PROJECT REPORT

Of

LEAD ACID BATTERY

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Lead Acid Battery.**

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

LEAD ACID STORAGE BATTERIES

INTRODUCTION:

Lead Acid Storage Batteries is an electro-chemical system that converts electrical energy into direct current electricity. It is also known as storage batteries and has wide applications in Automobiles, UPS/Inverters, Traction/Electrical Sub-Station, Telecommunication, Solar Photovoltaic system etc.

MARKET POTENTIAL:

Lead Acid Storage Batteries have many applications as stated above and automobile sector consumes the bulk of lead acid batteries. The recent growth in the automobile sector has given tremendous boost to the demand of lead acid batteries. The market size is approximately Rs. 1,300 crores and is growing @ 18 – 20%. The major automobile batteries manufacturing units are Exide, Amar Raja, Standard Furuka, etc. There are many registered small scale units engaged in manufacturing of these batteries like Sahni Batteries, Premier Batteries, Gupta Batteries etc. Besides this, a no. of units in the unorganized sector are also engaged in manufacturing as well as reconditioning of scrapped batteries.

BASIS & PRESUMPTIONS:

i) The cost of machinery and equipment is of particular make and prices are approximate.

ii) All the operations involved in manufacturing of batteries packs will be done in industrial workshop of the unit.

iii) This project report is prepared on the basis of single shift basis of 8 hrs of working in a day. Total working days in a year come about 300 nos. assuming 60% efficiency.

iv) The skilled and semi-skilled workers in the line are available in the local area.

v) The rental value of the land and built-up area has been stipulated on the basis of rate prevailing in the industrial area. It may vary from place to place.

vi) Rate of interest has been calculated @11.5%. However, this figure is likely to vary depending on the financial outlay of the project and location of the unit.

vii) The provisions made in other respects viz; personnel, utilities, raw material and overhead etc. are based on the prevailing market rates.

viii) All the machinery, raw material would be available from the indigenous sources.

ix) The break-even point in this project has been calculated on envisaged capacity utilization basis.

x) The operative period of this project is estimated to be about 10 years considering technology obsolescence.

xi) Cost of imported items (both raw material and machinery) is inclusive of all taxes/duties and is likely to vary as per the international market prices.

xii) The proposed project has been considered for UPS of 500 VA, 15 minutes of backup time. However, cost of production of other sizes of UPS may be calculated on similar lines, based on design and components required for the manufacturing the required size of UPS. The basic philosophy remain same for all sizes of UPS.

IMPLEMENTATION SCHEDULE:

The major activities in the implementation of the project has been listed and the average time for implementation of the project is estimated at 12 months:

		Period (in months)
1.	Preparation of project report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial institutions	3
4.	**Plant & Machinery**	
a)	Placement of orders	1
b)	Procurement	2
c)	Power connection/Electrification	2
d)	Installation of Machinery/Test Equipment	2

5.	Procurement of raw materials	2
6.	Recruitment of Technical Personnel etc.	2
7.	Trial Production	11
8.	Commercial production	12

Note:

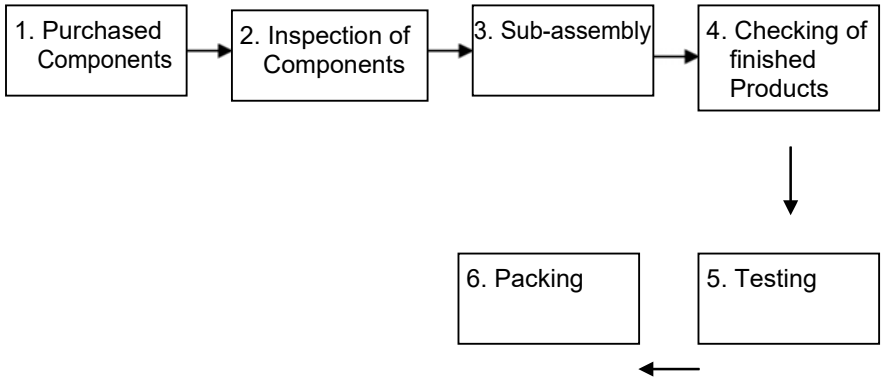
1. Many of the above activities shall be initiated concurrently.
2. Procurement of raw materials commences from the 8th month onwards.

