



MODEL PROJECT REPORT



PROJECT REPORT ON DETERGENT CAKE

SWAVALAMBI BHARAT ABHIYAN

DETERGENT CAKE



INTRODUCTION

Detergent cake is generally an all-purpose cleaning detergent that comes in the form of a cake. Easy and convenient to use, detergent cakes are generally meant for hand washing of all washable clothes and utensils. Detergent cakes are one of the most popular and widely used detergent for laundry purpose.

Generally, a detergent cake acts as a performance booster for detergent powder and can be used along with it to improve the cleaning performance.

Detergent cakes are generally formulated using one or more surfactants to improve their cleaning performance and make them good even for use in hard water conditions.

Detergent cakes are cleaning products that have become an essential commodity in our daily lives. Cleaning products play an essential role in our daily lives. By safely and effectively removing soils, germs and other contaminants, they help us to stay healthy, care for our homes and possessions, and make our surroundings more lively and pleasant.

Qualities of good detergent cake

1. It must be solid, strong and durable
2. It must have attractive scent or perfume.
3. It must NOT itch your hand or body (No scratching of any kind)

Formulation

Detergent cakes are formulated using batch or continuous process of soap making. These cleansing products contain different ingredients that are used to improve their cleaning performance. The surfactant plays an important role in improving the cleansing action of detergent by reducing the surface tension of wash liquid thereby improving the wettability of washable fabric.

Ingredients

Some of the important ingredients of detergent cakes include - surfactants, detergent builders, boosters, brightening agents, synthetic fragrances, colours & more.

Types of Detergent Cake

Normally two types of detergent cakes are used in household for day to day routine activities.

1. Laundry cleaning Detergent cake
2. Dish wash cleaner Detergent cake

Laundry cleaning Detergent cake:

Laundry cleaning detergent cakes are formulated to meet a variety of stain and soil removal, bleaching, fabric softening and conditioning and disinfectant requirements under varying water, temperature, and usage conditions. These products are either general purpose or light duty cleaning agents suitable for washing all types of fabrics and clothes.

Dishwashing detergent cake:

These detergent cakes provide the chemical energy to help clean and remove food soil from different types of cooking and serving items. Modern day, dishwashing detergents rinse and dry dishes and utensils without spots, and have found to be safe for a variety of dishes, glassware, utensils, and more.

Description of Detergent Cake Machine

Machinery for detergent cake includes the following:

- Sigma mixture (for mixing of Chemicals)
- Plodder
- Cutter
- DIE
- Manual packaging & Stamp

Detergent cake Machines are used to produce detergent cake from the raw material. With the help of this machine the work of mixing, cutting & die completes in a very short span. A control button for handling the device is attached in the machine, so that one can control its speed while operating the machine.

Detergent cake Current Market Analysis

According to India Detergent Market Outlook, 2021, the overall market for detergent is growing with a CAGR of 13.06% from the last five years.

Detergents are available in three forms, namely powder detergent, detergent cake and liquid detergent.

The detergent industry in India is mostly captured by organized players, but unorganized regional players have a significant hold on the rural areas. Ghadi, Nirma and Jyothy Laboratories are the major players in the organized market. They have popular brands like Surf Excel, Active Wheel, Rin, Tide, Ariel and Mr. White in their product portfolio.

On the basis of pricing, the organized detergent cake market can be further divided into three categories, such as popular (economy), mid-range and premium. Domestic market of detergent cake is also increasing rapidly.

Detergent cake Manufacturing Process

- Take the raw material like dolomite, soda ash, sodium silicate etc. & put it into the mixer step by step. The procurement of raw material depends on the quality parameters set by the producer.
- After that raw material to be mixed. The ratio of raw material poured in it depends on quality of the dish bar or cake produced by the manufacturer.
- After that start the machine & wait for 40-45 minutes & add slurry into it. For 100 KG capacity approx. 5-6 litre water is required. The quantity of water depends upon the moisture level.
- Now add the foam booster in it, then add colour after that close the valve for 20 minutes after that add sodium silicate & leave it for 5 minutes,
- After that add 2 litres polymer & 0.5 litre liquid fragrance.
- Next step is to take the dough from the mixer & put it slowly into the extruder. The extrusion process is the base & important part for detergent cake production.
- Fix and adjust the die outside the extruder accordingly.
- Now cut the extruded material with the help of cutter according to the specified shape.
- Put stamp on it.
- Packaging of product.

