PROJECT REPORT

OF

BICYCLE TYRE AND TUBE MANUFACTURING UNIT

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding Bicycle Tyre and Tubes Manufacturing Unit.

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 GLANCE

1	**Name of Proprietor/Director**	XXXXXXXX	
2	**Firm Name**	XXXXXXXX	
3	**Registered Address**	XXXXXXXX	
4	**Nature of Activity**	XXXXXXXX	
5	**Category of Applicant**	XXXXXXXX	
6	**Location of Unit**	XXXXXXXX	
7	**Cost of Project**	20.17	Rs. In Lakhs
8	**Means of Finance**		
i)	**Own Contribution**	2.02	Rs. In Lakhs
ii)	**Term Loan**	12.15	Rs. In Lakhs
iii)	**Working Capital**	6.00	Rs. In Lakhs
9	**Debt Service Coverage Ratio**	2.82	
10	**Break Even Point**	0.32	
11	**Power Requiremnet**	20	KW
12	**Employment**	8	Persons
13	**Major Raw Materials**	Natural Rubber,Bead Wire,Chemicals,TMT,Cord etc	

14 Details of Cost of Project & Means of Finance

Cost of Project **Amount in Lacs**

Particulars	Amount
Land	Owned/Leased
Building & Civil Work	Owned/Leased
Plant & Machinery	12.00
Other Misc Assets	1.50
Working Capital Requirement	6.67
Total	**20.17**

Means of Finance

Particulars	Amount
Own Contribution	2.02
Term Loan	12.15
Working capital Loan	6.00
Total	**20.17**

1. INTRODUCTION

In a one-of-a-kind process, the tyre is made from the prepared ingredients. This is a labour-intensive process that is aided by the use of cutting-edge technology. A technique of producing tyre inner tubes in which the tube is moulded in two annular sections from working uncured rubber, and the portions are connected, but the tube is stretched to a greater internal diameter and inflated into a mould with the larger internal diameter before the rubber is fully cured. The carcass, bead core, and rubber tread are the three fundamental components of a bicycle tyre. A puncture prevention belt is also included on virtually all Schwalbe tyres. The tire's bead core defines its diameter and ensures that it sits securely on the rim. A wire bundle makes up the majority of a tire's bead core. A hoop of aramid fibres replaces the wire in folding tyres. The carcass, the bead core, and the rubber tread are the three main components of a bicycle tyre. A puncture prevention belt is also included in virtually all Schwalbe tyres.

The tire's diameter is determined by the bead core, which also guarantees a tight fit on the rim. A wire bundle often makes up the tire's bead core. The wire is replaced with an aramid fibre hoop in the folding of tyres. The rubber compound of a tire consists of several components:

- Natural and synthetic rubber
- Fillers, e.g. carbon black, chalk, silica
- Softeners, e.g. oils and lubricants

■ Anti-aging agents (aromatic amines)

■ Vulcanizing aids, e.g. sulphur

■ Vulcanization accelerators; e.g. zinc oxide

■ Pigments and dyes

Rubber component ranges from 40 to 60 percent, depending on the composition. The filler accounts for 15-30% of the total, with the remaining components accounting for 20-35 percent. The tyre is built entirely from the inside out. Textile elements, steel belts, beads, ply, tread, and other components are all arranged in a tyre-building machine, which guarantees that each item is in its proper place. This produces a green tyre, which seems to be an almost finished product. There is no inner tube between the tyre and the rim on a tubeless tyre. The gap between the tyre and the rim is directly retained by air. The air in a tube-type tyre is held in place by an inflated tube. Tube-type tyres, it turns out, have certain advantages as well. Tubeless tyres are typically seen to be safer since they don't lose air as quickly as tube-style tyres do in the event of a puncture. The depletion of air is gradual. In the event of a puncture caused by a nail or other foreign object, just fill the tyre with air and drive or ride to the nearest puncture repair facility. Punctures may be fixed by simply sealing the leak rather than removing the tyre from the rim. There is also less friction and the tyre tend to keep cooler because there is no tube within the tyre. A tubeless tyre is also simpler to balance since there is less unequal weight in the tyre.

2. PRODUCT DISCRIPTION

2.1 PRODUCT USES

The bicycle tyre provides excellent suspension, creates longitudinal force for stopping and propulsion, and generates lateral force for balance and turning. Because bicycles travel on bumpy and uneven roads, bicycle tyros play an important role in reducing shock transmission to the front and rear wheels. They're utilized in hand cycles and particularly specialized racing wheelchairs.