TECHNICAL ASPECTS:

PROCESS OF MANUFACTURE:

The manufacturing process consists of stacking of positives and negative plates in the container along with PVC separator sheet in between the plates and connecting the plates in parallel and cells in series by soldering. The battery plates are initially procured from outside and manufacturing of these plates may be undertaken in-house subsequently. After connecting the plates, positive and negative leads are brought out and terminals formed by pouring molten lead alloy metal on the top cover of the plates with the help of positives and negative die. The top cover is then sealed with bitumen and testing as per the **IS Specification:7372- 1995** is performed. The procedure is applicable to all sizes of the batteries and charging of batteries may be done as per requirement.

Process Flow Chart: -



QUALITY CONTROL & STANDARD:

As per IS Specification IS:7372-1995.

PRODUCTION CAPACITY (Per Annum):

Quantity		7,500 Nos. Per Annum

MOTIVE POWER REQUIRED:

Power connection of 5 KW is sufficient to run this project.

POLLUTION CONTROL REQUIREMENTS:

The Government accords utmost importance to controlling environmental pollution. The small scale entrepreneurs should have an environmental friendly attitude and adopt pollution abatement measures by process modification and technology substitution. Awareness among the staff members of the industrial undertaking should also be created for abatement of pollution.

India having acceded to the Montreal Protocol of 1992, it has become mandatory for India to phase out the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFCs), Carbon Tetrachloride, Halons and Methyl Chloroform etc. These chemicals/solvents are to be phased out immediately with alternative chemicals/solvents. From phase out angle, we may have ten years to go, but from commercial angle immediate phase out is of utmost importance.

PROJECT AT A GLANCE

1	Name of the Entreprenuer		XXXXXXX	
2	Constitution (legal Status)	:	XXXXXXX	
3	Father's/Spouce's Name		XXXXXXXX	
4	Unit Address	:	XXXXXXXX	
			Taluk/Block:	
			District :	XXXXX
			Pin:	XXXXX State:
			E-Mail :	XXXXX
			Mobile	XXXXX
5	Product and By Product	:	**Lead Acid Batteries**	
6	Name of the project / business activity proposed :		**Lead Acid Batteries**	
7	Cost of Project	:	Rs25.00lac	
8	Means of Finance			
	Term Loan		Rs.8.82 Lacs	
	KVIC Margin Money	-	As per Project Eligibility	
	Own Capital		Rs.2.5 Lacs	
	Working Capital		Rs.13.68 Lacs	
9	Debt Service Coverage Ratio	:	4.78	
10	Pay Back Period	:	5	Years
11	Project Implementation Period	:	6	Months
12	Break Even Point	:	28%	
13	Employment	:	9	Persons
14	Power Requirement	:	5.00	HP
15	Major Raw materials	:	**Lead Plates**	
16	Estimated Annual Sales Turnover	:	165.02	Lacs
16	Detailed Cost of Project & Means of Finance			

COST OF PROJECT

(Rs. In Lacs)

Particulars	Amount
Land	Rented/Owned
Building & Civil Work (2000 Sq Ft)	5.00
Plant & Machinery	3.01
Furniture & Fixtures	0.95
Pre-operative Expenses	0.84
Working Capital Requirement	15.20
Total	**25.00**

MEANS OF FINANCE

Particulars	Amount
Own Contribution @10%	2.50
Term Loan	8.82
Workign Capital Finance	13.68
Total	**25.00**