Machinery & Equipment's required:

Name	Description	Cost
Sigma Mixer/ Paddle Mixer	100KG/batch Production	260000
Plodder	4 INCHI	160000
Manual Cutting Platform		12000
DIE		5000
Stamp & Manual Packaging		75000
TOTAL		512000

- ❖ Sigma/paddle mixer is also available in the market for 300 & 500 KG batch production and price of machine varies accordingly.

Land & Building required:

Land required 1000 Square Feet (approx.)

Approximate rent for the same is 20000 per Month

Labour Requirement:

3 Manpower are required for the detergent cake unit.

Includes:

1 skilled Labour

1-2 Unskilled Labour

Break Even Point:

Break-even point of the machine = 4,73,166 Detergent cake

Company should operate at minimum 20% of Production capacity to cover its costs (variable + Fixed)

Raw Material Requirement of Detergent cake

China Clay: It is used for binding purpose. Before Buying Check the Aluminium content & loss of ignition

Calcite: It is used for strengthening (to measure its quality 90% calcium should be there). It should be Whiter than China clay.

Dolomite or Marble powder: It work as a filler & helps in breaking the cake. To measure its quality 30% calcium should be there.

Soda Ash: It works as a Builder & for creation of foam. It also increases the cleaning property.

Slurry (Linear Alkyl Benzene Sulphonic Acid LABSA): It is used for the reaction with soda ash.

Alpha Olefin Sulfonate: It Helps as a foam Booster. Its cost in the market is 70-75 Rs. Per KG

Sodium Silicate: It helps in Binding & making material smooth.

Polymers:It is used for Binding so that the material should not stick to the dish.

Fragrance: it is used to provide good fragrance to the product (like: lemon for dishwash bar)

On an average raw material cost per KG: Rs. 20-25

Detergent cake license & registration

For Proprietor:

- Obtain the GST registration.
- Fire/ Pollution Registration as required.
- Choice of a Brand Name of the product and secure the name with Trademark if required.

For Company:

- Obtain the GST registration.
- Obtain Udyog Aadhar.
- Fire/ Pollution Registration as required.
- Choice of a Brand Name of the product and secure the name with Trademark if required.