2.2 RAW MATERIAL REQUIREMENT

2.2.1 Natural Rubber

2.2.2 Bead Wire

2.2.3 Cord

2.2.4 Chemicals

2.2.5 Steric

2.2.6 TMT

2.2.7 Titanium

2.2.8 Sulphur

2.2.9 Synthetic Rubber

2.3 MANUFACTURING PROCESS

2.3.1 The mixing of raw ingredients to produce the rubber compound is the first stage in the tyre manufacturing process. Computer control systems can automatically measure out particular quantities of rubber and chemicals for mixing, and they can save multiple formulas. Batches of rubber and chemicals are stirred together in massive mixers that hang like vertical cement mixers.

2.3.2 After that, each mix is remilled with more heat to soften the batch and combine the chemicals. In a third phase, the batch is mixed once more in a mixer, where more chemicals are added to produce the final mix. Heat and friction are given to the batch throughout all three mixing phases to soften the rubber and equally distribute the chemicals. Each batch's chemical makeup is determined by the tyre part: certain rubber formulations are used for the body, while others are utilised for the beads and tread.

2.3.3 After a batch of rubber has been mixed, it is squished into thick sheets using powerful rolling mills. The required components of the tyre are then made from these sheets. The tyre body, for example, is made up of rubber-coated strips of cloth-like fabric. In the tyre body, each strip of rubberized fabric is utilised to create a layer known as a ply. The body of a passenger vehicle tyre can contain up to four plies.

2.3.4 Wire bundles are produced using a wire wrapping machine for tyre beads. After that, the bundles are shaped into rings, which are then coated with rubber.

2.3.5 The rubber for the tyre tread and sidewalls is transferred from the batch mixer to an extruder, which is a different type of processing machine. The batch is combined and heated in the extruder before being pushed out through a die—a shaped orifice—to produce a layer of rubber. The sidewall rubber is rolled and coated with a protective plastic layer. Tread rubber is cut into strips and put into books, which are huge, flat metal containers.

2.3.6 All of the sidewall rubber rolls, tread rubber books, and bead racks are given to a professional assembler at a tire-building machine. A foldable spinning drum keeps the tyre pieces at the middle of the machine. The tyre builder begins by wrapping the rubber-covered fabric plies of the tire's body around the machine drum. The beads are inserted and secured into place with extra tyre body plies put over the beads after the ends of these plies are connected with glue. The assembler then shapes the edges of the tyre plies with special power tools. Finally, the sidewalls and tread extruded rubber layers are bonded into place, and the assembled. Finally, the sidewalls and tread extruded rubber layers are bonded into place, and the finished tire—the green tire—is taken from the tire-building machine.

2.3.7 For the curing process, a green tyre is put within a huge mould. A tyre mould is formed like a gigantic metal clam that opens to reveal a bladder, which is a big, flexible balloon. The green tyre is put over the bladder, which fills with steam and

expands as the clamshell mould closes, shaping the tyre and forcing the blank tread rubber against the raised interior of the mould. Steam warms the green tyre to 280 degrees during the curing process. The amount of time spent in the mould is determined by the tire's intended qualities.

2.3.8 After curing, the tyre is taken from the mould and allowed to cool before being tested. Each tyre is rigorously examined for defects in the tread, sidewall, and inner rubber, such as bubbles or voids. The tyre is then inflated, spun, and placed on a test wheel. Sensors in the test wheel evaluate the tire's balance and whether it runs in a straight path. A contemporary tyre is seldom rejected because of its design and construction. The tyre is transferred to a warehouse for distribution after it has been examined and tested on the test wheel.

