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PROJECT REPORT

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PROJECT:

PVC Pipes Unit

PROJECT REPORT

Of

PVC PIPES

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **PVC Pipes**.

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.]

PVC PIPES

Introduction

PVC stands for polyvinyl chloride, and it's become a common replacement for metal piping. PVC's strength, durability, easy installation, and low cost have made it one of the most widely used plastics in the world. PVC is a thermoplastic material that is molded into different shapes to create pipes, fittings, valves and other liquid handling supplies.

It's the white plastic pipe commonly used for plumbing and drainage.

PVC pipes are manufactured by extrusion of raw material PVC, and generally follow the same steps of typical pipe extrusion operations: Feeding of raw material pellets / powder into the PVC twin screw extruder. Melting and heating in multiple extruder zones.

Types of PVC Pipes

Two main types of PVC pipe exist: schedule 40 and schedule 80. The difference lies in the thickness of the pipe wall. Schedule 40 PVC pipes have thinner walls than their schedule 80 counterparts. If you come across a different schedule number than the typical 40 or 80, know that the higher the number, the thicker the pipe wall.

Thicker walls come in handy for different pressure and temperature applications. To help you make the correct purchase, PVC pipes have their schedule and pounds per square inch (PSI) rating printed on the side.

Application of PVC Pipes

PVC is currently used in a wide spectrum of piping applications, all helping to meet modern infrastructure need.

- **Water applications:** VC piping systems are used in several areas for the transport of water - from delivery of drinking water over the removal of sewage or waste products to drainage of water from the ground or roof.
- **Drinking water:** Pipes and fittings for the distribution of water under pressure. The main application is the distribution of drinking water. The diameters are of medium size (generally between 75 mm and 250 mm).
- **Soil and waste:** Pipes and fittings for the evacuation of waste water without pressure inside the buildings (generally vertical). These are usually of medium diameters (< 160 mm). They can be made of compact PVC or have structured walls (foam core).
- **Sewage and underground drainage:** Pipes and fittings for the collection and evacuation of waste water without pressure and intended to be buried in the ground (horizontally). These are usually of large diameter (160 mm and up to 630 mm). They can be made of compact PVC or have structured walls (foam core or twin wall with a corrugated layer).

Description of PVC Pipes Manufacturing Machine

Following machines are used for Single Screw PVC Pipes Manufacturing unit:

- a) High Speed Mixture machine
- b) Rigid Extruder machine
- c) Granule-ds Extruder Machine
- d) Grinder
- e) Different Dies

PVC Pipes market analysis & Potential

The global PVC pipes market reached a volume of 22.8 Million Tons in 2018, growing at a CAGR of 5.4% during 2011-2018. The market is

further projected to reach a volume of 30.5 Million Tons by 2024, expanding at a CAGR of 4.9% during 2019-2024. PVC pipes are composed by the extrusion of a blend of polyvinyl chloride (PVC) and several additives. The production of PVC pipes consumes around four times lesser energy and incurs lower losses of the raw material in comparison to concrete pipes. Moreover, complete recyclability of PVC makes the environmental footprint of these pipes far smaller than the alternative piping materials. Owing to these factors, PVC pipes find applications in water systems, underground wiring and sewer lines.



PVC Pipes Manufacturing Process

- PVC stands for Polyvinyl Chloride it's a polymer which is used in several application from wire to pipe, due to its insulation and strength properties.



- The PVC Granules are feed to mixer via Hooper and feeder arrangement along with the various additives; it ensures that various additives are uniformly distributed within the PVC Granules followed by which the granules additive mixture is feed to Extruder.
- Extruder melts these granules into semi-solid state and forces them through the die attached to it utilizing a plunger or screw arrangement. The die has cavity of shape of pipe, hence a continuous pipe is obtained from extruder die.
- An appropriate cooling system is used to cool the pipe formed by extruder usually an air cooler, then this continuous pipe goes through a printing machine where the required labels are printed onto pipe followed by which these pipes are cut into required length by a simple cutter and sent for sale.

Machinery & Equipment's required:

Single Screw PVC Pipe Machine (50 Kg per Hour Capacity): Cost Rs. 20-25 Lacs.

This machine includes: Extruder, Water tank, Cutter, Mixture & Grinder

Name	Cost
Mixture	Rs. 2-2.5 Lacs
Grinder	Rs. 25,000
Extruder	Rs. 5 Lakhs

- ❖ Cost of the machine is exclusive of GST & value of the machine varies with the change in production capacity.

Note: This project report is based on Single Screw PVC Pipe Manufacturing Machine.

Land & Building required:

Land required 1500-1800 Square Feet (approx.)

