Edible Oil Refinery from Crude Palm Oil.

Palm Oil Processing Business.

Crude Palm Oil Refining Plant

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Introduction

Palm oil is a fatty edible vegetable oil, yellowish in color, derived from the flesh and the kernel of the fruit of the oil palm tree. The oil palm tree is a tropical, single stemmed tree having feather like leaves that gains a height of around 20 meters. The fruits of this tree, that are also the sources of the palm oil grow in bunches, are reddish in color, bigger than plums in size and have a single seeded kernel inside.
Crude Palm Oil (CPO) is one of the most important edible oil in India. Palm oil is one of the few vegetable oils known to be rather high in saturated fats, and it comes close to soybean oil as one of the most widely-produced vegetable oils in the world.

Crude Palm Oil (palm fruit oil) is the more dominant of the two. It comes from the orange flesh (mesocarp) that surrounds the palm seed of the fruit, and is comprised of approximately 37 percent monounsaturated fat, 50 percent saturated fat, and 9 percent polyunsaturated fat. It is semi-solid at room temperature and reddish in color in its unrefined (crude) state due to the presence of carotenoids and tocotrienols, which the human body converts to vitamin A and vitamin E respectively.
CPO is processed and used widely across food (cooking oil, confectionary, margarines, ice creams and more), pharmaceuticals (anti-ageing and skin healing products), oleochemicals (cleaning and industrial products and lubricants), and energy (as feedstock for biomass production).

Palm oil is edible oil which is extracted from the pulp of fruit of oil palms. The color of pulp is red. That's why crude palm oil is naturally similar to pulp color because of high inactive vitamin A content. It is different from kernel oil or coconut oil. Commonly it is combined or mixed with coconut oil to make highly saturated vegetable fat, which is also used for cooking purposes.
Palm Oil Uses:

Palm oil can be used both as a crude oil as well as in the refined form. Only one quarter of the palm oil and palm kernel oil worldwide is used as a crude oil. In Southeast Asia, Africa and parts of Brazil, crude palm oil is widely used for domestic cooking.
Main usage of CPO is for cooking purposes and is largely used in South-East Asia, West Africa and some parts of Brazil. Commercial kitchens use it due to its low cost. It's not healthy as its counterparts due to high content of saturated fats. Largest producer of CPO is Indonesia, Malaysia, Nigeria and Columbia. They are major exporters of palm oil. India is net importer of Crude Palm Oil and Mumbai being one of the major trading centers. It is also used for making bio diesel and one of it’s by product is Glycerin.
Crude Palm Oil Refining Process

Crude palm oil refining process is through take off impurity, degumming, decoloring, deodorization, removeing wax, fractionation etc., to achieve different standards edible oil. Crude palm oil refining process is suitable for refining various crude vegetable oil, such as sunflower seed oil, tea seed oil, groundnut oil, cottonseed oil, palm oil, rice bran oil, soybean oil, corn oil and palm oil, etc.

Palm oil refining industries are most important manufacturing sectors in the world and Palm oil has become an increasingly important vegetable oil in the world market and today is the largest traded vegetable oil in the world. Malaysia is the largest producer and exporting company of Crude Palm oil.
Crude Palm oil is obtained from mesocarp part of palm oil. Extracted Crude Palm oil contains some undesirable impurities and these some of the impurities need to be removed partially or completely through the refining process in order to produce good edible oil that have better stability and keepability.

Now a day’s Palm oil is popular cooking oil in some tropical countries like South East Asia, Africa, and some parts of Brazil. It is broadly used in other countries because of lower cost and good oxidative stability. Palm oil is used widely for cooking due to its heat resistant property as compared to any other vegetable oil.
Palm oil physical refining process

Oil physical refining process, also called as oil steam refining. During the degumming section in the palm oil milling plant, the gum will be removed from palm oil by utilizing phosphoric acid or citric acid. Next to bleaching section, the coloring matter and other metal ions will be absorbed or removed. Then, in the deacidification and deodorization section, the crude palm oil will be processed within low pressure and high temperature. Through live stem, the FFA will be stripped of and the odors and colors will be removed or absorbed.
**Palm oil chemical refining process**

During the palm oil chemical refining process, the FFA will be removed and the neutralized crude palm oil and soap stock will be produced. And the soap stock will be separated from palm oil by using of high-speed separator. And the color pigments and the metal ions will be removed from the neutralized oil. If the crude palm oil contains high carotene, high FFA (more than 5%) and relative low phosphatides, it will be great to have the chemical refining process to reduce the refining losses and the operation costs.
Indian Scenario

India is the largest importer of Crude Palm Oil with an annual average imports of approximately 50 lac MT. India imports bulk of its palm oil requirement from Indonesia. Palm oil being the cheapest among the edible oil segment is widely consumed among the Indian household. Kandla, JNPT, Chennai, Kakinada, Haldia are the major port for imports in India.

India palm oil market size is anticipated to reach USD 13.1 billion by 2025 refined derivatives are widely being utilized in food owing to their lower price in comparison to other conventional edible oils derived from groundnut, soybean and sunflower.
Rapid urbanization, and changing lifestyles backed by increasing disposable income in India have influenced consumption trends of consumers. Increasing consumption in food & beverages and cosmetics industry is a key factor likely to boost overall growth. A positive factor in the Indian production scenario is a significant growth in the acreage, which registered a CAGR of approximately 20% over the past five years.