3. PROJECT COMPONENTS

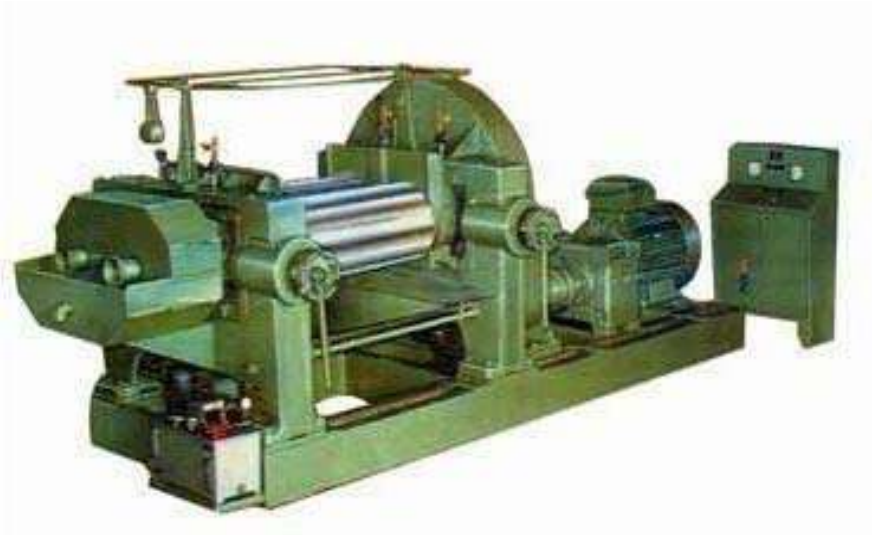
3.1 Land /Civil Work

The land require for this manufacturing unit will be approx. around 1500-2000 Sq. Ft. We have not considered the cost of Land purchase & Building Civil work in the project. It is assumed that land & building will be on rent & approx. rental of the same will be Rs. 30000 – 40000 per month.

3.2 Plant & Machinery

3.2.1 Steam Boiler-A steam boiler is a closed vessel, usually constructed of steel, in which water is heated by a source of heat generated by fuel combustion and then used to generate steam. The steam produced can be used in cotton mills, sugar mills, and other industrial processes at low pressure.

3.2.2 Mixer Mill-`A rubber internal mixer is a heavy-duty batch mixer intended for mixing raw rubber with other components in the production of rubber compounds. Rubberinternal mixers are typically made up of a totally enclosed mixing chamber with two rotors.



3.2.3 Rubber Kneader-Two mixing blades move at different speeds towards one other in a W-shaped trough in a kneader mixer. Because each blade pushes the material in the opposite direction, all raw ingredients are thoroughly mixed.

3.2.4 Mixer with Heating Arrangement- It is a combined machine used to mix the components along with heating the mixed substance.

3.2.5 Roller Press- A Roller press machine is used to flattened the rubber mixture to make a surface in a flattened form.

3.2.6 Tyre Building Machine-A Tyre Building Machine (or TBM) is a critical piece of tyre machinery that assembles all of the components of a green tyre, including the tread, sidewall, inner liner, body ply, bead, and cord body. Each cycle is designed to carry out the various activities at the same time, resulting in a balanced construction cycle.

3.2.7 Tyre Curing-The process of applying pressure to a green tyre in a mould is known as curing. This is how it gets its ultimate shape. Heat is used to encourage a chemical reaction between the rubber compounds and other components.

3.2.8 Pre-cured Tread Machine-The "Pre-cured Tread Rubber Retreading Process," also known as "Cold Process Retreading," is a new technology that has been created. This technique eliminates the requirement for a tread matrix at the vulcanizing step since the Pre-cured Tread Rubber already has a tread pattern on it.

3.2.9 Tube Curing Machine-Curing is a process that involves a chemical reaction (polymerization) or a physical action (evaporation) that produces a stronger, tougher, or more stable linkage (such as an adhesive connection) or material (such as concrete).

3.2.10 Tube Joining Machine-Pipe joints are connectors at the ends of pipe sections that allow two pipe sections to be connected together to form a pipeline of any length.

Depending on the endurance of the technology employed to construct the junction, these couplings can make or destroy a pipeline system.

3.2.11 Inflation Tester- Machine used to test the pressure strength of the tyre.

3.2.12 Extruder-Extrusion is a method that involves pushing material through a die with thedesired cross-section to make things with a set cross-sectional profile.

4 . LICENSE AND APPROVALS

1 GST Registration

2 UDYAM Online Registration

3 NOC from fire & pollution control board.

4 Labor License

5 Rubber Board License

PROJECTED BALANCE SHEET **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Liabilities					
Capital					
Opening balance		3.55	6.70	10.15	12.88
Add:- Own Capital	2.02				
Add:- Retained Profit	3.04	5.14	6.45	8.24	10.49
Less:- Drawings	1.50	2.00	3.00	5.50	7.00
Closing Balance	**3.55**	**6.70**	**10.15**	**12.88**	**16.38**
Term Loan	10.80	8.10	5.40	2.70	-
Working Capital Limit	6.00	6.00	6.00	6.00	6.00
Sundry Creditors	1.49	1.73	1.98	2.24	2.51
Provisions & Other Liability	0.20	0.24	0.29	0.80	0.96
TOTAL :	**22.04**	**22.76**	**23.81**	**24.62**	**25.85**
Assets					
Fixed Assets (Gross)	13.50	13.50	13.50	13.50	13.50
Gross Dep.	2.03	3.75	5.21	6.45	7.51
Net Fixed Assets	**11.48**	**9.75**	**8.29**	**7.05**	**5.99**
Current Assets					
Sundry Debtors	2.23	2.74	3.16	3.62	4.11
Stock in Hand	6.33	7.35	8.41	9.54	10.71
Cash and Bank	1.25	1.92	2.85	3.21	3.74
Loans & Advances /Other Current Assets	0.75	1.00	1.10	1.20	1.30
TOTAL :	**22.04**	**22.76**	**23.81**	**24.62**	**25.85**

