a sterile, clear, plastic device employed for transfer, storage, collection, and transfusion of blood and its components.

The blood bags are used for efficient handling of blood cells, plasma collection. Double Blood Bag is designed for the collection and separation of whole blood into two different blood components, plasma and red cells. Triple Blood Bag is designed to separate whole blood into three blood components; red blood cells, platelets and plasma through the process of centrifugation and extraction. Triple top and bottom blood bags are used to collect and separate three different blood components: plasma, red cells and buffy coat.

Raw material: Basic raw materials are as follows:

1. PVC DEHP Pellets
2. PVC DEHP Tubing

Raw Material Requirement:

S No.	Raw Material	Quantity	Rate	Value
1.	PVC DEHP Pellets	32000 kg	95	3040000
2.	PVC DEHP Tubing	300000 pcs	25	7500000

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Manufacturing Process: Blood Bags are available with single bag, double bag or triple bag system in the market. In this context report the single blood bag manufacturing is discussed.
In the first step, the PVC DEHP free pellets are procured from the authorized vendor and stored in the inventory. In the first step, the PVC blown films are manufactured for sealing. Since the manufacturing of blood bags requires a set of predefined measures to avoid any contamination, all the process are carried out in a clean and healthy environment.

At first, the PVC pellets are poured into the hopper of the extruder. The profile dies of circular shape for the blown film is mounted at the end of extruder. After this, the barrel heaters are started and brought up to the desired melting temperature of the PVC. These pallets present in the hopper are passed into the barrel which is the feed section of the extruder. There is a single or double screw arrangement inside the barrel of the extruder.

The screw rotates in a very close fitting with stationary barrel. The resultant force on the material causes it to move forward in the barrel. It heats up as it moves, both from frictional heat generation and heat generated by heating element present in barrel of extruder.

These pellets soon begin to melt and this melting continues along the screw until no more solid remains. The pressure and temperature at the exit of the extruder have been set. When the desired glass transition temperature has been reached, the melt is forced through a die by extruder into the film blowing machine.

In this machine forming die is shaped like a circle and air pressure is used to further expand the film. After it is expanded to the desired dimensions, it is cooled to solidify the polymer. The cooled PVC sheets polymer gets rolled on over by the rollers.

In the next step, the PVC blown film is fed into cutting machine. This machine cuts the PVC sheets as per desired dimension. In the next step, these bags are

fed into PVC welding machine. Profile dies as per the dimension of blood bag is mounted into the machine. The dies have the provision for the placement of PVC tubing while welding the bags.

The PVC films are welded as per desired shape of the die. The excess linings are trimmed off and get separated. After this, blood bags arebe sterilized with high-pressure steam. This is because of the presence of anticoagulant and preservative solutions that are degraded on exposure to radiation or gas. Blood bags are typicality autoclaved at 115°C to 120°Cfor 30 to 60minutes.

In the next step, the blood bags are quality tested. Blood bags must also be able to withstand exposure to low temperatures, e.g., during the preparation of fresh frozen plasma in which temperatures down to – 70°C can be encountered. After this they are packed and dispatched as per required quantity.

Area: The industrial setup requires space for Inventory, workshop or manufacturing area, space for power supply utilities and auxiliary like Generator setup. Also some of the area of building is required for office staff facilities, documentation, office furniture, etc. Thus, the approximate total area required for complete industrial setup is 1000 - 1400Sqft. Civil work will cost around Rs. 4 Lac (Approx.)

Machines:

1. **Extruder**– Extruder are used to melt the plastic pellets in a high volume manufacturing process. The plastic material is melted with the application of heat and extruded through die into a desired shape. A cylindrical rotating screw is placed inside the barrel which forces out molten plastic material through a die.

2. **<u>Film Blowing Machine</u>** – The film blowing machines are used for the producing films or sheets into a viscous liquid between rotating screws and barrels of the extruder. This allows for the polymer to be fed through a die that shapes it in the form of a tube. This tube is then carefully inflated, so there is no risk of tearing, into a bubble by injecting it with air.

3. **<u>Cutting Machine</u>** **–**This machine is used to cut the PVC sheets as per desired shape of the bags dimension.

4. **<u>PVC Welding Machine</u> –** This machine is used to weld the bags using profile dies as per the desired dimension.

5. **Steam Sterilizer** –This machine is used to sterilize the blood bags with steam.

Equipments:

1. Profile Dies – A die is a specialized tool used in manufacturing industries to cut or shape material mostly using a press.

2. Pump–Pumps are used to transfer the oil from crude oil tank to filter cloth.

3. Bins –Bins are used to store finished aluminum foil containers.

Cost of Machines:

S No.	Machine	Unit	Price
1.	Extruder & Film blowing machine set	1	1000000
2.	Cutting machine	1	180000
3.	PVC Welding machine	1	65000
4.	Steam sterilizer	1	55000
5.	Other machineries & equipments		50000

Power Requirement– The power consumption required to run all the machinery could be approximated as 30 hp.