Implementation Schedule

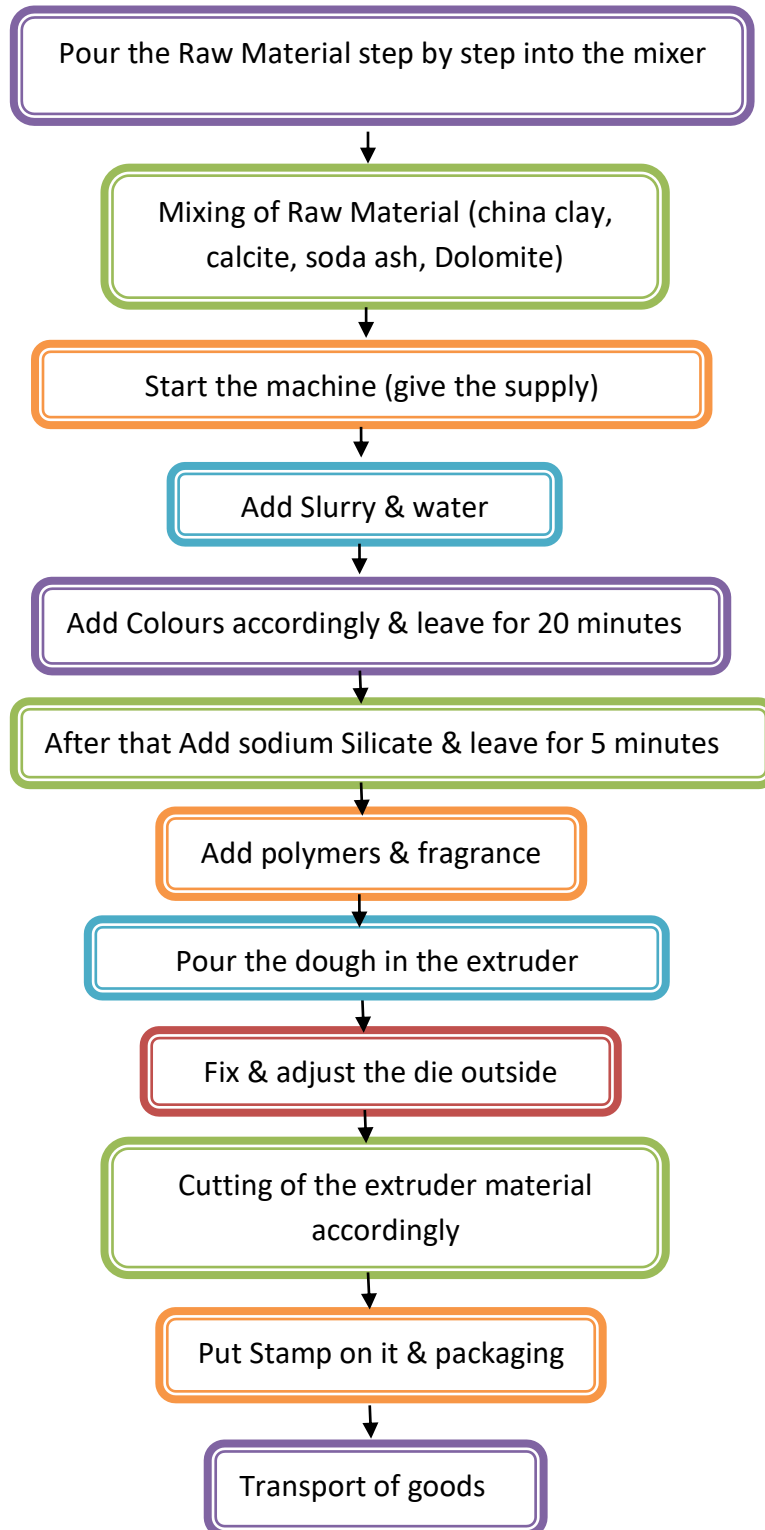
S.N.	Activity	Time Required (in Months)
1	Acquisition Of premises	1
2	Construction (if Applicable)	1- 2 Months
3	Procurement & installation of Plant & Machinery	1
4	Arrangement of Finance	1
5	Requirement of required Manpower	1
	Total time Required (some activities shall run concurrently)	3-4 Months

Conclusion:

After completion of manufacturing process, product is ready to sell in the market. Detergent cakes are used for daily routine activities. This machine can be installed with low investment & one can earn a good Margin of profit by doing this business.

Technical Process Flow Chart

Detergent cake Manufacturing Process



Project Economics

COMPUTATION OF PRODUCTION OF DETERGENT CAKE

Items to be Manufactured

Detergent cake weight 100gm

Manufacturing Capacity	100	KG Per hour
Output per day	800	KG
output per annum	240,000	KG
total raw material required per annum	240,000	KG
weight per detergent cake	100	Gram
detergent cake per kg	10	
total detergent cake per annum	2,400,000	Cakes

Production Quantity

Year	Capacity Utilization	Qty (detergent cake)
1st year	30%	720,000
2nd year	35%	840,000
3rd year	40%	960,000
4th year	45%	1,080,000
5th year	50%	1,200,000
6th year	55%	1,320,000

CALULATION OF CONSUMPTION OF RAW MATERIAL		
Item Name	At Capacity	Quantity of Raw Material
Raw Material	100%	240,000