Approximate Rent for the same is Rs. 30000-35000 Per Month.

Labour & staff Requirement:

8-10 Manpower is required for the PVC Pipes Manufacturing Unit.

Includes:

3 Skilled Labour

5 Unskilled Labour

2 Helper

Raw material requirement

The raw materials required for PVC Pipes is as follow:

S.N.	Name	Measurement	Amount
1	PVC Resin	KG	Rs. 76
2	Calcium	KG	Rs. 10-15
3	DOP (Dioctyl Phthalate)	KG	Rs. 120
4	P Wax (Polyethylene/ Paraffin Wax)	KG	Rs.100
5	One Pack	KG	Rs. 135
6	CPE (Chlorinated Polyethylene)	KG	Rs. 105
7	Optical Brightener	KG	Rs. 2300

❖ On an average raw material cost per KG is approx. Rs. 70-80. Value of raw material changes as per the quality.

PVC Pipes Manufacturing unit License ®istration

For Company:

- Obtain the GST registration.
- Additionally, obtain Udyog Aadhar registration.
- NOC from Fire/ Pollution Board.

- Choice of a Brand Name of the product and secure the name with Trademark if required.

Implementation Schedule

S.N.	Activity	Time Required (in Months)
1	Acquisition Of premises	1
2	Construction (if Applicable)	1- 2 Months
3	Procurement & installation of Plant & Machinery	1
4	Arrangement of Finance	1
5	Requirement of required Manpower	1
	Total time Required (some activities shall run concurrently)	2-3 Months

FINANCIAL ASSISTANCE REQUIRED

Term Loan of Rs. 25.49 lakh and Working Capital limit of Rs. 22.50 Lacs

(in Lacs)

**COST OF
PROJECT**

PARTICULARS	Amount	Own Contribution	Bank Finance
Building Civil Work		10.00%	90.00%
Plant & Machinery	23.60	2.36	21.24
Furniture & Fixtures and Other Assets	4.72	0.47	4.25
Working capital	25.00	2.50	22.50
Total	53.32	5.33	47.98

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MEANS OF
FINANCE**

PARTICULARS	AMOUNT
Own Contribution	5.33
Bank Loan	25.49
Working capital Limit	22.50
Total	53.32

COMPUTATION OF PRODUCTION OF PVC PIPES		
Items to be Manufactured		
PVC Pipes		
Machine capacity per Hour	50	KG
Total Shift of 8 Hours	2	
machine capacity per Day(8 Hour shift)	800	KG
machine capacity per annum	240,000	KG
Raw Material		
wastage	5%	of Input
Raw material Requirement Per day	842	KG
Raw Material Required Per Annum	252,632	KG

Production of PVC Pipes		
Production	Capacity	KG
1st year	60%	144,000
2nd year	65%	156,000
3rd year	70%	168,000
4th year	75%	180,000
5th year	80%	192,000
6th year	85%	204,000

Raw Material Requirement			
Particulars	Requirement		
At 100% Capacity	252,632	KG	
Raw Material Cost			
Year	Capacity Utilisation	Rate (per KG)	Amount (Rs. in lacs)
1st year	60%	70.00	106.11
2nd year	65%	72.00	118.23
3rd year	70%	74.00	130.86
4th year	75%	76.00	144.00
5th year	80%	78.00	157.64
6th year	85%	79.00	169.64

<u>COMPUTATION OF SALE</u>						(In Lacs)
Particulars	1st year	2nd year	3rd year	4th year	5th year	6th year
Op Stock	-	14,400	15,600	16,800	18,000	19,200
Production	144,000	156,000	168,000	180,000	192,000	204,000
Less : Closing Stock	14,400	15,600	16,800	18,000	19,200	20,400
Net Sale	129,600	154,800	166,800	178,800	190,800	202,800
sale price per kg	105.00	107.00	109.00	111.00	113.00	115.00
Sales (in Lacs)	136.08	165.64	181.81	198.47	215.60	233.22

<u>BREAK UP OF LABOUR CHARGES</u>			
Particulars	Wages	No of	Total
	Rs. per Month	Employees	Salary
Skilled (in thousand rupees)	10,000	3	30,000
Unskilled (in thousand rupees)	8,000	5	40,000
Total salary per month			70,000
Total annual labour charges	(in lacs)		8.40

<u>BREAK UP OF STAFF CHARGES</u>			
Particulars	Wages	No of	Total
	Rs. per Month	Employees	Salary
Supervisor	11,000	1	11,000
Helper	7,000	2	14,000
Total salary per month			25,000
Total annual labour charges	(in lacs)		3.00

Utility Charges at 100% capacity (per month)		
Particulars	value	Description
Power connection required	40	KWH
consumption per day	640	units
Consumption per month	16,000	units
Rate per Unit	7	Rs.
power Bill per month	112,000	Rs.

