# PROJECT REPORT

# Of

# 4T OIL BLENDING PLANT

## PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **4T Oil Blending Plant**.

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.

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# 4T LUBE OIL BLENDING PLANT


## Introduction

Lubricating oils are designed to perform several jobs in engines and other industrial machines. These are primarily used in lubrication of moving parts, cooling, cleaning and corrosion control. Lube base stocks produced by refineries and petrochemical manufacturers (synthetic lube base stocks) are used to produce a large number of products such as the following:

- Gasoline and diesel engine oils
- Agricultural engine oils
- Marine engine oils
- Aviation and turbine oils
- Hydraulic and transmission oils
- Gear oils
- Automotive and industrial greases
- Metal working oils
- Electrical insulating oils
- White mineral oils
- Process oils

Automotive engine oils, transmission oils, and gear lubricants constitute roughly two thirds of the total lube oils produced. Most of these products are prepared by blending an appropriate percentage of additives with lube base stocks. For every application, the base stock and additive

package has to be carefully selected to meet the compatibility and requirements of the intended application.

## CLASSIFICATION OF LUBRICATING OILS

Lubricating oils and greases can be classified in many ways, by their end use, by viscosity grades, by their additives package, or by their producer's brand names. The most popular classification of lubes is according to their usage:

- Engine oils (petrol and diesel engines, aircraft, marine engines)
- Turbine oils
- Gear oils
- Compressor (refrigeration, air) oils
- Quench oils used in metalworking
- Cutting oils (in metal cutting)
- Insulating oils used in transformer and circuit breakers
- Wire rope lubricants
- Chain lubricants
- Hydraulic oils

The type of base oil (naphthenic, paraffinic, or synthetic) and additives may vary to provide the qualities required for a given application.

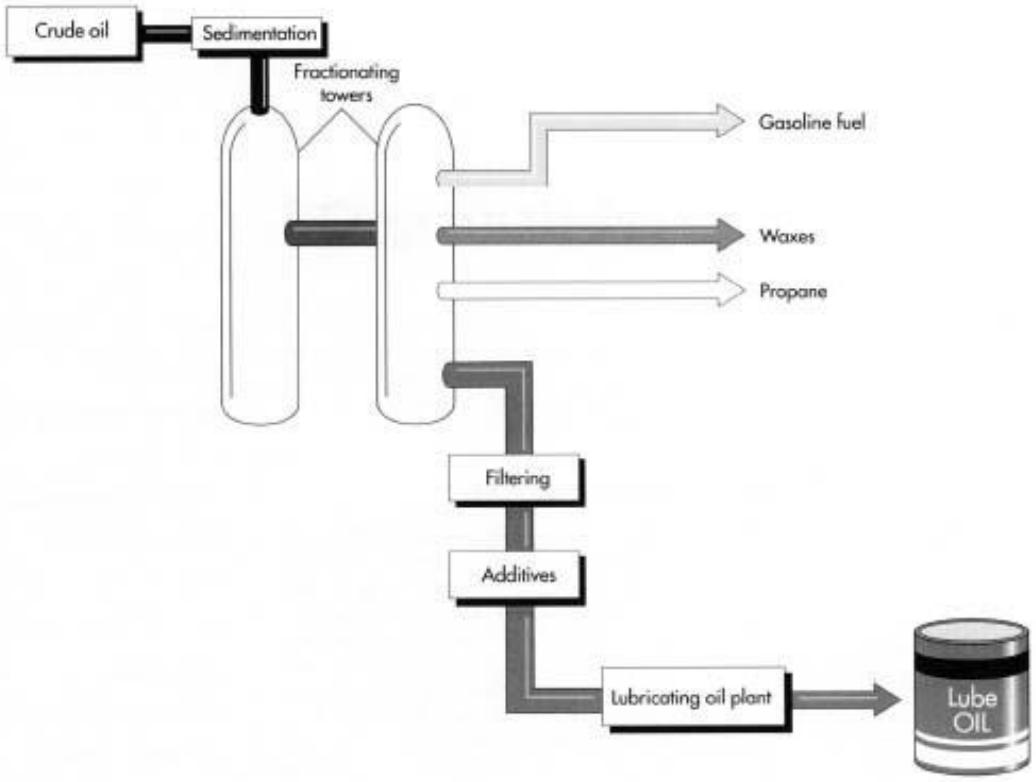
## LUBRICANT MANUFACTURING

Mixing base oil and additives produces lubricants. A convectional high performance lubricant contains typically additive components with high concentration of metal organic components based on the establish rules "more calcium, zinc, magnesium and also of course phosphorous and sulphur better the lubricants".

Modern Lubricants will continue to be a global push to reduce CO2 emission targets for e.g. in the EU the heterogeneous fleet emission targets will be down from 160 g/km in 2006 to 95 g/km in 2020-21. The new stringent emission standards lead to new lubricants with lower ash forming and less sulphur and phosphor contents. Also the new requirements of the car industry on longer oil change cycles, less frictions and optimal wear protection leads to new developments of additive packages.

These low SAPS motor oil (sulphated ash, phosphorus, sulphur) became a construction element for the machineries to cool, clean, prevent corrosion, reduce oxidation and prevent wax crystals forming when the weather is very cold. A mixture for this type of lubricants could contain, beside base oil, up to 20% additives. The penetration of e.g. low SAPS motor oils will impact lubricant production equipment and creates also range of opportunities for the lubricants producer.

## Schematic Diagram of Lube Production




## 1. MARKET SCENARIO

The production of lubricants is distributed 46% on automotive lubricants and 54% on industrial lubricants, like hydraulic fluids, turbines, insulation oil, grease as well as pharmaceuticals. Both segments have different characteristics and strategies.

