MODEL DETAIL PROJECT REPORT

ESTABLISHMENT OF OLEOCHEMICAL MANUFACTURING UNIT

UNDER UTTAR POORVA TRANSFORMATIVE INDUSTRIALIZATION SCHEME (UNNATI), 2024

उद्योग संवर्धन और आंतरिक व्यापार विभाग
DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE

DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE
MINISTRY OF COMMERCE & INDUSTRY
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SHAPING A VIBRANT INDIA

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1. Introduction

The oleochemical manufacturing industry includes the processing of natural oils and fats, both of vegetable and animal origin, into numerous substances, such as:

- Fatty acids by cleavage (splitting) of the triglyceride's molecule into its constituents (i.e. fatty acids and glycerine).
- Biodiesel, mainly by substitution (transesterification of glycerine with methanol in the triglycerides molecule); and
- Glycerine by processing glyceric aqueous solutions mainly derived from transesterification and splitting.

This article will focus on the production of fatty acids, glycerin (which is a co-product of fatty acid production) and their derivatives. Fatty Acids and their chemical derivatives have a place in almost every aspect of modern living. They are used in shampoos, liquid detergents, fabric softeners, lotions, flavors, fragrances and much more.

Fatty Acid Process Plants and Glycerin Process Plants supply a wide range of industrial applications with thousands of end-products mainly in the following fields:

- Coating & Paints
- Cosmetics
- Emulsifiers
- Lubricants
- Plasticizers
- Rubber Chemicals
- Soap & Detergents
- Surfactants
- Textile Chemicals

a. About the project

The proposed project is for setting up a Oleochemical Manufacturing Unit. This unit will be capable of integrated Oleochemical manufacturing to the end customer. The project will cater to the growing needs of domestic Oleochemical market. The Fast-Moving Consumer Goods industry has seen a steady growth over the past many years due to several factors which include population growth, growth of shopping malls and departmental stores, increased urbanization and a growing middle class and enhanced purchasing power of the public. All these factors have contributed directly and indirectly towards an increased demand for Oleochemical. The proposed business venture entails a total investment of about Rs. XX.XX million. This includes a capital investment of Rs. XX.XX million and a sum of Rs. X.XX million as initial working capital. The project is financed through X% debt and X% equity. The Net Present Value (NPV) of the project is around Rs. XX.XX million with an Internal Rate of Return (IRR) of X% and a payback period of X.XX years. Higher returns on investment and a steady growth of business are expected if the entrepreneur has some prior experience / education in the related field of business. The project will generate direct employment opportunity for XX persons. The legal business status of this project is proposed as 'Sole Proprietorship/Partnership/LLP/Pvt. Ltd.'.

b. Global Scenario

The global oleochemicals market size was estimated at USD 24.42 billion in 2023 and is projected to grow at a CAGR of 7.0% in terms of revenue from 2024 to 2030. The market outlook is considered positive due to the increasing demand for biodegradable products and restrictions on petrochemical-based products.

The demand for oleochemicals derivatives is growing at a steady pace owing to an increase in the consumption of personal care, pharmaceutical, and food products. The demand for personal care products is witnessing growth due to an increase in disposable income, product innovation, and high market penetration. Oleochemicals are widely used in FMCG products such as soaps, toothpaste, and moisturizing lotions. The demand for these products is increasing as companies in the personal care industry are focusing on maximizing the visibility of the products

to potential customers through online promotional activities, sweepstakes, and other initiatives in the developed regions.

major opportunity for the global oleochemicals industry lies in the increasing demand for sustainable and renewable products across various industries. Oleochemicals, derived from natural fats and oils, offer a viable alternative to petroleum-based chemicals. As consumers become more environmentally conscious, there is a rising preference for products with a reduced carbon footprint. For instance, in the personal care industry, there is a growing demand for natural and organic ingredients. Oleochemicals such as coconut oil and palm oil derivatives are used in the production of soaps, shampoos, and skin care products due to their gentle and eco-friendly properties.

c. Indian Scenario

The India oleochemicals market is poised for significant growth in the coming years, fueled by a multitude of factors that have set the stage for expansion.