Raw Material consumption	Capacity utilization	Rate per KG	Amount (in Lacs.)
1st year	30%	20.00	14.40
2nd year	35%	21.00	17.64
3rd year	40%	22.05	21.17
4th year	45%	23.15	25.00
5th year	50%	24.31	29.17
6th year	55%	25.53	33.69

<u>COMPUTATION OF SALE</u>						
Particulars	1st year	2nd year	3rd year	4th year	5th year	6th year
Detergent cake per annum	720,000	840,000	960,000	1,080,000	1,200,000	1,320,000
Op Stock	-	60,000	70,000	80,000	90,000	100,000
Production	720,000	840,000	960,000	1,080,000	1,200,000	1,320,000
Less : Closing Stock	60,000	70,000	80,000	90,000	100,000	110,000
Net Sale	660,000	830,000	950,000	1,070,000	1,190,000	1,310,000
Sale Price Per detergent cake	5.00	5.25	5.51	5.79	6.08	6.38
Sale (in Lacs)	33.00	43.58	52.37	61.93	72.32	83.60

Cost of Project

PROJECT AT GLANCE

Term Loan of Rs. 4.8 Lacs and Working Capital limit of Rs. 4.0 Lacs

COST OF PROJECT

PARTICULARS	AMOUNT	AMOUNT	AMOUNT
Land			
Building Civil Work			
Plant & Machinery	5.91	1.48	4.43
Furniture & Fixtures	0.50	0.13	0.38
Margin for Working Capital	1.36	1.36	-
Total	7.77	2.96	4.80

MEANS OF FINANCE

PARTICULARS	AMOUNT
Own Contribution	2.96
Bank Loan	4.80
Working Capital Limit	4.00
Total	11.77

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th year
Capacity Utilization %	30%	35%	40%	45%	50%	55%
<u>SALES</u>						
Gross Sale	33.00	43.58	52.37	61.93	72.32	83.60
Total	33.00	43.58	52.37	61.93	72.32	83.60
<u>COST OF SALES</u>						
Raw Material Consumed	14.40	17.64	21.17	25.00	29.17	33.69
Electricity Expenses	3.70	4.25	5.10	6.12	7.34	8.81
Repair & Maintenance	0.03	0.04	0.05	0.06	0.07	0.08
Labour & Wages	5.04	6.30	7.88	9.84	11.32	13.02
Depreciation	0.94	0.80	0.68	0.58	0.50	0.42
Consumables & others	1.65	2.18	2.62	3.10	3.62	4.18
Cost of Production	25.75	31.21	37.49	44.71	52.02	60.21
Add: Opening Stock /WIP	-	2.15	2.60	3.12	3.73	4.34
Less: Closing Stock /WIP	2.15	2.60	3.12	3.73	4.34	5.02
Cost of Sales	23.61	30.76	36.97	44.11	51.41	59.53
GROSS PROFIT	9.39	12.82	15.40	17.83	20.91	24.07
Gross Profit %	28%	29%	29%	29%	29%	29%
Salary to Staff	1.74	2.00	2.50	3.00	3.75	4.50
Interest on Term Loan	0.47	0.42	0.30	0.18	0.06	-
Interest on working Capital	0.44	0.44	0.44	0.44	0.44	0.44
rent	2.40	2.64	2.90	3.19	3.51	3.87
Selling & Adm Expenses Exp.	2.64	4.36	5.24	6.19	7.23	8.36
TOTAL	7.69	9.86	11.38	13.01	15.00	17.17
NET PROFIT	1.70	2.96	4.01	4.81	5.91	6.90
Taxation (Average)	0.42	0.74	1.00	1.20	1.48	1.73
PROFIT (After Tax)	1.27	2.22	3.01	3.61	4.43	5.18