The lubricants have to undergo strict quality tests before they are accepted by the automobile industry. The test procedures are defined by API (American Petroleum Institute), ASTM (American Society for Testing and Materials), SEE (socity of Automotive Engineers) and by

personalized approvals from the machines manufactories called OEM (Original Equipment Manufacturer).

The automotive lubricants are more or less consumer products, while industrial lubricants are sold like industrial goods.

In the past, the market participants have concentrated mainly on the distribution of mass-products. This trend has changed totally. Today, the marketing and the development of lubricant brands have become more important.

The Indian lubricant market is expected to register a CAGR of 4.64%, during the forecast period, 2019-2024. The major factors driving the growth of the market are the increasing vehicular production along with the increasing construction and infrastructure activities in the country.

- Increasing drain intervals in the automotive and industrial sectors and the modest impact of electric vehicles in the future are likely to hinder the market growth.
- By product type, engine oil dominated the market in 2018.
- Automotive and other transport dominated the market in 2018, owing to the increasing production of automobiles in the country.

**Increasing Demand from the Automotive Industry**

- India is the second largest lubricant consumer in the region, and third in the world, after the United States and China. The country is the fourth and sixth largest producer of commercial vehicles and passenger cars, respectively.
- The country’s automotive industry accounts for around 7.1% of the country’s GDP, in which the two-wheeler segment accounts for a share of around 81% share, owing to the growing young and middle-class population. Additionally, the government’s initiatives, such as the Make in India campaign, are helping the local and state-owned manufacturers to provide their products to consumers and offer stiff competition to the international players.
- Moreover, with the consistent economic development and rising incomes, the automotive industry has been witnessing a continued

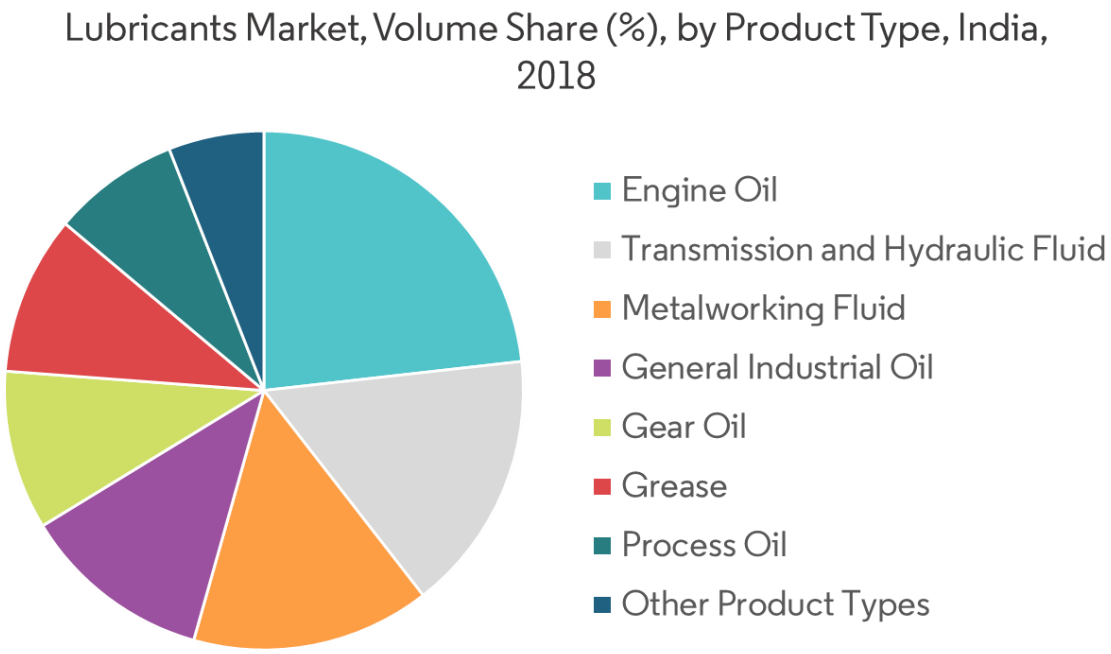
shift in vehicle preferences, from two- to four-wheelers, which helps to augment the demand for passenger car motor oils (PCMO).

- Furthermore, as the companies are interested in entering the rural markets, with their improvement, the automotive industry is expected to witness further growth. A share of passenger vehicle sales originates from rural areas, especially utility vehicles and SUVs, which are used for both transporting goods and passengers.
- In India, with the increasing demand for vehicles, several automakers have started investing heavily in various segments of the industry. Furthermore, the Indian government has been rolling out initiatives to attract FDI in the automotive industry, allowing 100% FDI under the automatic route. The government has also planned to introduce a new Green Urban Transport Scheme with central assistance of about INR 250 billion, to boost the growth of urban transport, along the low-carbon path, with an aim to reduce air pollution substantially.
- The aforementioned growth in the automotive industry is expected to boost the demand for lubricants in the country.

**Growing Usage of Transmission and Hydraulic Fluid**

- Hydraulic oils and transmission fluids transmit power in hydraulic equipment and are used in power transmission applications. They are incompressible fluids that are used as the power transmitting media in hydraulic systems.
- Hydraulic power systems involve a series of tubes or elastomeric hoses for transmitting pressurized fluid, a pump (as a power source), and some type of control (typically a series of valves, actuators, or cylinders) as the power transmission media, hydraulic fluids are indispensable in these systems.
- Transmission oils are essential to clean and protect the surface, condition gaskets, rise temperature range, increase rotational speed, and improve cooling function, and reduce high temperatures. They are used to lubricate, transfer energy, ensure smooth transmission in motor vehicles, agriculture equipment, construction, and mining equipment.

