PROJECT REPORT

Of

SODIUM HYPOCHLORITE(Bleaching Liquid)

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Sodium Hypochlorite(Bleaching Liquid).**

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 Report

on

Sodium Hypochlorite (Bleaching Liquid)

INTRODUCTION:

Hypochlorite's are chemical compounds containing the chlorate (I) anion ($[OCl]^{-}$). It is a greenish – yellowish liquid commonly referred to as "Bleach". Sodium Hypochlorite (NaOCl) is a compound that can be effectively used for surface purification, water disinfectants (Disinfectants are microbial agents that are applied to nonliving objects to destroy microorganisms, the process of which is known as disinfection), bleaching, odour removal etc. It has a relative density of
[5.5% water solution]. It is unstable and Chlorine evaporates. It is strong oxidizer and reacts with flammable compounds however its solution is a weak base that is inflammable.

MARKET POTENTIAL:

It has following applications in general:

- It is the main ingredient in laundry bleach. It is used extensively as a bleaching agent in the textiles, detergents paper & pulp industries.
- It is used as disinfectant in water and waste water treatment plants and sanitary equipments.
- State Government, Corporations, Nagar Parishad etc. are the major customers of the product to use it as disinfectant in water.
- It is applied in swimming pools for water disinfection.
- In Food Processing Industry , it is used to sanitize food preparation equipments.
- In petrochemical industry, it is used in petroleum products refining.

The following table shows some of the varying strengths of the product and how the variations are typically used :

Wt % of Sodium Hypochlorite	Common Uses
2 %	Shock Chlorination of Wells
3-6 %	Household Disinfectant, Laundring Clothes, Dentistry Root Canal Treatment Disinfectent in Hospitals, Food Processing, Fish Processing etc.
12-16 %	Disinfectant in Swimming Pools, Water Treatment, Waste Water Treatment etc.

BASIS & PRESUMPTIONS:

a. The production is based on single shift of eight hours and 300 working days per annum.
b. The cost in respect of Plant & Machinery has been taken at the time of preparation of Project Profile, which may vary from place to place and time to time.
c. Labour charges has been taken as per Govt. norms.
d. It is presumed that plant will work at 50% efficiency in the first year, 60% in

the third year and 70% in the third year.

4. TECHNICAL ASPECTS:

a. Production Capacity : 600 K.L. per Annum

b. Quality Control & Standards : As per IS 11673:1992

The requirements for Sodium Hypochlorite Solution are as under :

Sr. No.	Characteristics	Requirements	
		Grade 1	Grade 2
01.	Relative density (at 25^0 / 25^0 C)	1.07 to 1.118	1.20 Min.
02.	Available Chlorine (as Cl), percent by mass by volume	4.0 to 6.0	12.5 to 15.0
03.	Total Chlorine, percent by volume (as Cl)	4.0 to 6.0	12.5 to 15.0
04.	Free Alkali (as NaOH), g/l. Min.	1.0	5.0
05.	Free Sodium Carbonate (as Na_2CO_3), g/l, Min.	0.5	0.5
06.	Iron (as Fe), ppm, Max.	0.4	1.0
07.	Sodium Chlorate, percent by mass, Max.	0.05	0.3

(c) Manufacturing Method:

It is produced by Hooker process in the large scale. At the small scale it is produced by reacting Caustic Soda Lye (35%) with dosing of Chlorine gas accompanied by cooling. In a plastic tank first we take Caustic Soda Lye (35%) and then chlorine dosing is done. After 7-8 hours of chemical reaction, sodium hypochlorite (NaOCl) is produced. It is exothermic reaction and temperature is about 35 – 40^0C.The sample is taken out for checking Chlorine percentage and only after Q.C. approval the product is packed in suitable plastic containers.

$$2\,NaOH + Cl_2 \rightarrow NaCl + NaOCl + H_2O$$

(d) Packaging, Marking & Storing

The material shall be packed in air tight plastic containers or as agreed between the purchaser and the supplier. The containers used shall be dry and free from grease, dirt or other foreign matter likely to cause decomposition of the material.

Each package shall bear legibly and indelibly the following information:

- Name & Grade of the Material
- Indication of the source of the manufacture.
- Gross & Net mass.
- Date of Packing.
- Lot Number
- Available Chlorine i.e. the measure of the oxidizing power of the chlorine present as hypochlorite expressed in terms of chlorine with a gram equivalent mass of 35.46 (to be declared by the manufacturer.)

The material shall be stored in a cool and dark place. While shipping, the material shall be stored away from boilers or any other source of emanating heat and light.