The India Oleochemicals Market achieved a total market value of USD 1.76 billion in 2023 and is poised for strong growth in the forecast period, with a projected Compound Annual Growth Rate (CAGR) of 3.76% through 2029 and is anticipated to reach at USD 2.18 billion by 2029. Oleochemicals, primarily sourced from natural raw materials such as plant and animal fats, have garnered substantial attention in recent years. The production process involves the use of activated carbon to purify, decolorize, and deodorize fatty acids and their derivatives. A key advantage of oleochemicals lies in their biodegradable nature and low toxicity, making them highly environmentally friendly. Both scientists and consumers recognize and value these products for their natural, green, organic, safe, renewable, and biodegradable characteristics.

As a result, the demand for oleochemicals has surged, driven by the growing preference for green chemicals and high demand from various end-use industries. The ready availability of raw materials has also contributed to the increasing popularity of oleochemicals. With tightening environmental regulations and the depletion of non-renewable resources, oleochemicals are emerging as a viable alternative to petroleum-based products in the market. Manufacturers are proactively substituting chemical products with biobased eco-friendly alternatives to meet the rising demand for sustainable solutions. This transition not only reduces pollution but also leads to long-term time and cost savings.

In the food and beverage industry, oleochemicals are applied in the production of FDA-approved food packaging and food contact surface sanitizers. Additionally, triple-pressed stearic acid, a type of oleochemical, is widely used as a mold-release agent. The expanding food industry in developing countries, combined with increased oleochemical usage, is expected to create significant growth opportunities in the market. Furthermore, oleochemicals play a vital role in the production of household and industrial cleaning products such as surfactants, cleansing agents, emulsifiers, foam boosters, and degreasers. The rising disposable income and population growth in countries like India and China are anticipated to fuel the demand for oleochemicals in the Asia-Pacific region. Overall, the versatility and eco-friendliness of oleochemicals make them a promising solution in various industries, paving the way for sustainable and environmentally conscious practices.

d. State Profile

India is pushing for palm cultivation in the northeastern states of Assam, Mizoram and Arunachal Pradesh to increase production of oil, a commodity that costs the country millions in imports annually.
Most recently, Ruchi Soya Industries Ltd—owner of brands like Nutrela, Mahakosh and Sunrich—signed a Memorandum of Understanding (MoU) with Arunachal Pradesh government to development oil palm in 25,000 hectares in four districts of the state.
The Centre and state governments have been promoting oil palm cultivation in India, one of the world's largest consumers of oilseeds and vegetable oil.

India's production of these goods can satisfy only half of its demand, the rest is imported. Palm oil/palmolein constitutes about 80 per cent of all edible oil imports. In 2014-15, India imported around 12.7 million tons of edible

oil, as per Ministry of Agriculture data. With per capita consumption of vegetable oils at the rate of 16 kg per year per person for a projected population of 1.27 billion, the total vegetable oils demand is likely to touch 20.4 million tons by 2017.

To reduce its import bill on edible oils, which is estimated close to US $10 billion, government of India is building capacity for local production. While schemes such as Oil Palm Development Programme (OPDP) were launched in multiple states by 1992, palm cultivation did not gain traction in the country.

In a relatively recent development, Rs 3,507 crores were sanctioned to National Mission on Oilseeds and Oil Palm in 2014. One of the aims of this scheme is bring 125,000 hectares of area under oil palm cultivation through area expansion. Nineteen states are a part of oil palm expansion plan, of these seven—Mizoram, Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland and Tripura—are from India's northeast.

Assam has allocated Rs 503 lakhs for oil palm mission in its 2016-17 plan, while Arunachal Pradesh assigned Rs 511 lakhs. Manipur and Mizoram have also budgeted Rs 362 lakhs and Rs 1,514 lakhs respectively for 2016-17. The money comes from both, the Central and state governments.

e. Sector Overview

Oleochemicals are a class of aliphatic molecules derived from plant oils, animal fats, and petrochemical feedstocks. In 2021, global revenue in the oleochemical market reached USD 33.1 billion, with growth projected to continue to USD 54.4 billion by 2029. The diverse chemical properties of different oleochemicals have led to applications in pharmaceuticals, cosmetics, fuels, agriculture, and others. This opinion will focus on a subset of oleochemicals referred to as medium-chain (i.e. C_6–C_{12}) fatty alcohols (^{mc}FaOHs). Compared with short- or long-chain FaOHs, the amphipathic, stability, and antifoaming properties of ^{mc}FaOHs have popularized their use in many personal care products, lubricants, surfactants, and plasticizers. The global ^{mc}FaOH market exceeded USD 0.9 billion in 2019 and is predicted to reach USD 1.3 billion by 2027. Given the growing market demand and limited natural supply, ^{mc}FaOHs and their derivatives are sold at 2–3 times the price of other oleochemicals such as fatty acid methyl-esters (FAMEs), free fatty acids (FFAs), and fatty alcohols of other chain lengths.

