PROJECT REPORT

Of

PET PREFORMS

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **PET Preforms**.

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		xxxxxxxxxxx		
4	Unit Address	:	xxxxxxxxxxxxxxxxxxxxxxx		
			District : xxxxxxx Pin: xxxxxxx Mobile xxxxxxx		State: xxxxxxxxxx
5	Product and By Product	:	**PET Preforms**		
6	Name of the project / business activity proposed :		**PET Preforms Manufacturing Unit**		
7	Cost of Project	:	Rs.46.25 Lakhs		
8	Means of Finance Term Loan Own Capital Working Capital		 Rs.36.63 Lakhs Rs.4.63 Lakhs Rs.5 Lakhs		
9	Debt Service Coverage Ratio	:	2.11		
10	Pay Back Period	:	5	Years	
11	Project Implementation Period	:	5-6	Months	
12	Break Even Point	:	39%		
13	Employment	:	15	Persons	
14	Power Requirement	:	60	HP	
15	Major Raw materials	:	PET Resins		
16	Estimated Annual Sales Turnover (Max Utilized Capacity)	:	167.84	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	39.70
Furniture & Fixtures	1.00
Working Capital	5.55
Total	**46.25**

MEANS OF FINANCE

Particulars	Amount
Own Contribution	4.63
Term Loan	36.63
Working Capital	5.00
Total	**46.25**