Special Considerations in Packaging

Household sodium hypochlorite bleach was introduced to Americans in 1909 and sold in steel containers, then in glass bottles. In the early 1960s, the introduction of the plastic jug brought a cheaper, lighter, and non-breakable packaging alternative. It reduced transportation costs and protected the safety of workers involved in its shipping and handling. Additionally, the thick plastic did not permit ultraviolet light to reach the bleach, which improved its chemical stability and effectiveness. In recent years, how-ever, plastic containers have become an environmental concern because of the time it takes the material to decompose in a landfill. Many companies that depend on plastic packaging, including bleach manufacturers, have begun to reduce the amount of plastic in their packaging or to use recycled plastics. In the early 1990s, Clorox introduced post-consumer resins (PCR) in its packaging. The newer bottles are a blend of virgin high-density polyethylene (HDPE) and 25% recycled plastic, primarily from clear milk jug-type bottles.

Consumer Safety

The bleach manufacturing industry came under fire during the 1970s when the public became concerned about the effects of household chemicals on personal health. Dioxin, a carcinogenic byproduct of chemical manufacturing, is often found in industrial products used to bleach paper and wood. In its final bottled form, common sodium hypochlorite bleach does not contain dioxins because chlorine must be in a gaseous state for dioxins to exist. However, chlorine gas can form when bleach comes into contact with acid, an ingredient in some toilet-bowl cleaners, and the labels on household bleach contain specific warnings against such combination.

In addition to the danger of dioxins, consumers have also been concerned about the toxicity of chlorine in sodium hypochlorite bleach. However, the laundry process deactivates the potentially toxic chlorine and causes the formation of salt water.

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	: **Sodium Hypochlorite (Bleaching Powder)**		
6	Name of the project / business activity proposed	**Sodium Hypochlorite (Bleaching Powder)**		
7	Cost of Project	: Rs25.00lac		
8	Means of Finance			
	Term Loan	Rs.15.76 Lacs		
	KVIC Margin Money	- As per Project Eligibility		
	Own Capital	Rs.2.5 Lacs		
	Working Capital	Rs.6.75 Lacs		
9	Debt Service Coverage Ratio	: 4.57		
10	Pay Back Period	: 5	Years	
11	Project Implementation Period	: 8	Months	
12	Break Even Point	: 23%		
13	Employment	: 10	Persons	
14	Power Requirement	: 10.00	HP	
15	Major Raw materials	:		
16	Estimated Annual Sales Turnover	: 54.00	Lacs	
16	Detailed Cost of Project & Means of Finance			

COST OF PROJECT

(Rs. In Lacs)

Particulars	Amount
Land 2000 Sqft	Rented/Owned
Building /shed (1000 Sq Ft)	4.00
Plant & Machinery	12.60
Furniture & Fixtures	0.50
Pre-operative Expenses	0.41
Working Capital Requirement	7.50
Total	**25.00**

MEANS OF FINANCE

Particulars	Amount
Own Contribution @10%	2.50
Term Loan	15.76
Workign Capital Finance	6.75
Total	**25.00**

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

PLANT & MACHINERY

PARTICULARS	QTY.	RATE	AMOUNT IN RS.
Hammer or Ball Mill	1	400,000.00	400,000.00
Rotary Kiln	1	175,000.00	175,000.00
M.S Storage tanks	2	50,000.00	100,000.00
Boiler Cap. 100 psi with chimney pipeline 100 kg/hr.	1	225,000.00	225,000.00
Centrifuge Basket type 24" diam.	1	80,000.00	80,000.00
Vacuum Evaporator	1	60,000.00	60,000.00
Drier 48 Tray. Model 32"x32"x4" Elec.	2	85,000.00	170,000.00
Misc. equipments such as M.S. Storagetank, pump & furniture etc.	LS	50,000.00	50,000.00
Total			1,260,000.00