2. Investor's Background

Details of all Investors in below format

Name	To be filled by the applicant
DOB	To be filled by the applicant
PAN	To be filled by the applicant
Address	To be filled by the applicant
Academic Qualification	To be filled by the applicant
Experience in business	To be filled by the applicant
Functional Responsibly in Unit	To be filled by the applicant
Name of associate concern (if any)	To be filled by the applicant
Nature of association (if any)	To be filled by the applicant
Net Worth	To be filled by the applicant

3. Company Profile

Name of the Unit	To be filled by the applicant
Constitution	To be filled by the applicant
PAN	To be filled by the applicant
Registered Office address	To be filled by the applicant
Activity	To be filled by the applicant
Loan details	To be filled by the applicant
Director	To be filled by the applicant
Unit Registration	To be filled by the applicant
Unit Location	To be filled by the applicant
Category of Project (Manufacturing/Service)	To be filled by the applicant
Zone	To be filled by the applicant
District	To be filled by the applicant
State	To be filled by the applicant

4. Details of product to be manufactured and its marketing potential

Fatty Acid

Fatty acids have a wide range of commercial applications. For example, they are used not only in the production of numerous food products but also in soaps, detergents, and cosmetics. Soaps are the sodium and potassium salts of fatty acids. Some skin-care products contain fatty acids, which can help maintain healthy skin appearance and function. Fatty acids, particularly omega-3 fatty acids, are also commonly sold as dietary supplements.

Fatty acid, important component of lipids (fat-soluble components of living cells) in plants, animals, and microorganisms. Generally, a fatty acid consists of a straight chain of an even number of carbon atoms, with hydrogen atoms along the length of the chain and at one end of the chain and a carboxyl group (—COOH) at the other end. It is that carboxyl group that makes it an acid (carboxylic acid). If the carbon-to-carbon bonds are all single, the acid is saturated; if any of the bonds is double or triple, the acid is unsaturated and is more reactive. A few fatty acids have branched chains; others contain ring structures (e.g., prostaglandins). Fatty acids are not found in a free state in nature; commonly they exist in combination with glycerol (an alcohol) in the form of triglyceride.

Global omega 3 based fatty acids market size for food application may be valued at over USD 2 billion by 2025. Omega 3 promotes cardiovascular health and reduces the risk of several infectious diseases. These essential fatty acids contain antioxidants which help in keeping the skin hydrated and help in maintaining youthful appearance of the skin. They are also consumed as food sources & medicines and play a crucial role in enhancing metabolism and contribute to a nutrient rich diet. Increasing consumer inclination towards a healthy diet may drive fatty acids for food applications market demand.

Fatty acids market size for food applications from saturated type may witness significant growth at over 9.5% up to 2025. These fatty acids are obtained from coconut oil, palm oil, butter fat and form a vital part of nutrition owing to their ability promote blood lipid levels in humans. It also helps in maintaining healthy skin and plays a crucial role in eye and brain development in children, which should stimulate the market growth.

Fatty acids market size from food & beverages application may witness significant gains at over 9.5% by the end of forecast period. Various vegetarian foods such as green leafy vegetables & soybean oil contain omega 3 which is beneficial for health. Rise in per capita income, growing R&D activities to enhance more food items with fatty acids and consumer inclination towards omega enriched food will boost the product demand in the industry.