- There are both automatic and manual transmission fluids for automatic and manual transmission vehicles respectively, although automatic fluids are gaining increasing popularity. Most automatic transmission systems use automatic transmission fluid (ATF) as a hydraulic fluid and a gear lubricant. Automatic transmission fluids could be pressurized by a pump and regulated by valves, similar to other hydraulic systems.
- Hydraulic fluids are used as a medium for transferring power and energy in hydraulic systems. Additionally, they are used for heat transfer, sealing, contaminant removal, and lubrication.
- The majority of the hydraulic fluids are based on mineral oils. The applications of these fluids include excavators, hydraulic brakes, lifts, flight control systems, power steering systems, excavator booms, dippers, hydraulic brakes, power steering systems, mechanical transmission systems, lifts, and general industrial machinery.
- The increasing automotive industry and industrial growth in the country are expected to boost the demand for transmission and hydraulic fluids, during the forecast period.




**Automobile Lubricant** production in India has experienced a strong growth of 14 percent from 2007-2018. Like most Asian countries, India

has a large percentage of two-wheelers, accounting for more than three-fourths of the total automobile production in 2012-2013.

India is the world's second-largest manufacturer of two-wheelers and exported 12 percent of them in 2012-2013. Consequently, motorcycle oil is the largest product category in the consumer automotive lubricants segment, with about 60 percent of the consumer automotive lubricants. Overall, consumer automotive lubricants account for 13 percent of the total market.

The market for commercial automotive lubricants declined in 2013 due to the retarded economic growth, as well as its impact on such sectors as logistics, construction, mining and agriculture. In India, more than half of the commercial automotive lubricant market is controlled by nationalized oil companies.

**Industrial lubricants** is the largest market segment in India, with more than 54 percent of the total market. Power generation, chemicals, automotive and other manufacturing, railways, marine, and metals are the leading end-user industries, accounting for nearly 80 percent of industrial lubricant consumption.

India is a huge market for process oils as well, with 53 percent of the overall industrial lubricant demand. Rapid expansion of the power generation and distribution infrastructure has also created a strong demand for transformer oils in India. Industrial engine oils (including marine and railroad), metalworking fluids and hydraulic fluids are other important product categories.

The per capita lubricant consumption in India is quite low compared to developed countries. However, a comparison with other developing countries like China and Indonesia reveals significant potential in India for growth in lubricant consumption.

## Lube Oil Blending Plant (LOBP)

One aspect of the plant design is the optimization of capital expansions (CAPEX), operation expansion's (OPEX) as well as maintenance costs and on the other hands to the integration in the supply and logistic of the customer to react fast and cost effective.

If we have a look into the cost structure of a typical lube oil blending, filling and packaging plant around 75% are related to raw material like base oils and additives, 15% for production and 10% for logistic and

working capital. Reducing operation expenses is the energy driving and must work on the improvement of chain security for raw material > lower tank farm capacity, cost volume – formulations > blending & filling equipment and production cost per liter lubricants > automation.

## LUBRICANTS BLENDING AND PACKAGING

The fundamentals of Supply Chain Management must be translated into consistent strategies in the area of plant operations. For this reason I will focus on “MAKE“. From my point of view there are three major “MAKE“ groups due to the worldwide change in the lubricant market, as follows:

a.) The blending centre of multi-nationals

b.) The contract blending by multi-nationals without own brand name

c.) The independent manufacturers of lubricants with own brand name

All MAKE-models have one thing in common that lubes manufactures must become more agile to react to business environment. Investments in manufacturing should be supported by the following essential business aims: a. Product-variety According to the market a multiplicity

of different recipes is produced in a lubricant blending plant. The numbers of the different recipes vary from approximately 60 in growth-markets up to 600 in industrialized countries. The products are divided in 8- 22 product families and are sold in the many different package sizes. The package varies from a 0.5 litre bottle to the delivery of the lubricants in drums and tankers to bulk customers.

## LUBE OIL FILLING PLANT (LOFP)

Particular attention should be given to the utilization of filling layout, since due to the high investment costs, the biggest investment of capital and thus have the lowest production capacities. As mentioned before a lubricants blending and packaging must become a MAKE and will be an integral part of the supply chain and should be used also as a marketing tool. The architecture and layout of the plant have to make positive contributions to environmental Impact and energy efficiency across to the production of the high quality lubricants. The architectural essence should be not only a formal aesthetic idea, but more over it must emerges of diverse optimization of hard and soft factors such as location and also ecology and emotion in a "performance approach". Some aspect for the architecture must be the communication of the different production teams working in inbound, blending lab, outbound, administration. The other is efficiency and flexibility of the facility. To support the marketing idea the facility must be ecological, aesthetic, as well a modern building technologies supports the identity of the high quality lubricants brand.

**Small Container Filling Machine**

**Large Container Filling Machine**

The filling area is where the lubricants became its final shape to handle the complexity in the filling area some principle should be taken into account:

- **Product grouping** – the Stock keeping Units (SKU's) must be analysed into product groups which all have a similar packaging type. These groups can then be prioritized based on packaging complexity and minimum change over times for the filling machine.
- **Pareto principle (80:20)** – This method is based on the premise that 80% of packaging handled by the filling area associated with the top 20% of the production (fast mover).

At the time of filling the filling machine products, expected product temperature is approaching 35°C. The typical system configuration consists of charging for empty bottle unscramble machine, labelling machine, filling point machine, capping machine, quantity / volume control, laser marking / batching machine, cartooning (erector, labelling, robotic loading, and sealing) and pallet levelling.

The process from start to unscramble pallet levelling is done by an automated system for the fast mover and could be more manual for slow mover products. The system will be supported by automatic counter for the number of wrappers and for the number of cartons. Record the amount of packaging will be supplied to plant control system to connect the blending area with the filling and packaging plant.