	General	**Special**
Beneficiary's Margin Monery (% of Project Cost)	10%	5%

PLANT & MACHINERY

PARTICULARS	QTY.	RATE	AMOUNT IN RS.
Melting Pot	1	10,000.00	10,000.00
Burner	1	10000.00	10000.00
Dies	8	2000.00	16000.00
Welding Torch	2	3000.00	6000.00
LPG Cylinder with Regulator	2	5000.00	10000.00
Oxygen Cylinder	2	25000.00	50000.00
Compressor	1	15,000.00	15,000.00
Testing Equipments			-
Battery tester	2.00	4,000.00	8,000.00
Resistance/Capacity discharge tester.	1.00	10,000.00	10,000.00
Hydrometer	5.00	600.00	3,000.00
Temperature meter	1.00	3,000.00	3,000.00
Battery charger	1.00	35,000.00	35,000.00
Mould, Die Tools, Jigs and Fixtures etc	LS	50,000.00	50,000.00
Electrification charges	LS	75,000.00	75,000.00
Total			301,000.00

PROJECTED BALANCE SHEET

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Capital Account	2.50	2.50	2.50	2.50	2.50
Retained Profit	9.07	18.90	29.86	42.97	58.13
Term Loan	8.82	6.62	4.41	2.21	0.00
Cash Credit	13.68	13.68	13.68	13.68	13.68
Sundry Creditors	7.25	8.46	9.66	10.87	12.08
Provisions & Other Liab	0.36	0.40	0.44	0.48	0.53
TOTAL :	**41.68**	**50.54**	**60.55**	**72.70**	**86.92**
APPLICATION OF FUND					
Fixed Assets (Gross)	8.96	8.96	8.96	8.96	8.96
Gross Dep.	1.00	1.92	2.74	3.45	4.08
Net Fixed Assets	7.96	7.04	6.22	5.51	4.88
Current Assets					
Sundry Debtors	8.25	10.06	11.51	12.96	14.40
Stock in Hand	14.20	16.56	18.93	21.29	23.66
Cash and Bank	8.77	14.14	20.86	29.61	40.32
Deposits & Advances	2.50	2.75	3.03	3.33	3.66
TOTAL :	**41.68**	**50.54**	**60.55**	**72.70**	**86.92**
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
A) SALES					
Gross Sale	165.02	201.20	230.15	259.10	288.05
Total (A)	**165.02**	**201.20**	**230.15**	**259.10**	**288.05**
B) COST OF SALES					
Raw Mateiral Consumed	144.95	169.10	193.26	217.42	241.58
Elecricity Expenses	0.43	0.50	0.57	0.64	0.72
Repair & Maintenance	-	2.01	2.30	2.59	2.88
Labour & Wages	4.09	4.50	4.95	5.45	5.99
Depriciation	1.00	0.92	0.81	0.71	0.63
Consumables and Other Expense	3.30	4.02	4.60	5.18	5.76
Cost of Production	153.77	181.07	206.50	232.00	257.55
Add: Opening Stock /WIP	-	6.95	8.11	9.26	10.42
Less: Closing Stock /WIP	6.95	8.11	9.26	10.42	11.58
Cost of Sales (B)	146.82	179.91	205.34	230.84	256.40
C) GROSS PROFIT (A-B)	18.20	21.30	24.81	28.26	31.66
	11%	**11%**	**11%**	**11%**	**11%**
D) Bank Interest (Term Loan)	0.76	0.92	0.67	0.41	0.16
Bank Interest (C.C. Limit)	1.37	1.37	1.37	1.37	1.37
E) Salary to Staff	3.70	4.07	4.47	4.92	5.41
F) Selling & Adm Expenses Exp.	3.30	4.02	4.60	5.18	5.76
TOTAL (D+E)	**9.12**	**10.38**	**11.11**	**11.88**	**12.70**
H) NET PROFIT	9.07	10.92	13.70	16.38	18.96
I) Taxation	-	1.09	2.74	3.28	3.79
J) PROFIT (After Tax)	9.07	9.83	10.96	13.11	15.17