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	10.18	24.15	40.42	60.41	83.99
Term Loan	15.76	11.82	7.88	3.94	0.87
Cash Credit	6.75	6.75	6.75	6.75	6.75
Sundry Creditors	2.52	3.02	3.53	4.03	4.53
Provisions & Other Liab	0.36	0.40	0.44	0.48	0.53
TOTAL :	**38.07**	**48.64**	**61.51**	**78.11**	**99.17**
APPLICATION OF FUND					
Fixed Assets (Gross)	17.10	17.10	17.10	17.10	17.10
Gross Dep.	2.32	4.33	6.06	7.55	8.84
Net Fixed Assets	14.79	12.77	11.04	9.55	8.26
Current Assets					
Sundry Debtors	2.70	3.54	4.14	4.74	5.34
Stock in Hand	7.32	8.78	10.25	11.71	13.17
Cash and Bank	10.76	20.80	33.06	48.78	68.73
Deposits & Advances	2.50	2.75	3.03	3.33	3.66
TOTAL :	**38.07**	**48.64**	**61.51**	**78.11**	**99.17**
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
A) SALES					
Gross Sale	54.00	70.80	82.80	94.80	106.80
Total (A)	**54.00**	**70.80**	**82.80**	**94.80**	**106.80**
B) COST OF SALES					
Raw Mateiral Consumed	25.19	30.23	35.26	40.30	45.34
Elecricity Expenses	4.30	5.17	6.03	6.89	7.75
Repair & Maintenance	-	0.71	0.83	0.95	1.07
Labour & Wages	5.28	5.81	6.39	7.03	7.73
Depriciation	2.32	2.01	1.73	1.49	1.28
Consumables,packaging and Other Expenses	2.70	3.54	4.14	4.74	5.34
Cost of Production	39.79	47.46	54.38	61.39	68.51
Add: Opening Stock /WIP	-	4.80	5.76	6.72	7.68
Less: Closing Stock /WIP	4.80	5.76	6.72	7.68	8.64
Cost of Sales (B)	34.99	46.50	53.42	60.43	67.55
C) GROSS PROFIT (A-B)	19.01	24.30	29.38	34.37	39.25
	35%	**34%**	**35%**	**36%**	**37%**
D) Bank Interest (Term Loan)	1.36	1.64	1.19	0.74	0.30
Bank Interest (C.C. Limit)	0.78	0.78	0.78	0.78	0.78
E) Salary to Staff	4.49	4.94	5.43	5.97	6.57
F) Selling & Adm Expenses Exp.	1.08	1.42	1.66	1.90	2.14
TOTAL (D+E)	**7.70**	**8.77**	**9.05**	**9.38**	**9.78**
H) NET PROFIT	11.31	15.53	20.33	24.98	29.47
I) Taxation	1.13	1.55	4.07	5.00	5.89
J) PROFIT (After Tax)	10.18	13.98	16.26	19.99	23.58

PROJECTED CASH FLOW STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Share Capital	2.50	-			
Reserve & Surplus	11.31	15.53	20.33	24.98	29.47
Depriciation & Exp. W/off	2.32	2.01	1.73	1.49	1.28
Increase in Cash Credit	6.75	-	-	-	-
Increase In Term Loan	15.76	-	-	-	-
Increase in Creditors	2.52	0.50	0.50	0.50	0.50
Increase in Provisions	0.36	0.04	0.04	0.04	0.05
TOTAL :	**41.51**	**18.08**	**22.61**	**27.02**	**31.31**
APPLICATION OF FUND					
Increase in Fixed Assets	17.10	-	-	-	-
Increase in Stock	7.32	1.46	1.46	1.46	1.46
Increase in Debtors	2.70	0.84	0.60	0.60	0.60
Increase in Deposits & Adv	2.50	0.25	0.28	0.30	0.33
Repayment of Term Loan	-	3.94	3.94	3.94	3.07
Taxation	1.13	1.55	4.07	5.00	5.89
TOTAL :	**30.75**	**8.05**	**10.34**	**11.30**	**11.36**
Opening Cash & Bank Balance	-	10.76	20.80	33.06	48.78
Add : Surplus	10.76	10.04	12.26	15.72	19.95
Closing Cash & Bank Balance	**10.76**	**20.80**	**33.06**	**48.78**	**68.73**

COMPUTATION OF MANUFACTURING OF Sodium Hypochlorite

Items to be Manufactured **Sodium Hypochlorite**

Manufacturing Capacity per day	-	2.00	KL
	-		
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		600.00	KL
Year		Capacity	KL
		Utilisation	
IST YEAR		50%	300
IIND YEAR		60%	360
IIIRD YEAR		70%	420
IVTH YEAR		80%	480
VTH YEAR		90%	540

COMPUTATION OF RAW MATERIAL

Item Name		Quantity of	Recovery	Unit Rate of	Total Cost
		Raw Material		/MT	Per Annum (100%)
		MT			
Caustic Soda Flakes		75.00	100.00%	45,000.00	3,375,000.00
Chlorine Gas		45.00	100.00%	30,000.00	1,350,000.00
Packaging Plastic cans 40 Ltrs. Capacity @ Rs.250 per can.		1250.00		250.00	312,500.00
		-	100.00%	-	-
				Total (Rounded off in lacs)	5,037,500.00