The process of filling is done by minimizing / eliminating flushing in the filling machine (self-draining).

## WAREHOUSING

According the service level defined from the supply chain management a sufficient space for many products and raw materials is needed. The warehouse management should make every effort to meet the continuing demands and guarantee a well-organized warehousing and short delivery times of lubricants. The warehouse should be designed with the ease of operation and implementation of the FIFO (firs in firs out) and IT controlled warehouse management. In the conventional warehouses goods can be stored on palettes, in the drive-in or on flow racks.

## Land &Building required:

Building Construction area 4500-5000 Square feet (approx.)

Construction cost is approx. = 6- 7 Lacs rupees

## Machinery required:

| Particulars | Description | Quantity | Amount |
|---|---|---|---|
| Blending Kettle | 2500 litre capacity | 1 | 450000 |
| Sintex high Strength plastic tank | | 2 | 100000 |
| Sintex High strength plastic tank | 3000 litre capacity | 1 | 35000 |
| Tank for Finished Blended Lubricant | | 2 | 70000 |
| Pipeline, valve & filter | | 1 | 50000 |
| Base oil transfer pumps | | 1 | 45000 |
| Total | | 8 | 750000 |

- Cost of the machinery is exclusive of GST and other transportation cost.

**Filtration & other Packaging Machines**

| Particulars | Amount |
|---|---|
| Filling Machine 500 ML – 5 Litre | 125000 |
| 300 KG Weigh Fill Machine | 10000 |
| Induction Sealing Machine | 20000 |
| Semi-automatic Capping Machine | 12000 |
| Other Equipment's | 50000 |
| Total | 217000 |

**Labour Requirement:**

5- 6 Manpower are required for the 4T Lube Oil Blending Plant.

Includes:

1-2 skilled Labour

3-4 Semiskilled Labour

**Raw Material Requirement**

| Particulars | Price per Litre/KG | Percentage | Input price |
|---|---|---|---|
| Base Oil | 55 | 90% | 49.50 |
| Additive | 300 | 6% | 18.00 |
| Viscosity Index Improver | 100 | 5% | 5.00 |
| **Total (Input Price for 1 Litre 4T Oil)** | | | **72.50** |

- 4T Lube oil is sold in market in 900 ML Packs.

## 4T Lube Blending Oil plant license & registration

### For Company

- Obtain the GST registration.
- Additionally, apply for MSME Udyog Aadhaar online registration.
- 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) | 2-3 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 |

**FINANCIAL ASSISTANCE REQUIRED**

Term Loan of Rs.15.13 Lacs and Working Capital limit of Rs. 40 Lacs

**COST OF PROJECT**

| PARTICULARS | AMOUNT | AMOUNT | AMOUNT |
|---|---|---|---|
| | | 20.00% | 80.00% |
| **Building Civil Work** | 7.00 | 1.40 | 5.60 |
| **Plant & Machinery** | 11.41 | 2.28 | 9.13 |
| **Furniture & Fixtures and Other Assets** | 0.50 | 0.10 | 0.40 |
| **Working capital** | 50.00 | 10.00 | 40.00 |
| **Total** | **68.91** | **13.78** | **55.13** |

**MEANS OF FINANCE**

| PARTICULARS | AMOUNT |
|---|---|
| Own Contribution | 13.78 |
| Bank Loan | 15.13 |
| Working capital Limit | 40.00 |
| **Total** | **68.91** |

## COMPUTATION OF BLENDING OF 4T LUBE OIL

**Items to be Manufactured**

4T Oil

| | | |
|---|---|---|
| Machine Capacity | 2000 | Litre Per day |
| Per annum Capacity | 480,000 | Litre |

**Total Raw material Requirement**

| | | |
|---|---|---|
| Base Oil | 432000 | Litre |
| Additive | 28800 | KG |
| Viscosity Index Improver | 24000 | KG |

**Production**

| | | |
|---|---|---|
| One bottle of 4T oil contains | 900 | ML |
| Per day Capacity | 2,222 | Bottle |
| Per Annum Capacity | 533,333 | Bottle |

**Production of 4T Oil**

| Production | Capacity | Bottle |
|---|---|---|
| 2019-20 | 50% | 266,667 |
| 2020-21 | 55% | 293,333 |
| 2021-22 | 60% | 320,000 |
| 2022-23 | 65% | 346,667 |
| 2023-24 | 70% | 373,333 |
| 2024-25 | 75% | 400,000 |

| Raw Material cost per Litre | | | |
|---|---|---|---|
| **Particulars** | **Price per Litre/KG** | **Percentage** | **Input price** |
| Base Oil | 55 | 90% | 49.5 |
| Additive | 300 | 6% | 18 |
| Viscosity Index Improver | 100 | 5% | 5 |
| **Total (Input Price for 1 Litre 4T Oil)** | | | **72.5** |

| Packaging Material Cost Per Bottle | |
|---|---|
| **Particulars** | **Amount** |
| Container with cap | 11.00 |
| Label | 2.00 |
| Induction sealing | 0.30 |
| cartoon With Tape | 2.00 |
| **Total (Input Price for 1 Litre 4T Oil)** | **15.30** |

**CALULATION OF CONSUMPTION OF RAW MATERIAL**

| Item Name | At Capacity | Quantity of Raw Material |
|---|---|---|
| Raw Material | 100% | 480,000 |

| Raw Material Consumed | Capacity Utilisation | Rate per Kg | Amount (Rs. in lacs) |
|---|---|---|---|
| 2019-20 | 50% | 72.50 | 174.00 |
| 2020-21 | 55% | 75.00 | 198.00 |
| 2021-22 | 60% | 76.50 | 220.32 |
| 2022-23 | 65% | 78.03 | 243.45 |
| 2023-24 | 70% | 79.59 | 267.42 |
| 2024-25 | 75% | 81.18 | 292.26 |