Manpower Requirement –There are requirement of skilled machine operators to run the machine set. Experience quality engineers are required for desired quality control. Some helpers are also required to transfer the material from one work station to other. Office staffs are required to maintain the documentation. The approximate manpower required is 9 including 1 Supervisor, 2 Plant operator, 1 Unskilled worker, security guard and helper each. 3 Skilled workers including each Accountant, Manager and sales person.

Bank Term Loan: Rate of Interest is assumed to be at 11%

Depreciation: Depreciation has been calculated as per the Provisions of Income Tax Act, 1961

Approvals & Registration Requirement:

Basic registration required in this project:

- GST Registration
- Udyog Aadhar Registration (Optional)
- Choice of a Brand Name of the product and secure the name with Trademark if require
- Certificate from DCGI
- ISO Certificate.

Implementation Schedule:

S No.	Activity	Time required
1.	Acquisition of premises	1-2 Months
2.	Procurement & installation of Plant & Machinery	1-2 Months
3.	Arrangement of Finance	1.5-2 Months
4.	Requirement of required Manpower	1 Month
5.	Commercial Trial Runs	1 Month
	Total time Required (some activities shall run concurrently)	5-6 Months

FINANCIALS

PROJECTED CASH FLOW STATEMENT

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Own Contribution	2.29	-			
Reserve & Surplus	5.76	8.28	12.10	17.27	22.24
Depriciation & Exp. W/off	2.53	2.17	1.87	1.61	1.39
Increase In Cash Credit	4.00				
Increase In Term Loan	16.65	-	-	-	-
Increase in Creditors	0.88	0.15	0.10	0.10	0.10
TOTAL :	**32.11**	**10.60**	**14.07**	**18.98**	**23.73**
APPLICATION OF FUND					
Increase in Fixed Assets	18.50	-	-	-	-
Increase in Stock	1.70	0.29	0.27	0.31	0.30
Increase in Debtors	3.72	0.72	0.71	0.83	0.81
Repayment of Term Loan	1.85	3.70	3.70	3.70	3.70
Taxation	0.58	2.48	3.63	5.18	6.67
Drawings	2.00	3.00	4.00	5.00	6.00
TOTAL :	**28.34**	**10.19**	**12.31**	**15.02**	**17.49**
Opening Cash & Bank Balance	-	3.77	4.17	5.93	9.90
Add : Surplus	3.77	0.41	1.76	3.96	6.25
Closing Cash & Bank Balance	**3.77**	**4.17**	**5.93**	**9.90**	**16.14**

PROJECTED BALANCE SHEET

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Capital Account					
Opening Balance	-	5.48	8.27	12.75	19.83
Add: Additions	2.29	-	-	-	-
Add: Net Profit	5.18	5.79	8.47	12.09	15.57
Less: Drawings	2.00	3.00	4.00	5.00	6.00
Closing Balance	5.48	8.27	12.75	19.83	29.40
CC Limit	4.00	4.00	4.00	4.00	4.00
Term Loan	14.80	11.10	7.40	3.70	0.00
Sundry Creditors	0.88	1.03	1.13	1.23	1.33
TOTAL :	**25.16**	**24.40**	**25.27**	**28.76**	**34.74**
APPLICATION OF FUND					
Fixed Assets (Gross)	18.50	18.50	18.50	18.50	18.50
Gross Dep.	2.53	4.70	6.56	8.17	9.56
Net Fixed Assets	15.98	13.80	11.94	10.33	8.94
Current Assets					
Sundry Debtors	3.72	4.43	5.14	5.97	6.78
Stock in Hand	1.70	1.99	2.26	2.57	2.88
Cash and Bank	3.77	4.17	5.93	9.90	16.14
TOTAL :	**25.16**	**24.40**	**25.27**	**28.76**	**34.74**

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PROJECTED PROFITABILITY STATEMENT