PROJECTED CASH FLOW STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Share Capital	2.50	-			
Reserve & Surplus	9.07	10.92	13.70	16.38	18.96
Depriciation & Exp. W/off	1.00	0.92	0.81	0.71	0.63
Increase in Cash Credit	13.68	-	-	-	-
Increase In Term Loan	8.82	-	-	-	-
Increase in Creditors	7.25	1.21	1.21	1.21	1.21
Increase in Provisions	0.36	0.04	0.04	0.04	0.05
TOTAL :	**42.68**	**13.09**	**15.76**	**18.35**	**20.84**
APPLICATION OF FUND					
Increase in Fixed Assets	8.96	-	-	-	-
Increase in Stock	14.20	2.37	2.37	2.37	2.37
Increase in Debtors	8.25	1.81	1.45	1.45	1.45
Increase in Deposits & Adv	2.50	0.25	0.28	0.30	0.33
Repayment of Term Loan	-	2.21	2.21	2.21	2.20
Taxation	-	1.09	2.74	3.28	3.79
TOTAL :	**33.91**	**7.72**	**9.03**	**9.60**	**10.14**
Opening Cash & Bank Balance	-	8.77	14.14	20.86	29.61
Add : Surplus	8.77	5.36	6.73	8.75	10.70
Closing Cash & Bank Balance	**8.77**	**14.14**	**20.86**	**29.61**	**40.32**

COMPUTATION OF MANUFACTURING OF LEAD ACID BATTERY

Items to be Manufactured **Lead Acid Battery**

Manufacturing Capacity per day	-	25.00	Sets
	-		
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		7,500.00	Sets
Year		Capacity	Sets
		Utilisation	
IST YEAR		60%	4,500
IIND YEAR		70%	5,250
IIIRD YEAR		80%	6,000
IVTH YEAR		90%	6,750
VTH YEAR		100%	7,500

COMPUTATION OF RAW MATERIAL

Item Name		Quantity of	Recovery	Unit Rate of	Total Cost
		Raw Material		/ Lts	Per Annum (100%)
		Lts			
Lead plates,Acid hard rubber etc	100%	7,500.00	100%	3,221.00	241.58
			Total (Rounded off in lacs)		241.58

Annual Consumption cost (In Lacs) 241.58

Raw Material Consumed	Capacity Utilisation	Amount (Rs.)
IST YEAR	60%	144.95
IIND YEAR	70%	169.10
IIIRD YEAR	80%	193.26
IVTH YEAR	90%	217.42
VTH YEAR	100%	241.58

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Finished Goods					
(15 Days requirement)	6.95	8.11	9.26	10.42	11.58
Raw Material					
(15 Days requirement)	7.25	8.46	9.66	10.87	12.08
Closing Stock	**14.20**	**16.56**	**18.93**	**21.29**	**23.66**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars			Total
			Amount
Stock in Hand			14.20
Sundry Debtors			8.25
		Total	22.45
Sundry Creditors			7.25
Working Capital Requirement			**15.20**
Margin			1.52
Working Capital Finance			**13.68**

BREAK UP OF LABOUR

Particulars		Wages Per Month	No of Employees	Total Salary
Engineer		15,000.00	1	15,000.00
Skilled Worker		8,000.00	2	16,000.00
Unskilled Worker		5,000.00	3	15,000.00
				31,000.00
Add: 10% Fringe Benefit				3,100.00
Total Labour Cost Per Month				34,100.00
Total Labour Cost for the year (In Rs. Lakhs)				4.09
				6.00

BREAK UP OF SALARY

Particulars		Salary Per Month	No of Employees	Total Salary
Manager		10,000.00	1	10,000.00
Accountant		8,000.00	1	8,000.00
Sales executive		10,000.00	1	10,000.00
Total Salary Per Month				28,000.00
Add: 10% Fringe Benefit				2,800.00
Total Salary for the month				30,800.00
Total Salary for the year (In Rs. Lakhs)				3.70
				3.00