**COMPUTATION OF SALE**

| Particulars | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th year |
|---|---|---|---|---|---|---|
| Op Stock | - | 22,222 | 24,444 | 26,667 | 28,889 | 31,111 |
| Production | 266,667 | 293,333 | 320,000 | 346,667 | 373,333 | 400,000 |
| **Less : Closing Stock** | **22,222** | **24,444** | **26,667** | **28,889** | **31,111** | **33,333** |
| **Net Sale** | **244,444** | **291,111** | **317,778** | **344,444** | **371,111** | **397,778** |
| Sale price per bottle | 105.00 | 106.00 | 107.00 | 108.00 | 109.00 | 110.00 |
| **Sales Value (in Lacs)** | **256.67** | **308.58** | **340.02** | **372.00** | **404.51** | **437.56** |

| Packaging cost | | | |
|---|---|---|---|
| **Particulars** | **Bottles** | **Cost per Bottle** | **Value (in Lakhs)** |
| 2019-20 | 266667 | 2.00 | 5.33 |
| 2020-21 | 293333 | 2.10 | 6.16 |
| 2021-22 | 320000 | 2.21 | 7.06 |
| 2022-23 | 346667 | 2.32 | 8.03 |
| 2023-24 | 373333 | 2.43 | 9.08 |
| 2024-25 | 400000 | 2.55 | 10.21 |

**BREAK UP OF LABOUR CHARGES**

| **Particulars** | **Wages Per Month** | **No of Employees** | **Total Salary** |
|---|---|---|---|
| Skilled labour | 18000 | 4 | 72000 |
| Unskilled labour | 12000 | 2 | 24000 |
| Total Salary Per Month | | | 96000 |
| **Total Annual Labour Charges** | **(in Lacs)** | | **11.52** |

**BREAK UP OF SALARY**

| Particulars | Salary Per Month | No of Employees | Total Salary |
|---|---|---|---|
| Supervisor | 20000 | 1 | 20000 |
| Accountant | 18000 | 1 | 18000 |
| Helper | 6000 | 1 | 6000 |
| Watchmen | 6000 | 2 | 12000 |
| Total Salary Per Month | | | 56000 |
| **Total Annual Salary** | **(in Lacs)** | | **6.72** |

**Utility Charges at 100% capacity (per month)**

| Particulars | Value | Description |
|---|---|---|
| Power connection required | 20 | KWH |
| consumption per day | 200 | Units |
| Consumption per month | 4000 | Units |
| Rate per Unit | 7 | Rs. |
| power Bill per month | 28000 | Rs. |

**PROJECTED PROFITABILITY STATEMENT**

| PARTICULARS | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th year |
|---|---|---|---|---|---|---|
| Capacity Utilisation % | **50%** | **55%** | **60%** | **65%** | **70%** | **75%** |
| **SALES** | | | | | | |
| **Gross Sale** | | | | | | |
| 4T Lube Oil | 256.67 | 308.58 | 340.02 | 372.00 | 404.51 | 437.56 |
| **Total** | **256.67** | **308.58** | **340.02** | **372.00** | **404.51** | **437.56** |
| **COST OF SALES** | | | | | | |
| Raw Mateiral Consumed | 174.00 | 198.00 | 220.32 | 243.45 | 267.42 | 292.26 |
| Elecricity Expenses | 3.36 | 3.70 | 4.07 | 4.47 | 4.92 | 5.41 |
| Repair & Maintenance | 5.13 | 6.17 | 6.80 | 7.44 | 8.09 | 8.75 |
| Labour & Wages | 11.52 | 12.67 | 13.94 | 15.33 | 16.87 | 18.55 |
| Consumables | 5.13 | 6.17 | 6.80 | 7.44 | 8.09 | 8.75 |
| Other Direct Expenses | 2.57 | 3.09 | 3.40 | 3.72 | 4.05 | 4.38 |
| packaging Cost | 5.33 | 6.16 | 7.06 | 8.03 | 9.08 | 10.21 |
| **Cost of Production** | 207.05 | 235.96 | 262.38 | 289.89 | 318.51 | 348.31 |
| **Add: Opening Stock /WIP** | - | 17.25 | 19.66 | 21.87 | 24.16 | 26.54 |
| **Less: Closing Stock /WIP** | 17.25 | 19.66 | 21.87 | 24.16 | 26.54 | 29.03 |
| Cost of Sales | 189.79 | 233.55 | 260.18 | 287.59 | 316.13 | 345.83 |
| **GROSS PROFIT** | **66.87** | **75.03** | **79.84** | **84.41** | **88.39** | **91.73** |
| Depriciation | 1.23 | 2.30 | 1.99 | 1.72 | 1.49 | 1.29 |
| Salary to Staff | 6.72 | 7.39 | 8.13 | 9.35 | 10.75 | 12.37 |
| Interest on Term Loan | 1.49 | 1.37 | 1.07 | 0.77 | 0.46 | 0.16 |
| Interest on working Capital | 4.40 | 4.40 | 4.40 | 4.40 | 4.40 | 4.40 |
| Selling & Distribution Expenses | 8.98 | 10.80 | 11.90 | 13.02 | 14.16 | 15.31 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Administration Expenses | 3.85 | 4.63 | 5.10 | 5.58 | 6.07 | 6.56 |
| **TOTAL** | **26.68** | **30.89** | **32.59** | **34.84** | **37.33** | **40.10** |
| NET PROFIT | 40.20 | 44.14 | 47.25 | 49.57 | 51.05 | 51.63 |
| Taxation | 10.45 | 11.48 | 12.29 | 12.89 | 13.27 | 13.42 |
| PROFIT (After Tax) | 29.74 | 32.66 | 34.97 | 36.68 | 37.78 | 38.21 |