Glycerol

Glycerol also known as Glycerine is the main component of triglycerides that is usually found in vegetable oil animal fat, and crude oil. Glycerol is derived from biodiesel production or from soap. Glycerine is an organic alcohol mixture of sugar and alcohol and is fully miscible in water. Apart from water, glycerine is miscible in various other substances and compounds. Due to its properties, glycerine has many uses and applications in every industry vertical. The most common uses and application of Glycerol are as follows:

- Thickening agent in cosmetics and foods
- Emulsifier and humectant in cosmetics
- Sweetening agent
- Plasticizer in packaging, paints and paper industry
- Preservative in many industries, such as foods and beverages

Glycerine is the simplest of the alcohols and is known by its IUPAC name as propane-1,2,3-triol. It is also known as glycerol, trihydroxypropane, 1,2,3-propanotriol, glycer-itol or glycidic alcohol. Glycerin is a sugary and clear liquid with a sweet taste and is extremely hygroscopic (water attracting) in pure form. The chemical compound contains three hydrophilic hydroxyl groups which are accountable for being hygroscopic. Instead of being crystallized, glycerine tends to super cool at low temperatures. Aqueous glycerine solutions resist freezing and are utilized as antifreeze in cooling systems. Glycerine does not oxidize in the atmosphere in normal room temperature but can be easily oxidized by other oxidizing agents. Additionally, Glycerol has low vapor pressure and low volatility that is connected with its hygroscopic property of the compound.

Global glycerin market is expected to reach USD 7.21 billion by 2030, at a CAGR of 6.90% from 2021 to 2030.The rising adoption of the glycerin in food and beverage industry is the primary factor for market growth and development for glycerin in present scenario.

5. Details of Raw Materials with required quantity

Supplier	Raw material	Quantity	Year	Cost
To be filled by the applicant	Vegetable Oil (Palm Oil, Coconut Oil, etc.)	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant
	Alcohol for Esterification (Methanol)	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant
	Catalyst (NAOH)	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant
	Hydrogen for Hydrogenation	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant
	Additives (Butylated Hydroxytoluene, Butylated Hydroxyanisole, etc.)	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant

Supplier	Raw material	Quantity	Year	Cost
	Water	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant
	Colorants and Fragrances	To be filled by the applicant	To be filled by the applicant	To be filled by the applicant

6. Proposed location and Site Plan

Sl. No.	Particulars	Details
1	Land Area	To be filled by applicant
2	Status of Legal title & Possession	To be filled by applicant
3	if leased, Period of lease	To be filled by applicant
4	Coordinates of location	To be filled by applicant
5	Details of CLU	To be filled by applicant
6	Connectivity to roads i) State Highway (in Km.) ii) National Highway (in Km.)	To be filled by applicant
7	Availability of Water	To be filled by applicant
8	Availability of Power	To be filled by applicant

a. Electrical Power

Electricity as of latest Peer comparison = 100 KWH/Ton. Daily electricity consumption is = 20 Ton × 100 KWH = 2000 KWH or Unit.

i. Construction Phase

KW	Quarter of the Year
To be filled by the applicant	To be filled by the applicant

ii. Steady Phase

KW	Quarter of the Year
To be filled by the applicant	To be filled by the applicant

iii. Peak Phase

KW	Quarter of the Year
To be filled by the applicant	To be filled by the applicant

b. Water Requirement

As per latest Peer comparison water consumption per Ton of Production = 6 KL of Water. For 20 Ton production per day, water consumption = 20×6= 120 KL

i. Construction Phase

Quantity	Quarter of the Year
In Liter	To be filled by the applicant

ii. Steady Phase

Quantity	Quarter of the Year
In Liter	To be filled by the applicant

iii. Peak Phase

Quantity	Quarter of the Year
In Liter	To be filled by the applicant

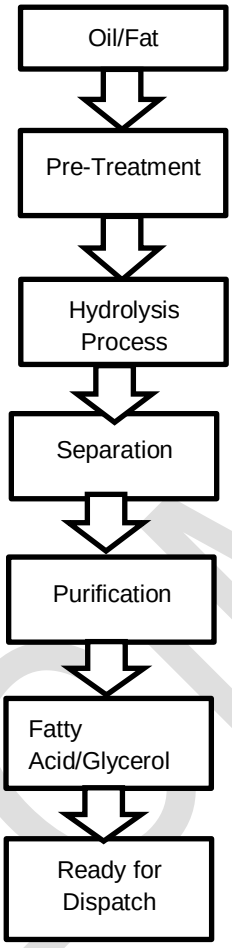
c. Transportation System

d. Local Infrastructure

e. Raw material procurement

7. Product Process Flow

Product development stages to be defined with details of input required at each stage of production and output generated after each stage of production for each product.