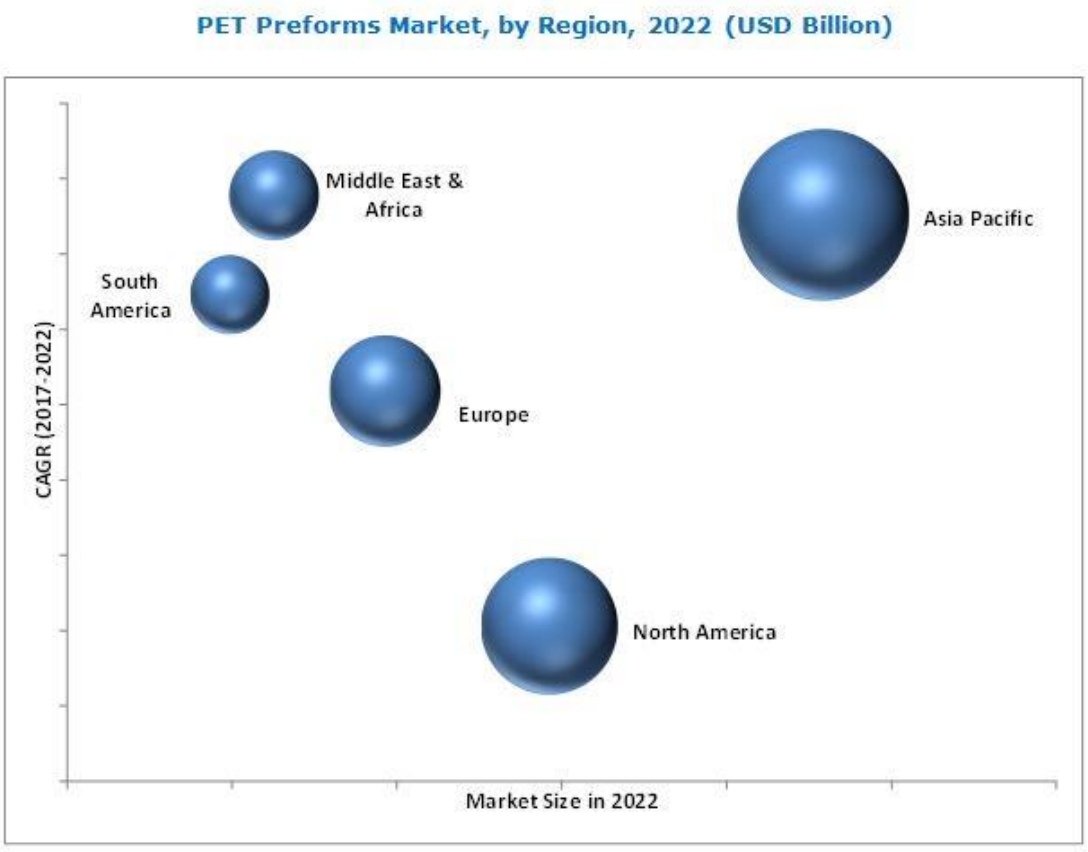
PET PREFORMS

1. INTRODUCTION

A PET preform is an intermediate product that is subsequently blown into a polyethylene terephthalate (PET) container. Preforms vary in neck finish, weight, colour and shape, and are specifically designed to meet the needs of customers in different market segments. Preforms can be single-layer or multilayer. PET Preforms are produced by using a highly-accurate injection molding process and equipment. Preform weight depends on the end container's desired volume. Barrier preforms provide additional benefits and increased beverage shelf life. PET Preforms are used to make bottles especially convenience-sized soft drinks, juices and water. There is one characteristic of PET preform, which is the product that made from it will be clear and transparent. The surface is smooth and sparking, which can attract the buyer´s attention. This makes the PET preform a delicate product. On the other hand, although the PET preform can create a similar sensation just like glass. It's not fragile as glass. The wall is strong and tough, which appears on the container.

2. MARKET POTENTIAL:

PET preforms offer reasonable packaging solution in terms of cost, which are used in packaging of bottled water, carbonated soft drinks, edible oil, and other special care & domestic goods. The demand for PET preforms has been increased in the last decade due to high consumption of convenient food & beverages products such as ready-to-drink coffee, tea, soft drinks, and juices in both developed and developing countries. The hot filling process is common in developed countries, which is boosting the PET preforms bottles market as it requires low capital investments and excludes the usage of preservers. Increasing consumption of packaged drinking water is significantly responsible for a heightened prospect of PET preforms market. The global PET preforms market is expected to reach USD 23.35 Billion by 2022, at a CAGR of 5.31% from 2017 to 2022. In terms of volume, the market size is projected to reach 552.64 Billion units by 2022, at a CAGR of 4.1% from 2017 to 2022.



3. PRODUCT DESCRIPTION

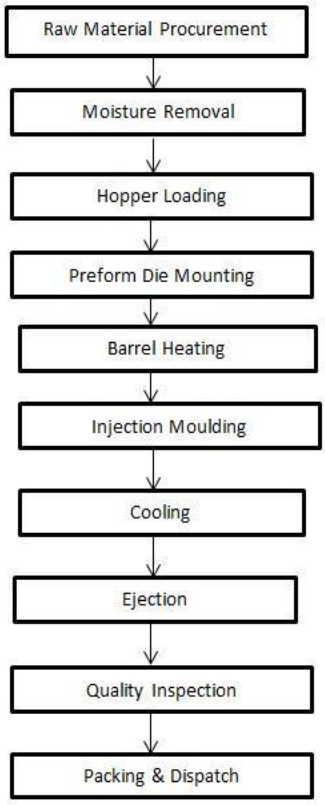
3.1 PRODUCT:

PET Preforms

3.2 RAW MATERIAL

PET Resins

3.3 MANUFACTURING PROCESS



Flow Chart

In PET Preforms the quality of PET resin is the most important consideration. Generally, those PET resins are used in which antimony concentration is less than 300mg. In the first step, the raw material is procured from the local authorized vendor and stored in the inventory. PET naturally absorbs water from its surroundings. So, it is preheated before start manufacturing to reduce the moisture content.

PET resins are heated to a temperature of 110 – 115°C for near about 4 hours. This heating will reduce the moisture content to less than 50 parts per million. The moisture balance is an important step to avoid hydrolytic reaction which reduces the PET quality by generation of acetaldehyde.

In the next step, the PET resins are poured into the injection moulding machine manually. The profile dies of desired preform shape of preform are mounted precisely into the machine after approval from the production team. The profile dies have more than one cavity of preform shape. Generally, mould dies have cavities as per the weight of preform. For 14-gram weight preform 16 cavity dies are available.

In the next step, barrel heaters are started and brought up to the desired melting temperature of PET. The resins from the hopper are fed into the barrel section of the machine where the screw mounted in the machine rotates about horizontal axis. The resins are fed into heating zone as the screw rotates. In the heating zone, resins melts to a semi-solid state and are ready to be injected into the die cavity by the machine.

From the extruder of the machine this molten semi-fluid plastic is injected into the die at desired pressure and temperature. The molten plastic will acquire the shape of the die and cooling cycle of the machine begins. Water is used as a cooling medium which transfers heating through a suitable cooling arrangement. The molten plastic gets solidified and acquires the shape of the die.