**PROJECTED BALANCE SHEET**

| PARTICULARS | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th year |
|---|---|---|---|---|---|---|
| ***Liabilities*** | | | | | | |
| Capital | | | | | | |
| opening balance | | 23.53 | 32.19 | 38.66 | 45.59 | 50.97 |
| *Add:- Own Capital* | 13.78 | | | | | |
| Add:- Retained Profit | 29.74 | 32.66 | 34.97 | 36.68 | 37.78 | 38.21 |
| Less:- Drawings | 20.00 | 24.00 | 28.50 | 29.75 | 32.40 | 33.00 |
| Closing Blance | 23.53 | 32.19 | 38.66 | 45.59 | 50.97 | 56.18 |
| Term Loan | 13.75 | 10.99 | 8.23 | 5.47 | 2.71 | - |
| Working Capital Limit | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 |
| Sundry Creditors | 4.18 | 6.27 | 7.49 | 8.93 | 12.03 | 13.64 |
| Provisions & Other Liab | 2.50 | 3.00 | 3.75 | 4.50 | 5.63 | 6.75 |
| **TOTAL :** | **83.95** | **92.45** | **98.13** | **104.48** | **111.34** | **116.56** |
| ***Assets*** | | | | | | |
| **Fixed Assets ( Gross)** | 18.91 | 18.91 | 18.91 | 18.91 | 18.91 | 18.91 |
| Gross Dep. | 1.23 | 3.53 | 5.51 | 7.23 | 8.73 | 10.02 |
| **Net Fixed Assets** | **17.68** | **15.38** | **13.40** | **11.68** | **10.18** | **8.89** |
| **Current Assets** | | | | | | |
| Sundry Debtors | 32.08 | 38.57 | 42.50 | 46.50 | 50.56 | 52.87 |
| Stock in Hand | 31.75 | 36.16 | 40.23 | 44.44 | 48.83 | 53.38 |
| Cash and Bank | 2.43 | 2.33 | 2.00 | 1.86 | 1.76 | 1.42 |
| **TOTAL :** | **83.95** | **92.45** | **98.13** | **104.48** | **111.34** | **116.56** |

**PROJECTED CASH FLOW STATEMENT**

| PARTICULARS | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th year |
|---|---|---|---|---|---|---|
| ***SOURCES OF FUND*** | | | | | | |
| Own Margin | 13.78 | | | | | |
| Net Profit | 40.20 | 44.14 | 47.25 | 49.57 | 51.05 | 51.63 |
| Depriciation & Exp. W/off | 1.23 | 2.30 | 1.99 | 1.72 | 1.49 | 1.29 |
| Increase in Cash Credit | 40.00 | - | - | - | - | - |
| Increase In Term Loan | 15.13 | - | - | - | - | - |
| Increase in Creditors | 4.18 | 2.09 | 1.22 | 1.44 | 3.11 | 1.60 |
| Increase in Provisions & Oth lib | 2.50 | 0.50 | 0.75 | 0.75 | 1.13 | 1.13 |
| **TOTAL :** | **117.01** | **49.03** | **51.21** | **53.48** | **56.78** | **55.66** |
| ***APPLICATION OF FUND*** | | | | | | |
| Increase in Fixed Assets | 18.91 | - | - | - | - | - |
| Increase in Stock | 31.75 | 4.41 | 4.06 | 4.22 | 4.38 | 4.55 |
| Increase in Debtors | 32.08 | 6.49 | 3.93 | 4.00 | 4.06 | 2.31 |
| Repayment of Term Loan | 1.38 | 2.76 | 2.76 | 2.76 | 2.76 | 2.71 |
| Drawings | 20.00 | 24.00 | 28.50 | 29.75 | 32.40 | 33.00 |
| Taxation | 10.45 | 11.48 | 12.29 | 12.89 | 13.27 | 13.42 |
| **TOTAL :** | **114.58** | **49.13** | **51.54** | **53.61** | **56.88** | **55.99** |
| Opening Cash & Bank Balance | - | 2.43 | 2.33 | 2.00 | 1.86 | 1.76 |
| Add : Surplus | 2.43 | - 0.10 | - 0.33 | - 0.14 | - 0.10 | - 0.34 |
| Closing Cash & Bank Balance | **2.43** | **2.33** | **2.00** | **1.86** | **1.76** | **1.42** |

**COMPUTATION OF CLOSING STOCK & WORKING CAPITAL**

| PARTICULARS | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th year |
|---|---|---|---|---|---|---|
| **Finished Goods** | | | | | | |
| | 17.25 | 19.66 | 21.87 | 24.16 | 26.54 | 29.03 |
| **Raw Material** | | | | | | |
| | 14.50 | 16.50 | 18.36 | 20.29 | 22.29 | 24.35 |
| **Closing Stock** | **31.75** | **36.16** | **40.23** | **44.44** | **48.83** | **53.38** |

**COMPUTATION OF WORKING CAPITAL REQUIREMENT**

**TRADITIONAL METHOD**

| Particulars | Amount | Own Margin | | Bank Finance | |
|---|---|---|---|---|---|
| Finished Goods & Raw Material Stock | 31.75 | | | | |
| Less : Creditors | 4.18 | | | | |
| **Paid stock** | **27.58** | **20%** | **5.52** | **80%** | **22.06** |
| **Sundry Debtors** | **32.08** | **20%** | **6.42** | **80%** | **25.67** |
| | **59.66** | | **11.93** | | **47.73** |