Crude palm oil was the largest palm oil derivative and accounted for over 75% of total market volume in 2014. Crude palm oil is widely used for cooking purposes. Low price of crude palm oil compared to its counterparts make it the most favorable cooking oil particularly in West Africa and South East Asia. Crude palm oil is also expected to witness the highest growth of 7.5% from 2015 to 2022.
Palm oil derivative segment includes crude palm oil, palm kernel oil, palm kernel cake, and others. The crude oil segment was a leading segment among the other palm oil derivative in the global palm oil market in 2015 owing to growing applications such as edible oil, surfactants, cosmetics, biofuel, and lubricants. On the basis of application, palm oil market is divided into edible oil, cosmetics, biodiesel, lubricants, surfactants and other applications. Edible oil segment is expected to witness strong growth in upcoming years owing health concerns regarding trans-fat consumption.
Global Palm Oil Market, 2015-2021 (Million Tons) (USD Billion)
The global palm oil market is expected to grow with rising global population, increasing biofuels production, increasing fresh fruits bunches yields, accelerating economic growth and growing application in various markets. Key trends of this market includes rising demand for red palm oil, increasing sustainable palm oil production and growing shift towards palm crop transplanting.

One of the key factors resulting in the growth of the global palm oil market is the low prices of palm oil, making it affordable to consumers in emerging economies. Therefore, palm oil is popular and consumed in high volumes in Asian and African countries. The low production cost results in decreased prices for palm oil.
Growing population, economic growth and rising disposable income will drive India’s vegetable oil consumption growth, which is expected to grow by three per cent annually to exceed 34 million tonnes by 2030. Increasing income, urbanization, changing food habits and deeper penetration of processed foods will be key drivers of future consumption growth of edible oil in the country.

The global edible oil market is anticipated to witness a substantial growth owing to increasing popularity of unrefined, unprocessed, healthy, and organic oil. In the coming years, vegetable oils with low cholesterol, fat, and calories are likely to gain high response due to growing health awareness among people across the world. In addition, major improvement in retail network, increasing crop yields, oil production, and growing economies are some of the prominent factors supporting the growth of the global edible oil market.
Furthermore, growing popularity of canola oil, trans-fat free soybean oil, and emerging preference for olive oil will drive the global market for edible oil.

The retail segment is expected to drive the sales of edible oils on account of strong supply chain of chain of edible oil products and established chain of retail outlets. Vegetable oil consumption has increased in developing countries due to increasing demand from growing population, surging retail sector, and rise in overall household income. Additionally, manufacturers of edible oils are adopting advanced processing technique to offer healthier and affordable oil. However, they lack in the production of edible oil in comparison with incoming demand.
The global edible oil market is anticipated to witness a substantial growth owing to increasing popularity of unrefined, unprocessed, healthy, and organic oil. In the coming years, vegetable oils with low cholesterol, fat, and calories are likely to gain high response due to growing health awareness among people across the world. In addition, major improvement in retail network, increasing crop yields, oil production, and growing economies are some of the prominent factors supporting the growth of the global edible oil market. Furthermore, growing popularity of canola oil, trans-fat free soybean oil, and emerging preference for olive oil will drive the global market for edible oil.
Machinery Photographs

Continuous Deodorizing Section

Dry Fractionation
Water Cooling and Pumping

Automatic Edible Oil Packing Machine
## Project at a Glance

### PROJECT AT A GLANCE

#### COST OF PROJECT

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## Project at a Glance

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# Project at a Glance

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## Project at a Glance

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Major Queries/Questions Answered in the Report?

1. What is Edible Oil Refinery industry?

2. How has the Edible Oil Refinery industry performed so far and how will it perform in the coming years?

3. What is the Project Feasibility of Edible Oil Refinery Plant?

4. What are the requirements of Working Capital for setting up Edible Oil Refinery plant?
5. What is the structure of the Edible Oil Refinery Business and who are the key/major players?

6. What is the total project cost for setting up Edible Oil Refinery Business?

7. What are the operating costs for setting up Edible Oil Refinery plant?

8. What are the machinery and equipment requirements for setting up Edible Oil Refinery plant?
9. Who are the Suppliers and Manufacturers of Plant & Machinery for setting up Edible Oil Refinery plant?

10. What are the requirements of raw material for setting up Edible Oil Refinery plant?

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16. What are the requirement of utilities and overheads for setting up Edible Oil Refinery plant?

17. What is the Built up Area Requirement and cost for setting up Edible Oil Refinery Business?
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22. What are the Project financials of Edible Oil Refinery Business?
23. What are the Profitability Ratios of Edible Oil Refinery Project?

24. What is the Sensitivity Analysis-Price/Volume of Edible Oil Refinery plant?

25. What are the Projected Pay-Back Period and IRR of Edible Oil Refinery plant?

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• Other Fixed Assets
  - Furniture & Fixtures
  - Pre-operative and Preliminary Expenses
  - Technical Knowhow
  - Provision of Contingencies

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  - Raw Material
  - Packing Material
  - Lab & ETP Chemical Cost
  - Consumable Store
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