PROJECTED BALANCE SHEET

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th year
<u>Liabilities</u>						
Capital						
Opening Balance	-	3.24	3.96	5.37	7.28	9.71
Add:- Addition	2.96	-	-	-	-	-
Add:-Profit During the Year	1.27	2.22	3.01	3.61	4.43	5.18
Less:- Drawings	1.00	1.50	1.60	1.70	2.00	2.50
Closing Balance	3.24	3.96	5.37	7.28	9.71	12.39
Term Loan	4.28	3.22	2.16	1.08	0.00	-
Working Capital	4.00	4.00	4.00	4.00	4.00	4.00
Sundry Creditors	1.20	1.47	1.76	2.08	2.43	2.81
Provisions & Other Liab	0.50	0.75	1.10	1.21	1.33	1.46
TOTAL :	13.21	13.40	14.40	15.66	17.48	20.67
<u>Assets</u>						
Fixed Assets (Gross)	6.41	6.41	6.41	6.41	6.41	6.41
Gross Dep.	0.94	1.73	2.41	3.00	3.49	3.91
Net Fixed Assets	5.47	4.67	3.99	3.41	2.92	2.49
Current Assets						
Sundry Debtors	3.30	4.36	5.24	6.19	7.23	8.36
Stock in Hand	3.35	4.07	4.89	5.81	6.77	7.83
Cash and Bank	1.10	0.30	0.28	0.24	0.56	1.98
TOTAL :	13.21	13.40	14.40	15.66	17.48	20.66

PROJECTED CASH FLOW STATEMENT

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th year
<u>SOURCES OF FUND</u>						
Own Margin	2.96					
Net Profit	1.70	2.96	4.01	4.81	5.91	6.90
Depriciation & Exp. W/off	0.94	0.80	0.68	0.58	0.50	0.42
Increase in Cash Credit	4.00	-	-	-	-	-
Increase In Term Loan	4.80	-	-	-	-	-
Increase in Creditors	1.20	0.27	0.29	0.32	0.35	0.38
Increase in Provisions & Oth lib	0.50	0.25	0.35	0.11	0.12	0.13
TOTAL :	16.10	4.28	5.34	5.82	6.87	7.83
<u>APPLICATION OF FUND</u>						
Increase in Fixed Assets	6.41	-	-	-	-	-
Increase in Stock	3.35	0.72	0.82	0.92	0.96	1.06
Increase in Debtors	3.30	1.06	0.88	0.96	1.04	1.13
Repayment of Term Loan	0.53	1.06	1.06	1.08	1.08	-
Drawings	1.00	1.50	1.60	1.70	2.00	2.50
Taxation	0.42	0.74	1.00	1.20	1.48	1.73
TOTAL :	15.01	5.08	5.36	5.86	6.55	6.41
Opening Cash & Bank Balance	-	1.10	0.30	0.28	0.24	0.56
Add : Surplus	1.10	(0.80)	(0.02)	(0.04)	0.32	1.42
Closing Cash & Bank Balance	1.10	0.30	0.28	0.24	0.56	1.98

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL						
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year	6th year
<u>Finished Goods</u>						
(1 month requirement)	2.15	2.60	3.12	3.73	4.34	5.02
<u>Raw Material</u>						
(1 month requirement)	1.20	1.47	1.76	2.08	2.43	2.81
Closing Stock	3.35	4.07	4.89	5.81	6.77	7.83

COMPUTATION OF WORKING CAPITAL REQUIREMENT					
TRADITIONAL METHOD					
Particulars	Amount	Own Margin		Bank Finance	
Finished Goods & Raw Material Stock	3.35				
Less : Creditors	1.20				
Paid stock	2.15	25%	0.54	75%	1.61
Sundry Debtors	3.30	25%	0.83	75%	2.48
	5.45		1.36		4.08
WORKING CAPITAL LIMIT DEMAND (from Bank)					
			4.00		