PROJECTED PROFITABILITY STATEMENT **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation %	**40%**	**45%**	**50%**	**55%**	**60%**
SALES					
Gross Sale					
Bicycle Tyre and Tubes	95.76	117.28	135.60	155.20	176.15
Total	**95.76**	**117.28**	**135.60**	**155.20**	**176.15**
COST OF SALES					
Raw Material Consumed	63.84	73.97	84.66	95.92	107.78
Electricity Expenses	3.36	3.53	3.70	3.89	4.08
Depreciation	2.03	1.72	1.46	1.24	1.06
Wages & labour	7.68	9.60	11.71	14.17	16.30
Repair & maintenance	2.39	2.93	3.39	3.88	4.40
Packaging	4.79	5.86	6.78	7.76	8.81
Cost of Production	84.09	97.62	111.71	126.87	142.43
Add: Opening Stock	-	4.20	4.88	5.59	6.34
Less: Closing Stock	4.20	4.88	5.59	6.34	7.12
Cost of Sales	79.88	96.94	111.00	126.11	141.65
GROSS PROFIT	**15.88**	**20.34**	**24.60**	**29.09**	**34.50**
	16.58%	**17.34%**	**18.14%**	**18.74%**	**19.58%**
Salary to Staff	3.72	4.28	5.35	6.31	7.32
Interest on Term Loan	1.19	1.05	0.75	0.46	0.16
Interest on working Capital	0.66	0.66	0.66	0.66	0.66
Rent	3.60	4.14	4.76	5.48	6.30
Selling & Administrative Exp.	3.64	4.93	6.10	6.98	7.75
TOTAL	**12.81**	**15.06**	**17.63**	**19.89**	**22.19**
NET PROFIT	3.06	5.28	6.97	9.20	12.31
Taxation	0.03	0.14	0.52	0.97	1.82
PROFIT (After Tax)	3.04	5.14	6.45	8.24	10.49
	3.20%	**4.50%**	**5.14%**	**5.93%**	**6.99%**

PROJECTED CASH FLOW STATEMENT **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
SOURCES OF FUND					
Own Margin	2.02				
Net Profit	3.06	5.28	6.97	9.20	12.31
Depreciation & Exp. W/off	2.03	1.72	1.46	1.24	1.06
Increase in Cash Credit	6.00	-	-	-	-
Increase In Term Loan	12.15	-	-	-	-
Increase in Creditors	1.49	0.24	0.25	0.26	0.28
Increase in Provisions & Oth labilities	0.20	0.04	0.05	0.51	0.16
	-				
TOTAL :	**26.95**	**7.28**	**8.73**	**11.22**	**13.80**
APPLICATION OF FUND					
Increase in Fixed Assets	13.50				
Increase in Stock	6.33	1.01	1.06	1.13	1.17
Increase in Debtors	2.23	0.50	0.43	0.46	0.49
Repayment of Term Loan	1.35	2.70	2.70	2.70	2.70
Loans & Advances /Other Current Assets	0.75	0.25	0.10	0.10	0.10
Drawings	1.50	2.00	3.00	5.50	7.00
Taxation	0.03	0.14	0.52	0.97	1.82
TOTAL :	**25.69**	**6.61**	**7.81**	**10.86**	**13.28**
Opening Cash & Bank Balance	-	1.25	1.92	2.85	3.21
Add : Surplus	1.25	0.67	0.92	0.37	0.52
Closing Cash & Bank Balance	**1.25**	**1.92**	**2.85**	**3.21**	**3.74**

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
CASH ACCRUALS	5.06	6.86	7.91	9.48	11.55
Interest on Term Loan	1.19	1.05	0.75	0.46	0.16
Total	6.26	7.92	8.67	9.94	11.71
REPAYMENT					
Instalment of Term Loan	1.35	2.70	2.70	2.70	2.70
Interest on Term Loan	1.19	1.05	0.75	0.46	0.16
Total	2.54	3.75	3.45	3.16	2.86
DEBT SERVICE COVERAGE RATIO	**2.46**	**2.11**	**2.51**	**3.15**	**4.09**
AVERAGE D.S.C.R.					**2.82**