**WORKING CAPITAL LIMIT DEMAND ( from Bank) 40.00**

| **2nd Method** | | |
|---|---|---|
| **PARTICULARS** | **2020-21** | **2021-22** |
| Total Current Assets | 66.27 | 77.07 |
| Other Current Liabilities | 6.68 | 9.27 |
| Working Capital Gap | 59.60 | 67.80 |
| Min Working Capital | | |
| 25% of WCG | 14.90 | 16.95 |
| Actual NWC | **19.60** | **27.80** |
| item III - IV | **44.70** | **50.85** |
| item III - V | **40.00** | **40.00** |
| MPBF (Lower of VI & VII) | **40.00** | **40.00** |

| **3rd Method** | | |
|---|---|---|
| **PARTICULARS** | **2020-21** | **2021-22** |
| Total Current Assets | 66.27 | 77.07 |
| Other Current Liabilities | 6.68 | 9.27 |
| Working Capital Gap | 59.60 | 67.80 |
| Min Working Capital | | |
| 25% of Current Assets | **16.57** | **19.27** |
| Actual NWC | **19.60** | **27.80** |
| item III - IV | **43.03** | **48.53** |
| item III - V | **40.00** | **40.00** |
| MPBF (Lower of VI & VII) | **40.00** | **40.00** |

**COMPUTATION OF DEPRECIATION**

| **Description** | **Building** | **Plant & Machinery** | **Furniture** | **TOTAL** |
|---|---|---|---|---|
| Rate of Depreciation | **10.00%** | **15.00%** | **10.00%** | |
| **Opening Balance** | **-** | - | - | - |
| Addition | 7.00 | 11.41 | 0.50 | 18.91 |
| Total | 7.00 | 11.41 | 0.50 | 18.91 |
| Less : Depreciation | 0.35 | 0.86 | 0.03 | 1.23 |
| **WDV at end of Year** | **6.65** | **10.55** | **0.48** | **17.68** |
| Additions During The Year | - | - | - | - |
| Total | 6.65 | 10.55 | 0.48 | 17.68 |
| Less : Depreciation | 0.67 | 1.58 | 0.05 | 2.30 |
| **WDV at end of Year** | **5.99** | **8.97** | **0.43** | **15.38** |
| Additions During The Year | - | - | - | - |
| Total | 5.99 | 8.97 | 0.43 | 15.38 |
| Less : Depreciation | 0.60 | 1.35 | 0.04 | 1.99 |
| **WDV at end of Year** | **5.39** | **7.63** | **0.38** | **13.40** |
| Additions During The Year | - | - | - | - |
| Total | 5.39 | 7.63 | 0.38 | 13.40 |
| Less : Depreciation | 0.54 | 1.14 | 0.04 | 1.72 |
| **WDV at end of Year** | **4.85** | **6.48** | **0.35** | **11.68** |
| Additions During The Year | - | - | - | - |
| Total | 4.85 | 6.48 | 0.35 | 11.68 |
| Less : Depreciation | 0.48 | 0.97 | 0.03 | 1.49 |
| **WDV at end of Year** | **4.36** | **5.51** | **0.31** | **10.18** |
| Additions During The Year | - | - | - | - |
| Total | 4.36 | 5.51 | 0.31 | 10.18 |
| Less : Depreciation | 0.44 | 0.83 | 0.03 | 1.29 |
| **WDV at end of Year** | **3.93** | **4.68** | **0.28** | **8.89** |