PROJECTED PROFITABILITY STATEMENT						(In Lacs)
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th Year
Capacity Utilisation %	60%	65%	70%	75%	80%	85%
<u>SALES</u>						
Gross Sale						
PVC Pipes	136.08	165.64	181.81	198.47	215.60	233.22
Total	136.08	165.64	181.81	198.47	215.60	233.22
<u>COST OF SALES</u>						
Raw Material Consumed	106.11	118.23	130.86	144.00	157.64	169.64
Electricity Expenses	8.06	8.74	9.41	10.08	10.75	11.42
Depreciation	4.01	3.43	2.94	2.52	2.16	1.85
Labour	8.40	8.82	9.26	9.72	10.21	10.72
Repair & maintenace	2.72	3.31	3.64	3.97	4.31	4.66
Consumables	1.50	1.82	2.00	2.18	2.37	2.57
Packaging Charges	1.22	1.49	1.64	1.79	1.94	2.10
Cost of Production	132.02	145.85	159.74	174.26	189.39	202.97
Add: Opening Stock /WIP	-	13.20	14.58	15.97	17.43	18.94
Less: Closing Stock /WIP	13.20	14.58	15.97	17.43	18.94	20.30
Cost of Sales	118.82	144.46	158.35	172.81	187.87	201.61
GROSS PROFIT	17.26	21.17	23.46	25.66	27.73	31.61
Interest on Term Loan	2.29	2.10	1.64	1.18	0.71	0.25
Interest on working Capital	2.25	2.25	2.25	2.25	2.25	2.25
Selling & distribution Expenses	1.02	1.24	1.36	1.49	1.62	1.75
Staff Expenses	3.00	3.15	3.31	3.47	3.65	3.83

Rent	3.60	3.78	3.97	4.17	4.38	4.59
TOTAL	12.16	12.53	12.53	12.56	12.60	12.67
NET PROFIT	5.10	8.64	10.93	13.10	15.13	18.94
Taxation	0.80	1.35	1.70	2.04	2.36	2.95
PROFIT (After Tax)	4.30	7.30	9.22	11.06	12.77	15.98

PROJECTED BALANCE SHEET						(In Lacs)
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th year
<u>Liabilities</u>						
Capital						
opening balance		6.14	9.43	13.65	18.51	23.28
Add:- Own Capital	5.33					
Add:- Retained Profit	4.30	7.30	9.22	11.06	12.77	15.98
Less:- Drawings	3.50	4.00	5.00	6.20	8.00	10.00
Closing Blance	6.14	9.43	13.65	18.51	23.28	29.26
Term Loan	23.17	18.54	13.90	9.27	4.63	-
Working Capital Limit	22.50	22.50	22.50	22.50	22.50	22.50
Sundry Creditors	8.84	9.85	10.91	12.00	13.14	14.14
Provisions & Other Liab	0.50	0.75	1.13	1.35	1.69	2.11
TOTAL :	61.15	61.07	62.09	63.63	65.24	68.01
<u>Assets</u>						
Fixed Assets (Gross)	28.32	28.32	28.32	28.32	28.32	28.32
Gross Dep.	4.01	7.45	10.39	12.90	15.06	16.91
Net Fixed Assets	24.31	20.87	17.93	15.42	13.26	11.41
Current Assets						
Sundry Debtors	11.79	14.36	15.76	17.20	18.69	20.21
Stock in Hand	22.04	24.44	26.88	29.43	32.08	34.43
Cash and Bank	3.00	1.40	1.51	1.59	1.22	1.95
TOTAL :	61.15	61.07	62.09	63.63	65.24	68.01

PROJECTED CASH FLOW STATEMENT						(In Lacs)
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th year
<u>SOURCES OF FUND</u>						
Own Margin	5.33					
Net Profit	5.10	8.64	10.93	13.10	15.13	18.94
Depreciation & Exp. W/off	4.01	3.43	2.94	2.52	2.16	1.85
Increase in Cash Credit	22.50	-	-	-	-	-
Increase In Term Loan	25.49	-	-	-	-	-
Increase in Creditors	8.84	1.01	1.05	1.09	1.14	1.00
Increase in Provisions & Oth lib	0.50	0.25	0.38	0.23	0.34	0.42
TOTAL :	71.77	13.34	15.29	16.94	18.76	22.21
<u>APPLICATION OF FUND</u>						
Increase in Fixed Assets	28.32					
Increase in Stock	22.04	2.39	2.44	2.55	2.65	2.36
Increase in Debtors	11.79	2.56	1.40	1.44	1.49	1.53
Repayment of Term Loan	2.32	4.63	4.63	4.63	4.63	4.63
Drawings	3.50	4.00	5.00	6.20	8.00	10.00
Taxation	0.80	1.35	1.70	2.04	2.36	2.95
TOTAL :	68.77	14.94	15.18	16.87	19.13	21.47
Opening Cash & Bank Balance	-	3.00	1.40	1.51	1.59	1.22
Add : Surplus	3.00	- 1.60	0.11	0.07	- 0.37	0.74
Closing Cash & Bank Balance	3.00	1.40	1.51	1.59	1.22	1.95