Annual Consumption cost (In Lacs) 50.38

Raw Material Consumed	Capacity Utilisation	Amount (Rs.)
IST YEAR	50%	25.19
IIND YEAR	60%	30.23
IIIRD YEAR	70%	35.26
IVTH YEAR	80%	40.30
VTH YEAR	90%	45.34

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Finished Goods					
(30Days requirement)	4.80	5.76	6.72	7.68	8.64
Raw Material					
(30 Days requirement)	2.52	3.02	3.53	4.03	4.53
Closing Stock	**7.32**	**8.78**	**10.25**	**11.71**	**13.17**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars			Total
			Amount
Stock in Hand			7.32
Sundry Debtors			2.70
		Total	10.02
Sundry Creditors			2.52
Working Capital Requirement			**7.50**
Margin			0.75
Working Capital Finance			**6.75**

BREAK UP OF LABOUR

Particulars		Wages Per Month	No of Employees	Total Salary
Chemist/Supervisor		12,000.00	1	12,000.00
Skilled Worker		8,000.00	2	16,000.00
Unskilled Worker		6,000.00	4	24,000.00
				40,000.00
Add: 10% Fringe Benefit				4,000.00
Total Labour Cost Per Month				44,000.00
Total Labour Cost for the year (In Rs. Lakhs)			7	5.28

BREAK UP OF SALARY

Particulars		Salary Per Month	No of Employees	Total Salary
Manager		15,000.00	1	15,000.00
Accountant		9,000.00	1	9,000.00
Sales		10,000.00	1	10,000.00
Total Salary Per Month				34,000.00
Add: 10% Fringe Benefit				3,400.00
Total Salary for the month				37,400.00
Total Salary for the year (In Rs. Lakhs)			3	4.49

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	12.60	0.50	17.10
	-	4.00	12.60	0.50	17.10
Less : Depreciation	-	0.40	1.89	0.03	2.32
WDV at end of Ist year	-	3.60	10.71	0.48	14.79
Additions During The Year	-	-	-	-	-
	-	3.60	10.71	0.48	14.79
Less : Depreciation	-	0.36	1.61	0.05	2.01
WDV at end of IInd Year	-	3.24	9.10	0.43	12.77
Additions During The Year	-	-	-	-	-
	-	3.24	9.10	0.43	12.77
Less : Depreciation	-	0.32	1.37	0.04	1.73
WDV at end of IIIrd year	-	2.92	7.74	0.38	11.04
Additions During The Year	-	-	-	-	-
	-	2.92	7.74	0.38	11.04
Less : Depreciation	-	0.29	1.16	0.04	1.49
WDV at end of IV year	-	2.62	6.58	0.35	9.55
Additions During The Year	-	-	-	-	-
	-	2.62	6.58	0.35	9.55
Less : Depreciation	-	0.26	0.99	0.03	1.28
WDV at end of Vth year	-	2.36	5.59	0.31	8.26

REPAYMENT SCHEDULE OF TERM LOAN 11.5%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
IST YEAR	Opening Balance						
	Ist Quarter	-	15.76	15.76	-	-	15.76
	Iind Quarter	15.76	-	15.76	0.45	-	15.76
	IIIrd Quarter	15.76	-	15.76	0.45	-	15.76
	Ivth Quarter	15.76	-	15.76	0.45	-	15.76
					1.36	-	
IIND YEAR	Opening Balance						
	Ist Quarter	15.76	-	15.76	0.45	0.98	14.77
	Iind Quarter	14.77	-	14.77	0.42	0.98	13.79
	IIIrd Quarter	13.79	-	13.79	0.40	0.98	12.80
	Ivth Quarter	12.80		12.80	0.37	0.98	11.82
					1.64	3.94	
IIIRD YEAR	Opening Balance						
	Ist Quarter	11.82	-	11.82	0.34	0.98	10.83
	Iind Quarter	10.83	-	10.83	0.31	0.98	9.85
	IIIrd Quarter	9.85	-	9.85	0.28	0.98	8.86
	Ivth Quarter	8.86		8.86	0.25	0.98	7.88
					1.19	3.94	
IVTH YEAR	Opening Balance						
	Ist Quarter	7.88	-	7.88	0.23	0.98	6.89
	Iind Quarter	6.89	-	6.89	0.20	0.98	5.91
	IIIrd Quarter	5.91	-	5.91	0.17	0.98	4.92
	Ivth Quarter	4.92		4.92	0.14	0.98	3.94
					0.74	3.94	
VTH YEAR	Opening Balance						
	Ist Quarter	3.94	-	3.94	0.11	0.98	2.95
	Iind Quarter	2.95	-	2.95	0.08	0.98	1.97
	IIIrd Quarter	1.97	-	1.97	0.06	0.55	1.42
	Ivth Quarter	1.42		1.42	0.04	0.55	0.87
					0.30	3.07	