Raw materials

Palm Oil or Coconut Oil

Pre-Treatment

- Degumming: Remove impurities like phospholipids and other non-oil components.
- Neutralization: Use an acid to neutralize free fatty acids and remove impurities.

Hydrolysis Process

- Heating: Palm oil is heated to around 200-250 Degree Celsius.
- High Pressure Water Addition: Water is added under high pressure to break down triglycerides.
- Catalyst Addition: Acid or Base catalyst can be used to speed up the reaction.

Separation

- Fatty Acids: Separated as the main product, which can be further purified and fractioned.
- Glycerol: By-product collected and refined for further use.

Purification

- Fatty Acid purification: Fractionation or distillation to separate different fatty acids (e.g. Oleic, Stearic, Palmitic).
- Glycerol Purification: Further purification to remove water and impurities, often by distillation.

Final Products

- Purified Fatty Acids: Ready for use in soaps, detergents, or other products.
- Refined Glycerol: Used in pharmaceuticals, cosmetics, or as a base for other chemicals.

8. Cost of the Project

Particulars	Amount (Rs. In Lacs)
Land & Land Development	8.25
Factory Building & Office	412.50
Plant & Machinery & Other Equipment	1588.47
Misc. Fixed Assets	20.00
Preliminary Expense	9.00
Pre-Operative Expense	7.92
Margin Money for Working Capital	5500.00
Contingency	916.67
Provision for Buildings (2.5% of Buildings)	79.42
Provision for Buildings (2.5% of Buildings)	10.31
Total	**8552.54/-**

a. Land details

The required area for setting up the Oleochemical manufacturing Unit is approx. 55000 Sq.Ft. The rate for Land is- Rs.150/Sq.ft.

So, the Cost of Land- Rs. 55000x 150= Rs.8,250,000/-=Approx-8,250,000/-

b. Building and civil works details

Office Building with Works Shed- 33000 Sq. Ft. × 1000 = Rs.33,000,000/-

Total Land with Building & Works Shed- Rs. 8,250,000 + Rs. 33,000,000 = Rs. 41,250,000/-

c. Plant and machinery details

Sl. No.	Particulars	Qty	Rate (Rs.) Lakh	Amount (Rs.) Lakh
1	Clarifier Machine (50 HP)	1	4.70	4.70
2	Degumming Machine (20 Ton/Day)	1	337.00	337.00
3	Neutralizer (20 Ton/Day)	1	3.00	3.00
4	Bleaching Machine (20 Ton/Day)	1	200.00	200.00
5	Deodorization Plant (20 Ton/Day)	1	40.00	40.00
6	Fat Splitting Plant (20 Ton/Day)	1	410.00	410.00
7	Evaporation Machine for Glycerol	1	5.00	5.00
8	Distillation Column for Glycerol	1	90.00	90.00
9	Heat Exchanger	1	8.00	8.00
10	Steam Boiler (6 ton)	1	25.00	25.00
11	Screw Compressor (200 CFM)	1	8.00	8.00
12	DG Set 750 KVA		50.00	50.00
13	ETP Set1	1	15.00	15.00
14	External electrical including transformer (1250 KVA)	1	20.00	20.00
15	Electrical Panels, Breakers, Wires	1	25.00	25.00
	Total			**1240.70/-**

d. Pre-operative expenses details

Approx- Rs. 7.92 Lakh

e. Working Capital details

I) Raw Material Requirement: - (Annual)

Sl. No.	Item	Qty	Rate (Rs.)	Total (Rs.) Lakh
1	Vegetable Oil (Palm Oil, Coconut Oil, etc.)	6818 Ton	50,000	3409.00
2	Alcohol for Esterification (Methanol)	1302 Ton	27,000	351.54
3	Catalyst (NAOH)	18 Ton	90,000	16.20

4	Hydrogen for Hydrogenation	480 Ton	16,000	76.80
5	Additives (Butylated Hydroxytoluene, Butylated Hydroxyanisole, etc.)	120 Kg	250	0.30
6	Colorants and Fragrances	5 Ton	200000	16.00
	GRAND TOTAL			**3869.84**