2nd Method		
PARTICULARS	1st year	2nd year
Total Current Assets	7.74	8.73
Other Current Liabilities	1.70	2.22
Working Capital Gap	6.04	6.51
Min Working Capital		
25% of WCG	1.51	1.63
Actual NWC	2.04	2.51
item III – IV	4.53	4.88
item III – V	4.00	4.00
MPBF (Lower of VI & VII)	4.00	4.00

3rd Method		
PARTICULARS	1st year	2nd year
Total Current Assets	7.74	8.73
Other Current Liabilities	1.70	2.22
Working Capital Gap	6.04	6.51
Min Working Capital		
25% of Current Assets	1.94	2.18
Actual NWC	2.04	2.51
item III – IV	4.11	4.33
item III – V	4.00	4.00
MPBF (Lower of VI & VII)	4.00	4.00

BREAK UP OF LABOUR CHARGES

Particulars	Wages Per Month	No of Employees	Total Salary
skilled	18,000.00	1	18,000.00
unskilled	12,000.00	2	24,000.00
Total Salary Per Month			42,000.00
Total Annual Labour Charges	(in Lacs)		5.04

BREAK UP OF SALARY

Particulars	Salary Per Month	No of Employees	Total Salary
Accountant	7,500.00	1	7,500.00
Other helper	7,000.00	1	7,000.00
Total Salary Per Month			14,500.00
Total Annual Salary	(in Lacs)		1.74

COMPUTATION OF DEPRECIATION

Description	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation	15.00%	10.00%	
Opening Balance	-	-	-
Addition	5.91	0.50	6.41
Total	5.91	0.50	6.41
Less: Depreciation	0.89	0.05	0.94
WDV at end of Year	5.02	0.45	5.47
Additions During the Year	-	-	-
Total	5.02	0.45	5.47
Less: Depreciation	0.75	0.05	0.80
WDV at end of Year	4.27	0.41	4.67
Additions During the Year	-	-	-
Total	4.27	0.41	4.67
Less: Depreciation	0.64	0.04	0.68
WDV at end of Year	3.63	0.36	3.99
Additions During the Year	-	-	-
Total	3.63	0.36	3.99
Less: Depreciation	0.54	0.04	0.58
WDV at end of Year	3.08	0.33	3.41
Additions During the Year	-	-	-
Total	3.08	0.33	3.41
Less: Depreciation	0.46	0.03	0.50
WDV at end of Year	2.62	0.30	2.92
Additions During the Year	-	-	-
Total	2.62	0.30	2.92
Less: Depreciation	0.39	0.03	0.42
WDV at end of Year	2.23	0.27	2.49
Less: Depreciation	0.33	0.03	0.36
WDV at end of Year	1.89	0.24	2.13
Less: Depreciation	0.28	0.02	0.31
WDV at end of Year	1.61	0.22	1.82

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
CASH ACCRUALS	2.21	3.02	3.69	4.19	4.93
Interest on Term Loan	0.47	0.42	0.30	0.18	0.06
Total	2.68	3.44	3.99	4.37	4.99
<u>REPAYMENT</u>					
Installment of Term Loan	0.53	1.06	1.06	1.08	1.08
Interest on Term Loan	0.47	0.42	0.30	0.18	0.06
Total	1.00	1.47	1.36	1.26	1.14
DEBT SERVICE COVERAGE RATIO	2.68	2.33	2.94	3.46	4.36
AVERAGE D.S.C.R.	3.12				