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL						<u>(In Lacs)</u>
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th Year
<u>Finished Goods</u>						
	13.20	14.58	15.97	17.43	18.94	20.30
<u>Raw Material</u>						
	8.84	9.85	10.91	12.00	13.14	14.14
Closing Stock	22.04	24.44	26.88	29.43	32.08	34.43

COMPUTATION OF WORKING CAPITAL REQUIREMENT				(In Lacs)	
TRADITIONAL METHOD					
Particulars	Amount	Own contribution		Bank Finance	
Finished Goods & Raw Material	22.04	10%	2.20	90%	19.84
Less : Creditors	8.84	10%	0.88	90%	7.96
Paid stock	13.20	10%	1.32	90%	11.88
Sundry Debtors	11.79	10%	1.18	90%	10.61
	25.00	10%	2.50	90%	22.50
Working Capital Required Requirement From Bank				22.50	

COMPUTATION OF DEPRECIATION

Description	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation	15.00%	10.00%	
Opening Balance	-	-	-
Addition	23.60	4.72	28.32
Total	23.60	4.72	28.32
Less : Depreciation	3.54	0.47	4.01
WDV at end of Year	20.06	4.25	24.31
Additions During The Year	-	-	-
Total	20.06	4.25	24.31
Less : Depreciation	3.01	0.42	3.43
WDV at end of Year	17.05	3.82	20.87
Additions During The Year	-	-	-
Total	17.05	3.82	20.87
Less : Depreciation	2.56	0.38	2.94
WDV at end of Year	14.49	3.44	17.93
Additions During The Year	-	-	-
Total	14.49	3.44	17.93
Less : Depreciation	2.17	0.34	2.52
WDV at end of Year	12.32	3.10	15.42
Additions During The Year	-	-	-
Total	12.32	3.10	15.42
Less : Depreciation	1.85	0.31	2.16
WDV at end of Year	10.47	2.79	13.26
Additions During The Year	-	-	-

Total	10.47	2.79	13.26
Less : Depreciation	1.57	0.28	1.85
WDV at end of Year	8.90	2.51	11.41
Less : Depreciation	1.34	0.25	1.59
WDV at end of Year	7.57	2.26	9.82
Less : Depreciation	1.13	0.23	1.36
WDV at end of Year	6.43	2.03	8.46

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th Year
CASH ACCRUALS	8.32	10.73	12.16	13.58	14.92	17.83
Interest on Term Loan	2.29	2.10	1.64	1.18	0.71	0.25
Total	10.60	12.83	13.80	14.75	15.64	18.09
<u>REPAYMENT</u>						
Instalment of Term Loan	2.32	4.63	4.63	4.63	4.63	4.63
Interest on Term Loan	2.29	2.10	1.64	1.18	0.71	0.25
Total	4.61	6.74	6.28	5.81	5.35	4.89
DEBT SERVICE COVERAGE RATIO	2.30	1.90	2.20	2.54	2.92	3.70
AVERAGE D.S.C.R.	2.60					