## REPAYMENT SCHEDULE OF TERM LOAN

| | | | | | Interest | | 11.00% |
|---|---|---|---|---|---|---|---|
| **Year** | **Particulars** | **Amount** | **Addition** | **Total** | **Interest** | **Repayment** | **Closing Balance** |
| **ist** | Opening Balance | | | | | | |
| | 1st month | | 15.13 | 15.13 | - | - | 15.13 |
| | 2nd month | 15.13 | | 15.13 | 0.14 | - | 15.13 |
| | 3rd month | 15.13 | - | 15.13 | 0.14 | - | 15.13 |
| | 4th month | 15.13 | - | 15.13 | 0.14 | - | 15.13 |
| | 5th month | 15.13 | - | 15.13 | 0.14 | - | 15.13 |
| | 6th month | 15.13 | | 15.13 | 0.14 | - | 15.13 |
| | 7th month | 15.13 | - | 15.13 | 0.14 | 0.23 | 14.90 |
| | 8th month | 14.90 | - | 14.90 | 0.14 | 0.23 | 14.67 |
| | 9th month | 14.67 | - | 14.67 | 0.13 | 0.23 | 14.44 |
| | 10th month | 14.44 | - | 14.44 | 0.13 | 0.23 | 14.21 |
| | 11th month | 14.21 | - | 14.21 | 0.13 | 0.23 | 13.98 |
| | 12th month | 13.98 | - | 13.98 | 0.13 | 0.23 | 13.75 |
| | | | | | 1.49 | 1.38 | |
| **2nd** | Opening Balance | | | | | | |
| | 1st month | 13.75 | - | 13.75 | 0.13 | 0.23 | 13.52 |
| | 2nd month | 13.52 | - | 13.52 | 0.12 | 0.23 | 13.29 |
| | 3rd month | 13.29 | - | 13.29 | 0.12 | 0.23 | 13.06 |
| | 4th month | 13.06 | - | 13.06 | 0.12 | 0.23 | 12.83 |
| | 5th month | 12.83 | - | 12.83 | 0.12 | 0.23 | 12.60 |
| | 6th month | 12.60 | - | 12.60 | 0.12 | 0.23 | 12.37 |
| | 7th month | 12.37 | - | 12.37 | 0.11 | 0.23 | 12.14 |
| | 8th month | 12.14 | - | 12.14 | 0.11 | 0.23 | 11.91 |
| | 9th month | 11.91 | - | 11.91 | 0.11 | 0.23 | 11.68 |
| | 10th month | 11.68 | - | 11.68 | 0.11 | 0.23 | 11.45 |
| | 11th month | 11.45 | - | 11.45 | 0.10 | 0.23 | 11.22 |
| | 12th month | 11.22 | - | 11.22 | 0.10 | 0.23 | 10.99 |
| | | | | | **1.37** | **2.76** | |
| **3rd** | Opening Balance | | | | | | |
| | 1st month | 10.99 | - | 10.99 | 0.10 | 0.23 | 10.76 |
| | 2nd month | 10.76 | - | 10.76 | 0.10 | 0.23 | 10.53 |
| | 3rd month | 10.53 | - | 10.53 | 0.10 | 0.23 | 10.30 |
| | 4th month | 10.30 | - | 10.30 | 0.09 | 0.23 | 10.07 |
| | 5th month | 10.07 | - | 10.07 | 0.09 | 0.23 | 9.84 |
| | 6th month | 9.84 | - | 9.84 | 0.09 | 0.23 | 9.61 |
| | 7th month | 9.61 | - | 9.61 | 0.09 | 0.23 | 9.38 |
| | 8th month | 9.38 | - | 9.38 | 0.09 | 0.23 | 9.15 |
| | 9th month | 9.15 | - | 9.15 | 0.08 | 0.23 | 8.92 |
| | 10th month | 8.92 | - | 8.92 | 0.08 | 0.23 | 8.69 |
| | 11th month | 8.69 | - | 8.69 | 0.08 | 0.23 | 8.46 |
| | 12th month | 8.46 | - | 8.46 | 0.08 | 0.23 | 8.23 |
| | | | | | **1.07** | **2.76** | |
| **4th** | Opening | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Balance | | | | | | |
| | 1st month | 8.23 | - | 8.23 | 0.08 | 0.23 | 8.00 |
| | 2nd month | 8.00 | - | 8.00 | 0.07 | 0.23 | 7.77 |
| | 3rd month | 7.77 | - | 7.77 | 0.07 | 0.23 | 7.54 |
| | 4th month | 7.54 | - | 7.54 | 0.07 | 0.23 | 7.31 |
| | 5th month | 7.31 | - | 7.31 | 0.07 | 0.23 | 7.08 |
| | 6th month | 7.08 | - | 7.08 | 0.06 | 0.23 | 6.85 |
| | 7th month | 6.85 | - | 6.85 | 0.06 | 0.23 | 6.62 |
| | 8th month | 6.62 | - | 6.62 | 0.06 | 0.23 | 6.39 |
| | 9th month | 6.39 | - | 6.39 | 0.06 | 0.23 | 6.16 |
| | 10th month | 6.16 | - | 6.16 | 0.06 | 0.23 | 5.93 |
| | 11th month | 5.93 | - | 5.93 | 0.05 | 0.23 | 5.70 |
| | 12th month | 5.70 | - | 5.70 | 0.05 | 0.23 | 5.47 |
| | | | | | **0.77** | **2.76** | |
| **5th** | Opening Balance | | | | | | |
| | 1st month | 5.47 | - | 5.47 | 0.05 | 0.23 | 5.24 |
| | 2nd month | 5.24 | - | 5.24 | 0.05 | 0.23 | 5.01 |
| | 3rd month | 5.01 | - | 5.01 | 0.05 | 0.23 | 4.78 |
| | 4th month | 4.78 | - | 4.78 | 0.04 | 0.23 | 4.55 |
| | 5th month | 4.55 | - | 4.55 | 0.04 | 0.23 | 4.32 |
| | 6th month | 4.32 | - | 4.32 | 0.04 | 0.23 | 4.09 |
| | 7th month | 4.09 | - | 4.09 | 0.04 | 0.23 | 3.86 |
| | 8th month | 3.86 | - | 3.86 | 0.04 | 0.23 | 3.63 |
| | 9th month | 3.63 | - | 3.63 | 0.03 | 0.23 | 3.40 |
| | 10th month | 3.40 | - | 3.40 | 0.03 | 0.23 | 3.17 |
| | 11th month | 3.17 | - | 3.17 | 0.03 | 0.23 | 2.94 |
| | 12th month | 2.94 | - | 2.94 | 0.03 | 0.23 | 2.71 |
| | | | | | **0.46** | **2.76** | |
| **6th** | Opening Balance | | | | | | |
| | 1st month | 2.71 | - | 2.71 | 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 | 2.02 |
| | 4th month | 2.02 | - | 2.02 | 0.02 | 0.23 | 1.79 |
| | 5th month | 1.79 | - | 1.79 | 0.02 | 0.23 | 1.56 |
| | 6th month | 1.56 | - | 1.56 | 0.01 | 0.23 | 1.33 |
| | 7th month | 1.33 | - | 1.33 | 0.01 | 0.23 | 1.10 |
| | 8th month | 1.10 | - | 1.10 | 0.01 | 0.23 | 0.87 |
| | 9th month | 0.87 | - | 0.87 | 0.01 | 0.23 | 0.64 |
| | 10th month | 0.64 | - | 0.64 | 0.01 | 0.23 | 0.41 |
| | 11th month | 0.41 | - | 0.41 | 0.00 | 0.23 | 0.18 |
| | 12th month | 0.18 | - | 0.18 | 0.00 | 0.18 | - |
| | | | | | **0.16** | **2.71** | |

| | | |
|---|---|---|
| DOOR TO DOOR | 72 | MONTHS |
| MORATORIUM PERIOD | 6 | MONTHS |
| REPAYMENT PERIOD | 66 | MONTHS |

SAMADHAN
Nurturing Dreams - Innovative Solutions

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