II) Utilities (Per Annum)

Sl. No.	Item	Total (Rs.) Lakh
1	Electricity (2000 KWH running 300 Days with 2 Shift i.e. Effective Hr. 12 hr. Total unit consumption -12,00,000. Present rate-Rs8.92/Unit	135.84
2	Water &Misc	-
GRAND TOTAL		**135.84/-**

iii) Salary & Wages (Per Annum)

Sl. No.	Designation	No.	Wages/Month (Rs.)	Total/Annum (Rs.)
1	Accountant cum Manager	1	1,00,000	12,00,000
2	General Manager	1	1,50,000	18,00,000
3	Production Manager	1	1,00,000	12,00,000
4	Maintenance Manager	1	1,00,000	12,00,000
5	Quality Control/Analysis manager	1	1,00,000	12,00,000

6	Production Supervisors	3	25,000	9,00,000
7	Operator	20	20,000	48,00,000
8	Maintenance assistant	5	20,000	12,00,000
9	Quality Officer	6	20,000	14,40,000
10	Unskilled Labor	20	10,000	24,00,000
GRAND TOTAL				**1,73,00,000**

Note: Every year increment @ 5% has been considered towards financial calculation.

iv) Selling& General Administration (Annum)

Sl. No.	Designation	No.	Wages/Month (Rs.)	Total/Annum (Rs.)
1	Store Manager	1	80,000	9,60,000
2	Store Boy	3	15,000	5,40,000
3	Sales Manager	1	1,50,000	18,00,000
4	Salesperson	3	30,000	10,80,000
GRAND TOTAL				**43,80,000/-**

v) Advertisement & General Stores

Sl. No.	Items	Cost (Rs.)
1	Advertisement per Annum	3,00,000/-
2	General Stores & Inventory	3,85,500/-
Total		**6,85,500/-**

WORKING CAPITAL= I+II+III+IV+V= 386984000+13584000+17300000+4380000+6855000/- = Rs. 422933500/-

9. Proposed Means of Finance

Particulars	Amount (Rs. In Lacs)
Promoter's Capital	2990.50
Unsecured Loans	854.43
Term Loan form Bank/ Financial Institution	4699.35
Total	**8544.29/-**

a. **Working Capital limit:** Rs. 1691.732/- Lakh

10. Implementation Schedule with time chart

Activities	Starting Month	Ending Month
Arrangement of land	To be filled by applicant	To be filled by applicant
Single window clearance	To be filled by applicant	To be filled by applicant
Land development	To be filled by applicant	To be filled by applicant
Building and Civil Works	To be filled by applicant	To be filled by applicant
Order and delivery of P&M	To be filled by applicant	To be filled by applicant
Power arrangement	To be filled by applicant	To be filled by applicant
Manpower arrangement	To be filled by applicant	To be filled by applicant
Procurement of raw materials	To be filled by applicant	To be filled by applicant
Trial Operation	To be filled by applicant	To be filled by applicant
Commercial Operation	To be filled by applicant	To be filled by applicant

11. Projected Financial Analysis

a. Installed Production Capacity			**Quantity**	**Unit**	**Rate**	**Amount (Rs.) Lakh**
Fatty Acid			4800	Ton	190000	9120
Glycerol			480	Ton	90000	720
Production Capacity Per Annum			5280	Ton		9840
b. SCHEDULE OF PRODUCTION AND SALES						
RAW MATERIAL MIX AND CONSUMABLES REQUIRED						

Item	Quantity	Unit	Rate	Amount (Rs.) Lakh
Raw Material				
Vegetable Oil (Palm Oil, Coconut Oil, etc.)	6818	Ton	50,000	3409
Alcohol for Esterification (Methanol)	1302	Ton	27,000	351.54
Catalyst (NAOH)	18	Ton	90,000	16.2
Hydrogen for Hydrogenation	480	Ton	16,000	76.8
Additives (Butylated Hydroxytoluene, Butylated Hydroxyanisole, etc.)	120	Kg	250	0.3
Colorants and Fragrances	5	Ton	200000	10
c. Cost of Raw Material Consumed/Annum				**3863.84**