REPAYMENT SCHEDULE OF TERM LOAN							
					Interest		11.00%
Year	**Particulars**	**Amount**	**Addition**	**Total**	**Interest**	**Repayment**	**Closing Balance**
1st	Opening Balance						
	1st month	-	12.15	12.15	-	-	12.15
	2nd month	12.15	-	12.15	0.11	-	12.15
	3rd month	12.15	-	12.15	0.11	-	12.15
	4th month	12.15	-	12.15	0.11		12.15
	5th month	12.15	-	12.15	0.11		12.15
	6th month	12.15	-	12.15	0.11		12.15
	7th month	12.15	-	12.15	0.11	0.23	11.93
	8th month	11.93	-	11.93	0.11	0.23	11.70
	9th month	11.70	-	11.70	0.11	0.23	11.48
	10th month	11.48	-	11.48	0.11	0.23	11.25
	11th month	11.25	-	11.25	0.10	0.23	11.03
	12th month	11.03	-	11.03	0.10	0.23	10.80
					1.19	**1.35**	
2nd	Opening Balance						
	1st month	10.80	-	10.80	0.10	0.23	10.58
	2nd month	10.58	-	10.58	0.10	0.23	10.35
	3rd month	10.35	-	10.35	0.09	0.23	10.13
	4th month	10.13	-	10.13	0.09	0.23	9.90
	5th month	9.90	-	9.90	0.09	0.23	9.68
	6th month	9.68	-	9.68	0.09	0.23	9.45
	7th month	9.45	-	9.45	0.09	0.23	9.23
	8th month	9.23	-	9.23	0.08	0.23	9.00
	9th month	9.00	-	9.00	0.08	0.23	8.78
	10th month	8.78	-	8.78	0.08	0.23	8.55
	11th month	8.55	-	8.55	0.08	0.23	8.33
	12th month	8.33	-	8.33	0.08	0.23	8.10
					1.05	**2.70**	
3rd	Opening Balance						
	1st month	8.10	-	8.10	0.07	0.23	7.88
	2nd month	7.88	-	7.88	0.07	0.23	7.65
	3rd month	7.65	-	7.65	0.07	0.23	7.43
	4th month	7.43	-	7.43	0.07	0.23	7.20
	5th month	7.20	-	7.20	0.07	0.23	6.98
	6th month	6.98	-	6.98	0.06	0.23	6.75
	7th month	6.75	-	6.75	0.06	0.23	6.53
	8th month	6.53	-	6.53	0.06	0.23	6.30
	9th month	6.30	-	6.30	0.06	0.23	6.08
	10th month	6.08	-	6.08	0.06	0.23	5.85
	11th month	5.85	-	5.85	0.05	0.23	5.63
	12th month	5.63	-	5.63	0.05	0.23	5.40

					0.75	**2.70**	
4th	Opening Balance						
	1st month	5.40	-	5.40	0.05	0.23	5.18
	2nd month	5.18	-	5.18	0.05	0.23	4.95
	3rd month	4.95	-	4.95	0.05	0.23	4.73
	4th month	4.73	-	4.73	0.04	0.23	4.50
	5th month	4.50	-	4.50	0.04	0.23	4.28
	6th month	4.28	-	4.28	0.04	0.23	4.05
	7th month	4.05	-	4.05	0.04	0.23	3.83
	8th month	3.83	-	3.83	0.04	0.23	3.60
	9th month	3.60	-	3.60	0.03	0.23	3.38
	10th month	3.38	-	3.38	0.03	0.23	3.15
	11th month	3.15	-	3.15	0.03	0.23	2.93
	12th month	2.93	-	2.93	0.03	0.23	2.70
					0.46	**2.70**	
5th	Opening Balance						
	1st month	2.70	-	2.70	0.02	0.23	2.48
	2nd month	2.48	-	2.48	0.02	0.23	2.25
	3rd month	2.25	-	2.25	0.02	0.23	2.03
	4th month	2.03	-	2.03	0.02	0.23	1.80
	5th month	1.80	-	1.80	0.02	0.23	1.58
	6th month	1.58	-	1.58	0.01	0.23	1.35
	7th month	1.35	-	1.35	0.01	0.23	1.13
	8th month	1.13	-	1.13	0.01	0.23	0.90
	9th month	0.90	-	0.90	0.01	0.23	0.68
	10th month	0.68	-	0.68	0.01	0.23	0.45
	11th month	0.45	-	0.45	0.00	0.23	0.23
	12th month	0.23	-	0.23	0.00	0.23	-
					0.16	**2.70**	

DOOR TO DOOR	60	MONTHS
MORATORIUM PERIOD	6	MONTHS
REPAYMENT PERIOD	54	MONTHS

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