REPAYMENT SCHEDULE OF TERM LOAN

Interest 11.00%

Closing

Balance

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Closing Balance
1st	Opening Balance						
	1st month	-	4.80	4.80	-	-	4.80
	2nd month	4.80	-	4.80	0.04	-	4.80
	3rd month	4.80	-	4.80	0.04	-	4.80
	4th month	4.80	-	4.80	0.04	-	4.80
	5th month	4.80	-	4.80	0.04	-	4.80
	6th month	4.80	-	4.80	0.04	-	4.80
	7th month	4.80	-	4.80	0.04	0.09	4.72
	8th month	4.72	-	4.72	0.04	0.09	4.63
	9th month	4.63	-	4.63	0.04	0.09	4.54
	10th month	4.54	-	4.54	0.04	0.09	4.45
	11th month	4.45	-	4.45	0.04	0.09	4.36
	12th month	4.36	-	4.36	0.04	0.09	4.28
					0.47	0.53	
2nd	Opening Balance						
	1st month	4.28	-	4.28	0.04	0.09	4.19
	2nd month	4.19	-	4.19	0.04	0.09	4.10
	3rd month	4.10	-	4.10	0.04	0.09	4.01
	4th month	4.01	-	4.01	0.04	0.09	3.92
	5th month	3.92	-	3.92	0.04	0.09	3.84
	6th month	3.84	-	3.84	0.04	0.09	3.75
	7th month	3.75	-	3.75	0.03	0.09	3.66
	8th month	3.66	-	3.66	0.03	0.09	3.57
	9th month	3.57	-	3.57	0.03	0.09	3.48
	10th month	3.48	-	3.48	0.03	0.09	3.40
	11th month	3.40	-	3.40	0.03	0.09	3.31
	12th month	3.31	-	3.31	0.03	0.09	3.22
					0.42	1.06	
3rd	Opening Balance						
	1st month	3.22	-	3.22	0.03	0.09	3.13
	2nd month	3.13	-	3.13	0.03	0.09	3.04
	3rd month	3.04	-	3.04	0.03	0.09	2.96
	4th month	2.96	-	2.96	0.03	0.09	2.87
	5th month	2.87	-	2.87	0.03	0.09	2.78
	6th month	2.78	-	2.78	0.03	0.09	2.69
	7th month	2.69	-	2.69	0.02	0.09	2.60
	8th month	2.60	-	2.60	0.02	0.09	2.52
	9th month	2.52	-	2.52	0.02	0.09	2.43
	10th month	2.43	-	2.43	0.02	0.09	2.34
	11th month	2.34	-	2.34	0.02	0.09	2.25
	12th month	2.25	-	2.25	0.02	0.09	2.16
					0.30	1.06	
4th	Opening Balance						

	1st month	2.16	-	2.16	0.02	0.09	2.07
	2nd month	2.07	-	2.07	0.02	0.09	1.98
	3rd month	1.98	-	1.98	0.02	0.09	1.89
	4th month	1.89	-	1.89	0.02	0.09	1.80
	5th month	1.80	-	1.80	0.02	0.09	1.71
	6th month	1.71	-	1.71	0.02	0.09	1.62
	7th month	1.62	-	1.62	0.01	0.09	1.53
	8th month	1.53	-	1.53	0.01	0.09	1.44
	9th month	1.44	-	1.44	0.01	0.09	1.35
	10th month	1.35	-	1.35	0.01	0.09	1.26
	11th month	1.26	-	1.26	0.01	0.09	1.17
	12th month	1.17	-	1.17	0.01	0.09	1.08
					0.18	1.08	
5th	Opening Balance						
	1st month	1.08	-	1.08	0.01	0.09	0.99
	2nd month	0.99	-	0.99	0.01	0.09	0.90
	3rd month	0.90	-	0.90	0.01	0.09	0.81
	4th month	0.81	-	0.81	0.01	0.09	0.72
	5th month	0.72	-	0.72	0.01	0.09	0.63
	6th month	0.63	-	0.63	0.01	0.09	0.54
	7th month	0.54	-	0.54	0.00	0.09	0.45
	8th month	0.45	-	0.45	0.00	0.09	0.36
	9th month	0.36	-	0.36	0.00	0.09	0.27
	10th month	0.27	-	0.27	0.00	0.09	0.18
	11th month	0.18	-	0.18	0.00	0.09	0.09
	12th month	0.09	-	0.09	0.00	0.09	0.00
					0.06	1.08	
DOOR TO DOOR		60	MONTHS				
MORATORIUM PERIOD		6	MONTHS				
REPAYMENT PERIOD		54	MONTHS				