REPAYMENT SCHEDULE OF TERM LOAN							
						Interest	10%
Year	Particulars	Amount	Addition	Total	Interest	Repayment	Closing Balance
1st	Opening Balance						
	1st month	-	25.49	25.49	-	-	25.49
	2nd month	25.49	-	25.49	0.21	-	25.49
	3rd month	25.49	-	25.49	0.21	-	25.49
	4th month	25.49	-	25.49	0.21		25.49
	5th month	25.49	-	25.49	0.21		25.49
	6th month	25.49	-	25.49	0.21		25.49
	7th month	25.49	-	25.49	0.21	0.39	25.10
	8th month	25.10	-	25.10	0.21	0.39	24.72
	9th month	24.72	-	24.72	0.21	0.39	24.33
	10th month	24.33	-	24.33	0.20	0.39	23.94
	11th month	23.94	-	23.94	0.20	0.39	23.56
	12th month	23.56	-	23.56	0.20	0.39	23.17
					2.29	2.32	
2nd	Opening Balance						
	1st month	23.17	-	23.17	0.19	0.39	22.78
	2nd month	22.78	-	22.78	0.19	0.39	22.40
	3rd month	22.40	-	22.40	0.19	0.39	22.01
	4th month	22.01	-	22.01	0.18	0.39	21.63
	5th month	21.63	-	21.63	0.18	0.39	21.24
	6th month	21.24	-	21.24	0.18	0.39	20.85
	7th month	20.85	-	20.85	0.17	0.39	20.47
	8th month	20.47	-	20.47	0.17	0.39	20.08
	9th month	20.08	-	20.08	0.17	0.39	19.70
	10th month	19.70	-	19.70	0.16	0.39	19.31
	11th month	19.31	-	19.31	0.16	0.39	18.92
	12th month	18.92	-	18.92	0.16	0.39	18.54
					2.10	4.63	
3rd	Opening Balance						
	1st month	18.54	-	18.54	0.15	0.39	18.15
	2nd month	18.15	-	18.15	0.15	0.39	17.76
	3rd month	17.76	-	17.76	0.15	0.39	17.38
	4th month	17.38	-	17.38	0.14	0.39	16.99
	5th month	16.99	-	16.99	0.14	0.39	16.61
	6th month	16.61	-	16.61	0.14	0.39	16.22

	7th month	16.22	-	16.22	0.14	0.39	15.83
	8th month	15.83	-	15.83	0.13	0.39	15.45
	9th month	15.45	-	15.45	0.13	0.39	15.06
	10th month	15.06	-	15.06	0.13	0.39	14.67
	11th month	14.67	-	14.67	0.12	0.39	14.29
	12th month	14.29	-	14.29	0.12	0.39	13.90
					1.64	4.63	
4th	Opening Balance						
	1st month	13.90	-	13.90	0.12	0.39	13.52
	2nd month	13.52	-	13.52	0.11	0.39	13.13
	3rd month	13.13	-	13.13	0.11	0.39	12.74
	4th month	12.74	-	12.74	0.11	0.39	12.36
	5th month	12.36	-	12.36	0.10	0.39	11.97
	6th month	11.97	-	11.97	0.10	0.39	11.59
	7th month	11.59	-	11.59	0.10	0.39	11.20
	8th month	11.20	-	11.20	0.09	0.39	10.81
	9th month	10.81	-	10.81	0.09	0.39	10.43
	10th month	10.43	-	10.43	0.09	0.39	10.04
	11th month	10.04	-	10.04	0.08	0.39	9.65
	12th month	9.65	-	9.65	0.08	0.39	9.27
					1.18	4.63	
5th	Opening Balance						
	1st month	9.27	-	9.27	0.08	0.39	8.88
	2nd month	8.88	-	8.88	0.07	0.39	8.50
	3rd month	8.50	-	8.50	0.07	0.39	8.11
	4th month	8.11	-	8.11	0.07	0.39	7.72
	5th month	7.72	-	7.72	0.06	0.39	7.34
	6th month	7.34	-	7.34	0.06	0.39	6.95
	7th month	6.95	-	6.95	0.06	0.39	6.57
	8th month	6.57	-	6.57	0.05	0.39	6.18
	9th month	6.18	-	6.18	0.05	0.39	5.79
	10th month	5.79	-	5.79	0.05	0.39	5.41
	11th month	5.41	-	5.41	0.05	0.39	5.02
	12th month	5.02	-	5.02	0.04	0.39	4.63
					0.71	4.63	
6th	Opening Balance						
	1st month	4.63	-	4.63	0.04	0.39	4.25
	2nd month	4.25	-	4.25	0.04	0.39	3.86
	3rd month	3.86	-	3.86	0.03	0.39	3.48
	4th month	3.48	-	3.48	0.03	0.39	3.09
	5th month	3.09	-	3.09	0.03	0.39	2.70

6th month	2.70	-	2.70	0.02	0.39	2.32
7th month	2.32	-	2.32	0.02	0.39	1.93
8th month	1.93	-	1.93	0.02	0.39	1.54
9th month	1.54	-	1.54	0.01	0.39	1.16
10th month	1.16	-	1.16	0.01	0.39	0.77
11th month	0.77	-	0.77	0.01	0.39	0.39
12th month	0.39	-	0.39	0.00	0.39	-
				0.25	4.63	
DOOR TO DOOR	72	MONTHS				
MORATORIUM PERIOD	6	MONTHS				
REPAYMENT PERIOD	66	MONTHS				

DISCLAIMER

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