Parameters		**1st Year**	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**
Capacity Utilization		60%	65%	70%	75%	80%
		5,600	5,600	5,600	5,600	5,600
Fatty Acid		2880	3120	3360	3600	3840
Glycerol		480	520	560	600	640
Production (In Ton) as per Capacity Utilized		3360	3640	3920	4200	4480
d. BREAK UP PRODUCTION AS PER UTILIZED CAPACITY						
ITEMS		**1st Year**	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**
Capacity Utilization		60%	65%	70%	75%	80%
Fatty Acid		2880	3120	3360	3600	3840
Glycerol		480	520	560	600	640
TOTAL PRODUCTION		3360	3640	3920	4200	4480

Sales Details						
Items		**1st Year**	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**
Fatty Acid		5472	5928	6384	6840	7296
Glycerol		432	468	504	540	576
NET Sales Price		5904	6396	6888	7380	7872
GST RATE@18%		1062.72	1151.28	1239.84	1328.4	1416.96
GROSS Sales Price		6966.72	7547.28	8127.84	8708.4	9288.96
e. COST OF PRODUCTION						
Items		**1st Year**	**2nd year**	**3rd Year**	**4th Year**	**5th Year**
		60%	65%	70%	75%	80%
Raw Materials Consumed		2318.304	2511.496	2704.688	2897.88	3091.072
Power & Fuel		81.504	88.296	95.088	101.88	108.672
Direct Labor & Wages		130.08	140.92	151.76	162.6	173.44
Advertisement & Gen. Stores		4.113	4.45575	4.7985	5.14125	5.484
Repairs & Maintenance		3.96768	4.29832	4.62896	4.9596	5.29024
Other Manufacturing Exp.		-	-	-	-	-
COST OF PRODUCTION		2537.97	2749.47	2960.96	3172.46	3383.96

f. PROJECTED PROFITABILITY STATEMENT						
		1st Year	**2nd year**	**3rd Year**	**4th Year**	**5th Year**
Capacity Utilized		60%	65%	70%	75%	80%
A. Sales						
Gross Sales		6966.72	7547.28	8127.84	8708.4	9288.96
Less: GST		1062.72	1151.28	1239.84	1328.4	1416.96
NET SALES		**5904**	**6396**	**6888**	**7380**	**7872**

B. Cost of Production						
Raw Materials Consumed		2318.304	2511.496	2704.688	2897.88	3091.072
Power & Fuel		81.504	88.296	95.088	101.88	108.672
Direct Labor & Wages		130.08	140.92	151.76	162.6	173.44
Advertisement & General Stores		4.113	4.45575	4.7985	5.14125	5.484
Repairs & Maintenance		3.96768	4.29832	4.62896	4.9596	5.29024
Other Manufacturing Exp.		0	0	0	0	0
Total Cost of Production (C)		**2537.97**	**2749.47**	**2960.96**	**3172.46**	**3383.96**
g. Gross Profit (A-C)		**4428.75**	**4797.81**	**5166.88**	**5535.94**	**5905.00**
Interest Expenses						
Interest Expenses (Term Loan) @7.65% /Annum for 5 yr.		331.76	268.19	934.43	125.54	45.63
Interest Expenses (WC Loan) @11% /Annum		38.42	40.34	42.36	44.48	46.70
Others						
Profit before Taxation		4058.57	4489.28	4190.09	5365.92	5812.67
Provision for Taxation		1055.23	1167.21	1089.42	1395.14	1511.30
Profit After Taxation		**3003.34**	**3322.07**	**3100.67**	**3970.78**	**4301.38**

h. DEBT SERVICE COVERAGE RATIO (COMPANY AS A WHOLE)						
		1st Year	**2nd year**	**3rd Year**	**4th Year**	**5th Year**
Profit After Tax		3003.34	3322.07	3100.67	3970.78	4301.38
Add: - Interest Expenses (Term Loan) @7.65% /Annum for 7yrs		331.76	268.19	934.43	125.54	45.63