COMPUTATION OF DEPRECIATION

Description	Land	Building/shed	Plant & Machinery	Furniture	**TOTAL**
Rate of Depreciation		**10.00%**	**15.00%**	**10.00%**	
Opening Balance	Leased	-	-	-	-
Addition	-	5.00	3.01	0.95	8.96
	-	5.00	3.01	0.95	8.96
Less : Depreciation	-	0.50	0.45	0.05	1.00
WDV at end of Ist year	-	4.50	2.56	0.90	7.96
Additions During The Year	-	-	-	-	-
	-	4.50	2.56	0.90	7.96
Less : Depreciation	-	0.45	0.38	0.09	0.92
WDV at end of IInd Year	-	4.05	2.17	0.81	7.04
Additions During The Year	-	-	-	-	-
	-	4.05	2.17	0.81	7.04
Less : Depreciation	-	0.41	0.33	0.08	0.81
WDV at end of IIIrd year	-	3.65	1.85	0.73	6.22
Additions During The Year	-	-	-	-	-
	-	3.65	1.85	0.73	6.22
Less : Depreciation	-	0.36	0.28	0.07	0.71
WDV at end of IV year	-	3.28	1.57	0.66	5.51
Additions During The Year	-	-	-	-	-
	-	3.28	1.57	0.66	5.51
Less : Depreciation	-	0.33	0.24	0.07	0.63
WDV at end of Vth year	-	2.95	1.34	0.59	4.88

REPAYMENT SCHEDULE OF TERM LOAN 11.5%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
IST YEAR	Opening Balance						
	Ist Quarter	-	8.82	8.82	-	-	8.82
	Iind Quarter	8.82	-	8.82	0.25	-	8.82
	IIIrd Quarter	8.82	-	8.82	0.25	-	8.82
	Ivth Quarter	8.82	-	8.82	0.25	-	8.82
					0.76	-	
IIND YEAR	Opening Balance						
	Ist Quarter	8.82	-	8.82	0.25	0.55	8.27
	Iind Quarter	8.27	-	8.27	0.24	0.55	7.72
	IIIrd Quarter	7.72	-	7.72	0.22	0.55	7.17
	Ivth Quarter	7.17		7.17	0.21	0.55	6.62
					0.92	2.21	
IIIRD YEAR	Opening Balance						
	Ist Quarter	6.62	-	6.62	0.19	0.55	6.06
	Iind Quarter	6.06	-	6.06	0.17	0.55	5.51
	IIIrd Quarter	5.51	-	5.51	0.16	0.55	4.96
	Ivth Quarter	4.96		4.96	0.14	0.55	4.41
					0.67	2.21	
IVTH YEAR	Opening Balance						
	Ist Quarter	4.41	-	4.41	0.13	0.55	3.86
	Iind Quarter	3.86	-	3.86	0.11	0.55	3.31
	IIIrd Quarter	3.31	-	3.31	0.10	0.55	2.76
	Ivth Quarter	2.76		2.76	0.08	0.55	2.21
					0.41	2.21	
VTH YEAR	Opening Balance						
	Ist Quarter	2.21	-	2.21	0.06	0.55	1.65
	Iind Quarter	1.65	-	1.65	0.05	0.55	1.10
	IIIrd Quarter	1.10	-	1.10	0.03	0.55	0.55
	Ivth Quarter	0.55		0.55	0.02	0.55	0.00
					0.16	2.20	

CALCULATION OF D.S.C.R

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
CASH ACCRUALS	10.07	10.75	11.77	13.82	15.80
Interest on Term Loan	0.76	0.92	0.67	0.41	0.16
Total	10.83	11.67	12.44	14.23	15.95
REPAYMENT					
Instalment of Term Loan	2.21	2.21	2.21	2.20	2.20
Interest on Term Loan	0.76	0.92	0.67	0.41	0.16
Total	2.97	3.12	2.87	2.61	2.36
DEBT SERVICE COVERAGE R	**3.65**	**3.74**	**4.33**	**5.44**	**6.76**
AVERAGE D.S.C.R.			**4.78**		