PARTICULARS	I	II	III	IV	V
A) SALES					
Gross Sale	74.34	88.65	102.80	119.35	135.55
Total (A)	**74.34**	**88.65**	**102.80**	**119.35**	**135.55**
B) COST OF SALES					
Raw Material Consumed	37.69	43.97	48.37	52.76	57.16
Elecricity Expenses	2.05	2.28	2.51	2.74	2.97
Repair & Maintenance	7.43	8.87	11.31	14.32	14.91
Labour & Wages	9.32	10.26	12.51	13.76	15.42
Depreciation	2.53	2.17	1.87	1.61	1.39
Cost of Production	59.03	67.54	76.57	85.20	91.84
Add: Opening Stock /WIP	-	1.07	1.26	1.46	1.69
Less: Closing Stock /WIP	1.07	1.26	1.46	1.69	1.92
Cost of Sales (B)	57.95	67.36	76.37	84.96	91.61
C) GROSS PROFIT (A-B)	16.39	21.29	26.44	34.39	43.94
	22.04%	**24.02%**	**25.72%**	**28.81%**	**32.41%**
D) Bank Interest (Term Loan)	1.81	1.48	1.07	0.66	0.25
ii) Interest On Working Capital	0.44	0.44	0.44	0.44	0.44
E) Salary to Staff	4.66	4.90	5.63	6.47	7.44
F) Selling & Adm Expenses Exp.	3.72	6.21	7.20	9.55	13.55
TOTAL (D+E)	**10.63**	**13.02**	**14.33**	**17.12**	**21.69**
H) NET PROFIT	5.76	8.28	12.10	17.27	22.24
	7.7%	**9.3%**	**11.8%**	**14.5%**	**16.4%**
I) Taxation	0.58	2.48	3.63	5.18	6.67
J) PROFIT (After Tax)	5.18	5.79	8.47	12.09	15.57

Raw Material Consumed	Capacity Utilisation		Amount (Rs.)		
I	45%		37.69		
II	50%		43.97	5% Increase in Cost	
III	55%		48.37	5% Increase in Cost	
IV	60%		52.76	5% Increase in Cost	
V	65%		57.16	5% Increase in Cost	

COMPUTATION OF MAKING OF BLOOD BAGS			
Item to be Manufactured Blood bags			
Manufacturing Capacity per day		800	pcs
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		2,40,000	pcs
Total Production per Annum		2,40,000	pcs
Year		Capacity Utilisation	BLOOD BAGS
I		45%	1,08,000.00
II		50%	1,20,000.00
III		55%	1,32,000.00
IV		60%	1,44,000.00
V		65%	1,56,000.00

COMPUTATION OF RAW MATERIAL

Item Name		Quantity of Raw Material	Unit	Unit Rate of	Total CostPer Annum (100%)
PVC DEHP Pellets		25,000.00	kg	95	23,75,000.00
PVC DEHP Tubing		2,40,000.00	pcs	25	60,00,000.00
					-
					-
					-
Total					**83,75,000.00**
Total Raw material in Rs lacs					83.75

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL					
PARTICULARS	I	II	III	IV	V
Finished Goods					
(5 Days requirement)	1.07	1.26	1.46	1.69	1.92
Raw Material					
(5 Days requirement)	0.63	0.73	0.81	0.88	0.95
Closing Stock	**1.70**	**1.99**	**2.26**	**2.57**	**2.88**

COMPUTATION OF WORKING CAPITAL REQUIREMENT			
Particulars	**Amount**	**Margin(10%)**	**Net Amount**
Stock in Hand	1.70		
Less:			
Sundry Creditors	0.88		
Paid Stock	**0.82**	**0.08**	**0.74**
Sundry Debtors	3.72	0.37	3.35
Working Capital Requirement			**4.08**
Margin			0.45
MPBF			**4.08**
Working Capital Demand			**4.00**

COMPUTATION OF SALE

Particulars	I	II	III	IV	V
Op Stock	-	1,800.00	2,000.00	2,200.00	2,400.00
Production	1,08,000.00	1,20,000.00	1,32,000.00	1,44,000.00	1,56,000.00
	1,08,000.00	1,21,800.00	1,34,000.00	1,46,200.00	1,58,400.00
Less : Closing Stock(5 Days)	1,800.00	2,000.00	2,200.00	2,400.00	2,600.00
Net Sale	1,06,200.00	1,19,800.00	1,31,800.00	1,43,800.00	1,55,800.00
Sale Price per pc	70.00	74.00	78.00	83.00	87.00
Sale (in Lacs)	**74.34**	**88.65**	**102.80**	**119.35**	**135.55**

BREAK UP OF LABOUR				
Particulars		Wages	No of	Total
		Per Month	Employees	Salary
Supervisor		20,000.00	1	20,000.00
Plant Operator		15,000.00	2	30,000.00
Unskilled Worker		10,000.00	1	10,000.00
Helper		6,000.00	1	6,000.00
Security Guard		8,000.00	1	8,000.00
				74,000.00
Add: 5% Fringe Benefit				3,700.00
Total Labour Cost Per Month				77,700.00
Total Labour Cost for the year (In Rs. Lakhs)			6	9.32

BREAK UP OF SALARY				
Particulars		Salary	No of	Total
		Per Month	Employees	Salary
Manager		18,000.00	1	12,000.00
Accountant cum store keeper		15,000.00	1	15,000.00
Sales		10,000.00	1	10,000.00
Total Salary Per Month				37,000.00
Add: 5% Fringe Benefit				1,850.00
Total Salary for the month				38,850.00
Total Salary for the year (In Rs. Lakhs)			3	4.66