Interest Expenses (WC Loan) @11% /Annum for 7 yrs		38.42	40.34	42.36	44.48	46.70
Depreciation		227.355	195.31425	167.87336	144.362983	124.212098
Total (A)		**2405.80521**	**2818.22186**	**1956.0036**	**3656.40448**	**4084.8378**
Interest Expenses (Term Loan) @7.65% /Annum for 7yrs		331.76	268.19	934.43	125.54	45.63
Interest Expenses (WC Loan) @11% /Annum for 7 yrs		38.42	40.34	42.36	44.48	46.70
Depreciation		227.36	195.31	167.87	144.36	124.21
Total (A)		**2405.80**	**2818.22**	**1956.00**	**3656.40**	**4084.83**
Interest Expenses (Term Loan) @7.65% /Annum for 7yrs		331.76	268.19	934.43	125.54	45.63
Interest Expenses (WC Loan) @11% /Annum for 7 yrs.		38.42	40.34	42.36	44.48	46.70
Term Loan Repayment		802.25	865.82	934.43	1008.47	1088.38
Total Debt Payment (B)		**1172.43**	**1174.35**	**1911.22**	**1008.47**	**1088.38**
DSCR (A/B)		**1.37**	**1.66**	**0.53**	**2.63**	**2.75**
Cash Inflow		**1603.56**	**1952.40**	**1021.58**	**2647.93**	**2996.46**
i. BREAK EVEN ANALYSIS		**1st year**	**2nd year**	**3rd Year**	**4th Year**	**5th Year**
A. Net Sales		5904	6396	6888	7380	7872
B. Variable Expenses						
Raw Materials Consumed		2318.304	2511.496	2704.688	2897.88	3091.072
Power & Fuel		81.504	88.296	95.088	101.88	108.672
Consumable Stores		4.113	4.45575	4.7985	5.14125	5.484
Repairs & Maintenance		3.96768	4.29832	4.62896	4.9596	5.29024
		2407.89	**2608.55**	**2809.20**	**3009.86**	**3210.52**
C. Contribution (A-B)		3496.11	3787.45	4078.80	4370.14	4661.48

D. Fixed Expenses						
Direct Labor & Wages		130.08	140.92	151.76	162.6	173.44
Selling, General & Administration		0	0	0	0	0
		130.08	**140.92**	**151.76**	**162.6**	**173.44**
Breakeven Sales at Operating Capacity		**0.59**	**0.59**	**0.59**	**0.59**	**0.59**

j. Projected Balance Sheet

	1st Year	2nd Year	3rd Year	4th Year	5th Year
Liabilities					
Capital	2990.50	2990.50	2990.50	2990.50	2990.50
Revenue Reserves	2650.50	2893.13	1890.70	3643.68	3893.73
Net Worth	5641.00	5883.63	4881.20	6634.18	6884.23
Term Loan	802.25	865.82	934.43	1008.47	1088.38
Working Capital Limit	634.25	665.96	699.26	734.22	770.93
Current Liabilities					
Creditors	1172.43	1174.35	1911.22	1008.47	1088.38
Liability for expenses	2537.97	2749.47	2960.96	3172.46	3383.96
Total	**10787.90**	**11339.23**	**11387.07**	**12557.81**	**13215.89**
Assets					
Fixed Assets					
Gross block	1653.20	1425.85	1230.53	1062.66	918.29
Depreciation	227.36	195.31	167.87	144.36	124.21
Net Fixed Assets	1880.56	1621.16	1398.40	1207.02	1042.51
Non-Current asset/investments					
Current assets					
Inventory	5904	6396	6888	7380	7872
Debtors					
Security Deposits					
Loans and Advances					
Cash & Bank Balance	3003.34	3322.07	3100.67	3970.78	4301.38
Total	**10787.90**	**11339.23**	**11387.07**	**12557.80**	**13215.88**

k. CALCULATION OF PAYBACK PREIOD					
Investment	8552.54/-	Lakhs			
Cash In Flow	1603.56	Lakhs			
(PAT-Depreciation-Interest)	2405.81	Lakhs			
PAY BACK PREIOD	5	Years			

12. Projected Employment Details

Type of Employment	Number of Employees	Projected Cost
Skilled Manpower	41	177
Semi-skilled Manpower	6	16.2
Unskilled Manpower	20	24
TOTAL		**217.20/-**

13. Requirement of Statutory clearances

Item	Status
Partnership Deed	
Lease deed registration	
PAN	
GST Registration	
UDYAM	
Trade License	
NOC form local authority	