After this, when the cooling cycle completes the mold gets opened and the ejector pin will eject the preforms outside. These preforms have the threaded portion for cap mounting.

The non-uniform or deformed products are crushed using grinder into small pieces. After this, the preforms are packed and dispatched as per the requirement.

PLANT AND MACHINERY:

1. **Injection Moulding Machine** –

   Injection molding is a method to obtain molded products by injecting plastic materials molten by heat into a mold, and then cooling and solidifying them. The method is suitable for the mass production of products with complicated shapes, and takes a large part in the area of plastic processing.

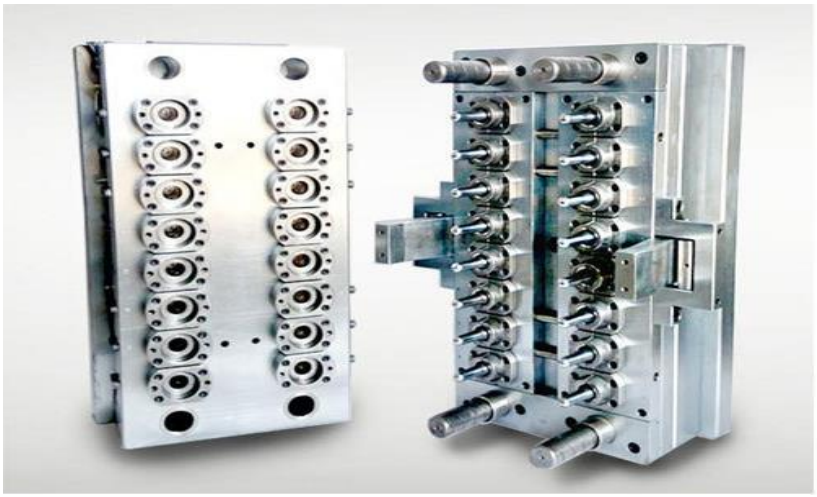
2. **Grinder** – This machine is used to crush the waste or non-uniform products into small pieces.

3. **<u>Water Chiller</u> –** This is used to cool down the heated water required during the cooling cycle of the blow moldings machine.

Equipment's:

Profile Dies –

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



Pump –

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

PROJECTED BALANCE SHEET

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Capital Account					
Opening Balance	-	5.17	8.81	14.81	20.33
Add: Additions	4.63	-	-	-	-
Add: Net Profit	5.54	9.65	13.99	17.53	21.08
Less: Drawings	5.00	6.00	8.00	12.00	15.00
Closing Balance	5.17	8.81	14.81	20.33	26.42
CC Limit	5.00	5.00	5.00	5.00	5.00
Term Loan	32.56	24.42	16.28	8.14	-
Sundry Creditors	0.92	1.06	1.21	1.37	1.54
TOTAL :	**43.64**	**39.29**	**37.29**	**34.84**	**32.95**
APPLICATION OF FUND					
Fixed Assets (Gross)	40.70	40.70	40.70	40.70	40.70
Gross Dep.	6.06	11.21	15.59	19.32	22.49
Net Fixed Assets	34.65	29.49	25.11	21.38	18.21
Current Assets					
Sundry Debtors	2.34	2.74	3.11	3.50	3.92
Stock in Hand	4.51	5.00	5.62	6.29	7.00
Cash and Bank	2.15	2.05	3.45	3.67	3.82
TOTAL :	**43.64**	**39.29**	**37.29**	**34.84**	**32.95**
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	I	II	III	IV	V
A) SALES					
Gross Sale	100.22	117.63	133.14	150.00	167.84
Total (A)	**100.22**	**117.63**	**133.14**	**150.00**	**167.84**
B) COST OF SALES					
Raw Mateiral Consumed	55.30	63.65	72.58	82.08	92.16
Electricity Expenses	7.02	7.60	8.19	8.77	9.36
Repair & Maintenance	0.50	0.59	0.67	0.75	0.84
Labour & Wages	11.02	12.12	13.34	14.67	16.14
Depreciation	6.06	5.15	4.38	3.73	3.17
Cost of Production	79.89	89.12	99.15	110.00	121.67
Add: Opening Stock /WIP	-	2.66	2.88	3.21	3.56
Less: Closing Stock /WIP	2.66	2.88	3.21	3.56	3.93
Cost of Sales (B)	77.23	88.90	98.83	109.65	121.29
C) GROSS PROFIT (A-B)	22.99	28.74	34.32	40.35	46.55
	22.94%	**24.43%**	**25.77%**	**26.90%**	**27.73%**
D) Bank Interest (Term Loan)	3.97	3.25	2.35	1.46	0.56
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.	5.01	5.88	6.66	7.50	8.39
TOTAL (D+E)	**17.45**	**18.39**	**19.14**	**20.05**	**21.10**
H) NET PROFIT	5.54	10.35	15.18	20.30	25.45
	5.5%	**8.8%**	**11.4%**	**13.5%**	**15.2%**
I) Taxation	-	0.70	1.18	2.77	4.37
J) PROFIT (After Tax)	5.54	9.65	13.99	17.53	21.08