CALCULATION OF D.S.C.R

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
CASH ACCRUALS	12.49	15.99	18.00	21.48	24.86
Interest on Term Loan	1.36	1.64	1.19	0.74	0.30
Total	13.85	17.63	19.19	22.21	25.16
REPAYMENT					
Instalment of Term Loan	3.94	3.94	3.94	3.07	3.07
Interest on Term Loan	1.36	1.64	1.19	0.74	0.30
Total	5.30	5.58	5.13	3.81	3.37
DEBT SERVICE COVERAGE RAT	**2.61**	**3.16**	**3.74**	**5.84**	**7.48**
AVERAGE D.S.C.R.			**4.57**		

COMPUTATION OF SALE

Particulars	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Op Stock	-	30.00	36.00	42.00	48.00
Production	300.00	360.00	420.00	480.00	540.00
	300.00	390.00	456.00	522.00	588.00
Less : Closing Stock	30.00	36.00	42.00	48.00	54.00
Net Sale	270.00	354.00	414.00	474.00	534.00
Sale Price per KL	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00
Sale (in Lacs)	**54.00**	**70.80**	**82.80**	**94.80**	**106.80**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	10	
Load Factor			0.7460	
Electricity Charges		per unit	8.00	
Total Working Days			300	
Electricity Charges (8 Hrs Per day)				143,232.00
Add : Minimim Charges (@ 10%)				
(B) Boiler Coal Fire				
No. of Working Days			300	days
No of Working Hours			4	Hour per day
Total no of Hour			1,200	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			9,600	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			6.24	
Add : Lube Cost @15%			0.94	
Total			**7.18**	
Total cost of Power & Fuel at 100%				8.61
Year		**Capacity**		**Amount**
				(in Lacs)
IST YEAR		50%		4.30
IIND YEAR		60%		5.17
IIIRD YEAR		70%		6.03
IVTH YEAR		80%		6.89
VTH YEAR		90%		7.75

BREAK EVEN POINT ANALYSIS

Year	I	II	III	IV	V
Net Sales & Other Income	54.00	70.80	82.80	94.80	106.80
Less : Op. WIP Goods	-	4.80	5.76	6.72	7.68
Add : Cl. WIP Goods	4.80	5.76	6.72	7.68	8.64
Total Sales	**58.80**	**71.76**	**83.76**	**95.76**	**107.76**
Variable & Semi Variable Exp.					
Raw Material & Tax	25.19	30.23	35.26	40.30	45.34
Electricity Exp/Coal Consumption at 85%	3.66	4.39	5.12	5.85	6.59
Manufacturing Expenses 80%	2.16	3.40	3.97	4.55	5.13
Wages & Salary at 60%	5.86	6.45	7.09	7.80	8.58
Selling & adminstrative Expenses 80%	0.86	1.13	1.32	1.52	1.71
Intt. On Working Capital Loan	0.78	0.78	0.78	0.78	0.78
Total Variable & Semi Variable Exp	**38.51**	**46.37**	**53.55**	**60.80**	**68.12**
Contribution	**20.29**	**25.39**	**30.21**	**34.96**	**39.64**
Fixed & Semi Fixed Expenses					
Manufacturing Expenses 20%	0.54	0.85	0.99	1.14	1.28
Electricity Exp/Coal Consumption at 15%	0.65	0.77	0.90	1.03	1.16
Wages & Salary at 40%	3.91	4.30	4.73	5.20	5.72
Interest on Term Loan	1.36	1.64	1.19	0.74	0.30
Depreciation	2.32	2.01	1.73	1.49	1.28
Selling & adminstrative Expenses 20%	0.22	0.28	0.33	0.38	0.43
Total Fixed Expenses	**8.98**	**9.86**	**9.88**	**9.98**	**10.17**
Capacity Utilization	**50%**	**60%**	**70%**	**80%**	**90%**
OPERATING PROFIT	**11.31**	**15.53**	**20.33**	**24.98**	**29.47**
BREAK EVEN POINT	**22%**	**23%**	**23%**	**23%**	**23%**
BREAK EVEN SALES	**26.03**	**27.87**	**27.39**	**27.33**	**27.65**

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