COMPUTATION OF DEPRECIATION					
Description	Land	Building/shed	Plant & Machinery	Furniture	**TOTAL**
Rate of Depreciation		**10.00%**	**15.00%**	**10.00%**	
Opening Balance	Leased		-	-	-
Addition	-	4.00	13.50	1.00	18.50
	-	4.00	13.50	1.00	18.50
		-	-	-	
TOTAL		4.00	13.50	1.00	18.50
Less : Depreciation	-	0.40	2.03	0.10	2.53
WDV at end of Ist year	-	3.60	11.48	0.90	15.98
Additions During The Year	-	-	-	-	-
	-	3.60	11.48	0.90	15.98
Less : Depreciation	-	0.36	1.72	0.09	2.17
WDV at end of IInd Year	-	3.24	9.75	0.81	13.80
Additions During The Year	-	-	-	-	-
	-	3.24	9.75	0.81	13.80
Less : Depreciation	-	0.32	1.46	0.08	1.87
WDV at end of IIIrd year	-	2.92	8.29	0.73	11.94
Additions During The Year	-	-	-	-	-
	-	2.92	8.29	0.73	11.94
Less : Depreciation	-	0.29	1.24	0.07	1.61
WDV at end of IV year	-	2.62	7.05	0.66	10.33
Additions During The Year	-	-	-	-	-
	-	2.62	7.05	0.66	10.33
Less : Depreciation	-	0.26	1.06	0.07	1.39
WDV at end of Vth year	-	2.36	5.99	0.59	8.94

REPAYMENT SCHEDULE OF TERM LOAN						11.0%	
Year	**Particulars**	**Amount**	**Addition**	**Total**	**Interest**	**Repayment**	**Cl Balance**
I	Opening Balance						
	Ist Quarter	16.65	-	16.65	0.46	-	16.65
	Iind Quarter	16.65	-	16.65	0.46	-	16.65
	IIIrd Quarter	16.65	-	16.65	0.46	0.93	15.73
	Ivth Quarter	15.73	-	15.73	0.43	0.93	14.80
					1.81	1.85	
II	Opening Balance						
	Ist Quarter	14.80	-	14.80	0.41	0.93	13.88
	Iind Quarter	13.88	-	13.88	0.38	0.93	12.95
	IIIrd Quarter	12.95	-	12.95	0.36	0.93	12.03
	Ivth Quarter	12.03		12.03	0.33	0.93	11.10
					1.48	3.70	
III	Opening Balance						
	Ist Quarter	11.10	-	11.10	0.31	0.93	10.18
	Iind Quarter	10.18	-	10.18	0.28	0.93	9.25
	IIIrd Quarter	9.25	-	9.25	0.25	0.93	8.32
	Ivth Quarter	8.32		8.32	0.23	0.93	7.40
					1.07	3.70	
IV	Opening Balance						
	Ist Quarter	7.40	-	7.40	0.20	0.93	6.47
	Iind Quarter	6.47	-	6.47	0.18	0.93	5.55
	IIIrd Quarter	5.55	-	5.55	0.15	0.93	4.62
	Ivth Quarter	4.62		4.62	0.13	0.93	3.70
					0.66	3.70	
V	Opening Balance						
	Ist Quarter	3.70	-	3.70	0.10	0.93	2.77
	Iind Quarter	2.77	-	2.77	0.08	0.93	1.85
	IIIrd Quarter	1.85	-	1.85	0.05	0.93	0.92
	Ivth Quarter	0.92		0.92	0.03	0.93	- 0.00
					0.25	3.70	

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	7.71	7.97	10.34	13.70	16.96
Interest on Term Loan	1.81	1.48	1.07	0.66	0.25
Total	9.52	9.44	11.41	14.36	17.21
REPAYMENT					
Repayment of Term Loan	1.85	3.70	3.70	3.70	3.70
Interest on Term Loan	1.81	1.48	1.07	0.66	0.25
Total	3.66	5.18	4.77	4.36	3.95
DEBT SERVICE COVERAGE RATIO	**2.60**	**1.82**	**2.39**	**3.29**	**4.35**
AVERAGE D.S.C.R.			**2.83**		

COMPUTATION OF ELECTRICITY				
(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	30	
Load Factor			0.7460	
Electricity Charges		per unit	7.50	
Total Working Days			300	
Electricity Charges				4,02,840.00
Add : Minimim Charges (@ 10%)				
(B) DG set				
No. of Working Days			300	days
No of Working Hours			0.3	Hour per day
Total no of Hour			90	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			720	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			0.47	
Add : Lube Cost @15%			0.07	
Total			**0.54**	
Total cost of Power & Fuel at 100%				4.57
Year		**Capacity**		**Amount**
				(in Lacs)
I		45%		2.05
II		50%		2.28
III		55%		2.51
IV		60%		2.74
V		65%		2.97

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