PROJECTED CASH FLOW STATEMENT

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Own Contribution	4.63	-			
Net Profit	5.54	10.35	15.18	20.30	25.45
Depreciation & Exp. W/off	6.06	5.15	4.38	3.73	3.17
Increase In Cash Credit	5.00				
Increase In Term Loan	36.63	-	-	-	-
Increase in Creditors	0.92	0.14	0.15	0.16	0.17
TOTAL :	**58.77**	**15.64**	**19.71**	**24.19**	**28.80**
APPLICATION OF FUND					
Increase in Fixed Assets	40.70	-	-	-	-
Increase in Stock	4.51	0.50	0.62	0.67	0.71
Increase in Debtors	2.34	0.41	0.36	0.39	0.42
Repayment of Term Loan	4.07	8.14	8.14	8.14	8.14
Taxation	-	0.70	1.18	2.77	4.37
Drawings	5.00	6.00	8.00	12.00	15.00
TOTAL :	**56.61**	**15.74**	**18.31**	**23.97**	**28.64**
Opening Cash & Bank Balance	-	2.15	2.05	3.45	3.67
Add : Surplus	2.15	- 0.10	1.40	0.22	0.16
Closing Cash & Bank Balance	**2.15**	**2.05**	**3.45**	**3.67**	**3.82**

COMPUTATION OF PET PREFORMS MANUFACTURING UNIT

Items to be Manufactured PET Preforms

Manufacturing Capacity per Day		19,200.00	pcs
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		5,760,000	pcs
Year		Capacity Utilisation	PET Preforms
I		60%	3,456,000
II		65%	3,744,000
III		70%	4,032,000
IV		75%	4,320,000
V		80%	4,608,000

COMPUTATION OF RAW MATERIAL

Item Name		**Quantity of Raw Material**	**Unit**	**Unit Rate of**	**Total CostPer Annum (100%)**
PET Resins		184,320.00	kg	50.00	9,216,000.00
Total		**184,320.00**			**9,216,000.00**

Total Raw material in Rs lacs	at 100% Capacity		92.16
Average Cost per pcs		(In Rs)	**1.60**

Raw Material Consumed	**Capacity Utilisation**	**Rate**	**Amount (Rs.)**
I	60%	1.60	55.30
II	65%	1.70	63.65
III	70%	1.80	72.58
IV	75%	1.90	82.08
V	80%	2.00	92.16

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	I	II	III	IV	V
Finished Goods					
(10 Days requirement)	2.66	2.88	3.21	3.56	3.93
Raw Material					
(10 Days requirement)	1.84	2.12	2.42	2.74	3.07
Closing Stock	**4.51**	**5.00**	**5.62**	**6.29**	**7.00**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars	Amount	Margin(10%)	Net Amount
Stock in Hand	4.51		
Less:			
Sundry Creditors	0.92		
Paid Stock	**3.58**	**0.36**	**3.23**
Sundry Debtors	2.34	0.23	2.10
Working Capital Requirement			**5.33**
Margin			0.59
MPBF			**5.33**
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	-		39.70	1.00	40.70
	-		39.70	1.00	40.70
TOTAL		-	39.70	1.00	40.70
Less : Depreciation	-	-	5.96	0.10	6.06
WDV at end of Ist year	-	-	33.75	0.90	34.65
Additions During The Year	-	-	-	-	-
	-	-	33.75	0.90	34.65
Less : Depreciation	-	-	5.06	0.09	5.15
WDV at end of IInd Year	-	-	28.68	0.81	29.49
Additions During The Year	-	-	-	-	-
	-	-	28.68	0.81	29.49
Less : Depreciation	-	-	4.30	0.08	4.38
WDV at end of IIIrd year	-	-	24.38	0.73	25.11
Additions During The Year	-	-	-	-	-
	-	-	24.38	0.73	25.11
Less : Depreciation	-	-	3.66	0.07	3.73
WDV at end of IV year	-	-	20.72	0.66	21.38
Additions During The Year	-	-	-	-	-
	-	-	20.72	0.66	21.38
Less : Depreciation	-	-	3.11	0.07	3.17
WDV at end of Vth year	-	-	17.62	0.59	18.21