COMPUTATION OF SALE

Particulars	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Op Stock	-	225	263	300	338
Production	4,500	5,250	6,000	6,750	7,500
	4,500	5,475	6,263	7,050	7,838
Less : Closing Stock	225	263	300	338	375
Net Sale	4,275	5,213	5,963	6,713	7,463
Sale Price per set	3,860.00	3,860.00	3,860.00	3,860.00	3,860.00
Sale (in Lacs)	**165.02**	**201.20**	**230.15**	**259.10**	**288.05**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	5	
Load Factor			0.7460	
Electricity Charges		per unit	8.00	
Total Working Days			300	
Electricity Charges (8 Hrs Per day)				71,616.00
Add : Minimim Charges (@ 10%)				
(B) D.G. SET				
No. of Working Days			300	days
No of Working Hours			-	Hour per day
Total no of Hour			-	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			-	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			-	
Add : Lube Cost @15%			-	
Total			**-**	
Total cost of Power & Fuel at 100%				0.72
Year		**Capacity**		**Amount**
				(in Lacs)
IST YEAR		60%		0.43
IIND YEAR		70%		0.50
IIIRD YEAR		80%		0.57
IVTH YEAR		90%		0.64
VTH YEAR		100%		0.72

BREAK EVEN POINT ANALYSIS

Year	I	II	III	IV	V
Net Sales & Other Income	165.02	201.20	230.15	259.10	288.05
Less : Op. WIP Goods	-	6.95	8.11	9.26	10.42
Add : Cl. WIP Goods	6.95	8.11	9.26	10.42	11.58
Total Sales	**171.96**	**202.36**	**231.31**	**260.26**	**289.21**
Variable & Semi Variable Exp.					
Raw Material & Tax	144.95	169.10	193.26	217.42	241.58
Electricity Exp/Coal Consumption at 85%	0.37	0.43	0.49	0.55	0.61
Manufacturing Expenses 80%	2.64	4.83	5.52	6.22	6.91
Wages & Salary at 60%	4.67	5.14	5.65	6.22	6.84
Selling & adminstrative Expenses 80%	2.64	3.22	3.68	4.15	4.61
Intt. On Working Capital Loan	1.37	1.37	1.37	1.37	1.37
Total Variable & Semi Variable Exp	**156.63**	**184.08**	**209.98**	**235.92**	**261.92**
Contribution	**15.33**	**18.28**	**21.34**	**24.34**	**27.30**
Fixed & Semi Fixed Expenses					
Manufacturing Expenses 20%	0.66	1.21	1.38	1.55	1.73
Electricity Exp/Coal Consumption at 15%	0.06	0.08	0.09	0.10	0.11
Wages & Salary at 40%	3.12	3.43	3.77	4.15	4.56
Interest on Term Loan	0.76	0.92	0.67	0.41	0.16
Depreciation	1.00	0.92	0.81	0.71	0.63
Selling & adminstrative Expenses 20%	0.66	0.80	0.92	1.04	1.15
Total Fixed Expenses	**6.26**	**7.36**	**7.63**	**7.96**	**8.34**
Capacity Utilization	**60%**	**70%**	**80%**	**90%**	**100%**
OPERATING PROFIT	**9.07**	**10.92**	**13.70**	**16.38**	**18.96**
BREAK EVEN POINT	**24%**	**28%**	**29%**	**29%**	**31%**
BREAK EVEN SALES	**70.21**	**81.46**	**82.77**	**85.11**	**88.34**

SAMADHAN
Nurturing Dreams - Innovative Solutions

DISCLAIMER

The views expressed in this Project Report are advisory in nature. SAMADHAN assume no financial liability to anyone using the content for any purpose. All the materials and content contained in Project report is for educational purpose and reflect the views of the industry which are drawn from various research material sources from internet, experts, suppliers and various other sources. The actual cost of the project or industry will have to be taken on case to case basis considering specific requirement of the project, capacity and type of plant and other specific factors/cost directly related to the implementation of project. It is intended for general guidance only and must not be considered a substitute for a competent legal advice provided by a licensed industry professional. SAMADHAN hereby disclaims any and all liability to any party for any direct, indirect, implied, punitive, special, incidental or other consequential damages arising directly or indirectly from any use of the Project Report Content, which is provided as is, and without warranties.