REPAYMENT SCHEDULE OF TERM LOAN 11.0%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
I	Opening Balance						
	Ist Quarter	-	36.63	36.63	1.01	-	36.63
	Iind Quarter	36.63	-	36.63	1.01	-	36.63
	IIIrd Quarter	36.63	-	36.63	1.01	2.04	34.60
	Ivth Quarter	34.60	-	34.60	0.95	2.04	32.56
					3.97	4.07	
II	Opening Balance						
	Ist Quarter	32.56	-	32.56	0.90	2.04	30.53
	Iind Quarter	30.53	-	30.53	0.84	2.04	28.49
	IIIrd Quarter	28.49	-	28.49	0.78	2.04	26.46
	Ivth Quarter	26.46		26.46	0.73	2.04	24.42
					3.25	8.14	
III	Opening Balance						
	Ist Quarter	24.42	-	24.42	0.67	2.04	22.39
	Iind Quarter	22.39	-	22.39	0.62	2.04	20.35
	IIIrd Quarter	20.35	-	20.35	0.56	2.04	18.32
	Ivth Quarter	18.32		18.32	0.50	2.04	16.28
					2.35	8.14	
IV	Opening Balance						
	Ist Quarter	16.28	-	16.28	0.45	2.04	14.25
	Iind Quarter	14.25	-	14.25	0.39	2.04	12.21
	IIIrd Quarter	12.21	-	12.21	0.34	2.04	10.18
	Ivth Quarter	10.18		10.18	0.28	2.04	8.14
					1.46	8.14	
V	Opening Balance						
	Ist Quarter	8.14	-	8.14	0.22	2.04	6.11
	Iind Quarter	6.11	-	6.11	0.17	2.04	4.07
	IIIrd Quarter	4.07	-	4.07	0.11	2.04	2.04
	Ivth Quarter	2.04		2.04	0.06	2.04	-
					0.56	8.14	

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	11.60	14.80	18.37	21.26	24.26
Interest on Term Loan	3.97	3.25	2.35	1.46	0.56
Total	15.57	18.05	20.73	22.71	24.82
REPAYMENT					
Repayment of Term Loan	4.07	8.14	8.14	8.14	8.14
Interest on Term Loan	3.97	3.25	2.35	1.46	0.56
Total	8.04	11.39	10.49	9.60	8.70
DEBT SERVICE COVERAGE RATIO	**1.94**	**1.58**	**1.98**	**2.37**	**2.85**
AVERAGE D.S.C.R.			**2.11**		

COMPUTATION OF SALE

Particulars	I	II	III	IV	V
Op Stock	-	115,200.00	124,800.00	134,400.00	144,000.00
Production	3,456,000.00	3,744,000.00	4,032,000.00	4,320,000.00	4,608,000.00
	3,456,000.00	3,859,200.00	4,156,800.00	4,454,400.00	4,752,000.00
Less : Closing Stock(10 Days)	115,200.00	124,800.00	134,400.00	144,000.00	153,600.00
Net Sale	3,340,800.00	3,734,400.00	4,022,400.00	4,310,400.00	4,598,400.00
Avg Sale Price per pcs	3.00	3.15	3.31	3.48	3.65
Sale (in Lacs)	**100.22**	**117.63**	**133.14**	**150.00**	**167.84**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		KW	60	
Load Factor				
Electricity Charges		per unit	7.50	
Total Working Days			300	
Electricity Charges				10.80
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%				11.70
Year		**Capacity**		**Amount**
				(in Lacs)
I		60%		7.02
II		65%		7.60
III		70%		8.19
IV		75%		8.77
V		80%		9.36

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