



GROUND NUT OIL EXTRACTION PLANT



Your Trusted Partner for Consultancy and Turnkey Project Execution



COMPANY OVERVIEW

Salvin Industries is a leading engineering, technology and consulting conglomerate, working closely with diversified industries spanning across food processing, agriculture, plastics, chemicals, metals healthcare, packaging, Dealer, distributor, super stocks, marketing plan, product analysis and other industries and business sectors offering complete turn-key solutions including advanced engineering, Industry 4.0 solutions, digital transformation and expert technical and management consultancy. With 10+ years of experience and global presence in 8+ countries, Salvin Industries is serving from the most demanding to the most distant customers across the globe. We empower them for rewriting their future with our depths of knowledge, unique ideas, technical expertise, creative solutions and enduring results, all at the most optimal costs, right at their doorsteps.

Armed with the eminence in technological expertise, global capabilities and a process driven approach, we have the ability to take on any challenging project. Crossing the geographical borders & cultures and living up to our core values Excellence, Respect, Care & Joy, we propel innovation to engineer solutions that build & foster equality. Working together as one team with all our business partners & associates, we are transforming industries, fueling economies, developing sustainable solutions and thereby elevating societies, globally. We realize the need to respond to the dynamism & speed with which the world is changing all around us and understand the need to anticipate

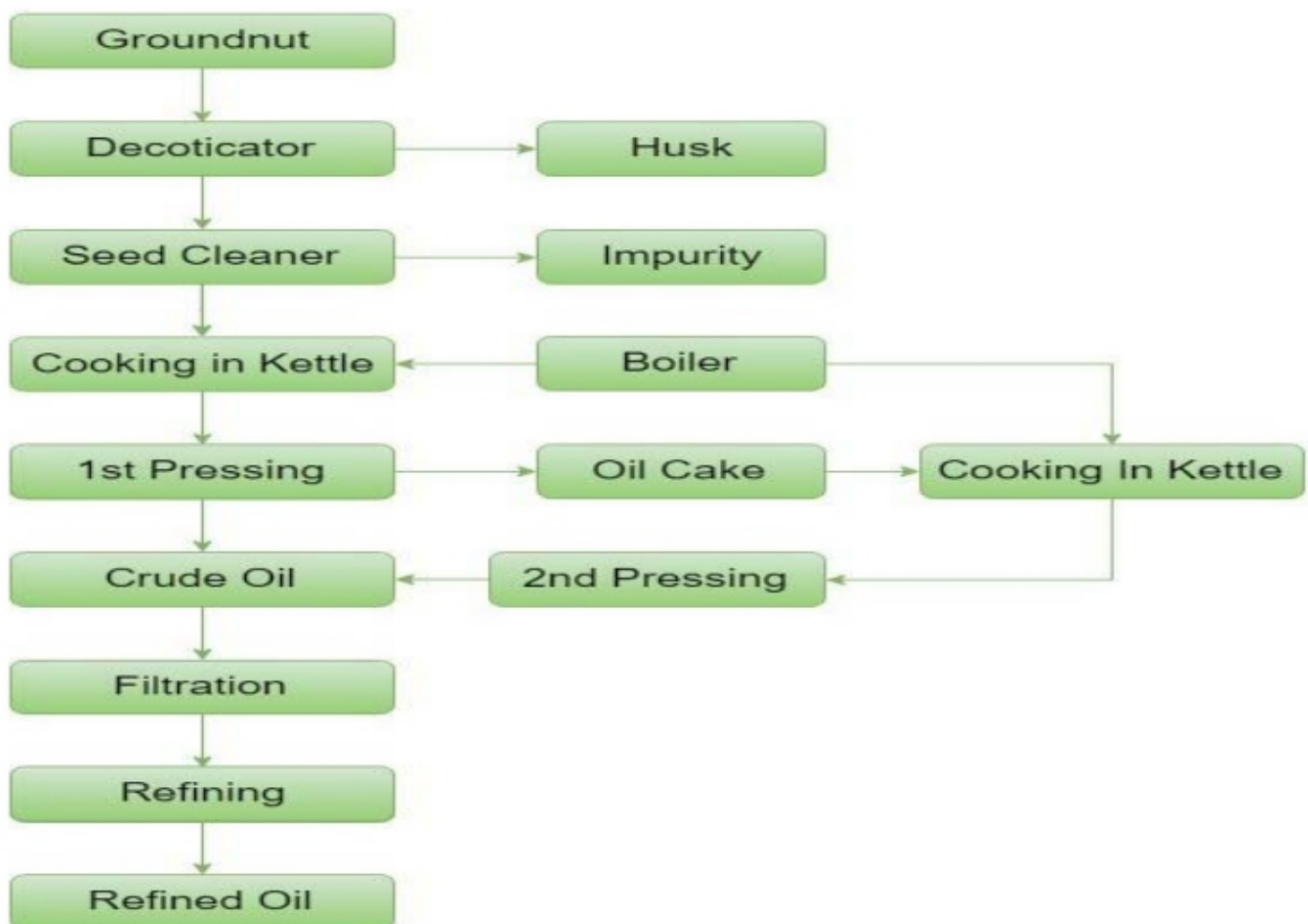
GROUND NUT OIL

EXTRACTION PLANT

The oil extracted from groundnut/peanuts is also known as Arachis Oil, which is a mild tasting vegetable oil with a light-yellow transparency, clear colour and lustre, mild pleasant fragrance accompanied by a good taste and relatively easy to digest. The kernel of groundnut contains approximately 45%-55% of oil. The groundnut oil comprises of more than 80 % UFA (unsaturated fatty acids with around 42 % Oleic Acid, 38% Linoleic Acid and around 20% Palmitic acid, Steric acid, Arachidic acid along with some other unsaturated fatty acids in trace amounts.

It is a rich source of all B vitamin except B12, minerals, phosphorus, calcium, iron. The biological value of groundnut protein is the highest among all vegetable proteins. Peanuts are proven to be an excellent source of vitamin E various fatty acids, good quality proteins (approx. 28%) and carbohydrates.

PROCESS FLOW GROUND NUT OIL EXTRACTION PLANT



GROUND NUT OIL EXTRACTION PLANT

PRE-TREATMENT PROCESSES

CLEANING

- Inorganic Impurities: - Dust, Sand, Metal, Plastic Chips etc.
- Organic Impurities: - Stem, leaves, hemp, shell, twigs etc.
- Oil bearing Impurities: - Kernel infested with mould, worms, weevils and unsound kernels etc.

CLEANING METHODS

- Screening
- Winnowing
- Magnetic Separation
- Gravity Separation



GRADING AND SORTING

- Grading process is adopted to remove the impurity and unsound kernel from the lot and ensure that the kernel size is not damaged, uniform, free from weevil, mould or worm infestation.
- The introduction of colour sorting process adds to the efficiency of the process by effectively eliminating the aflatoxin contaminated peanuts (efficiency above 99%)

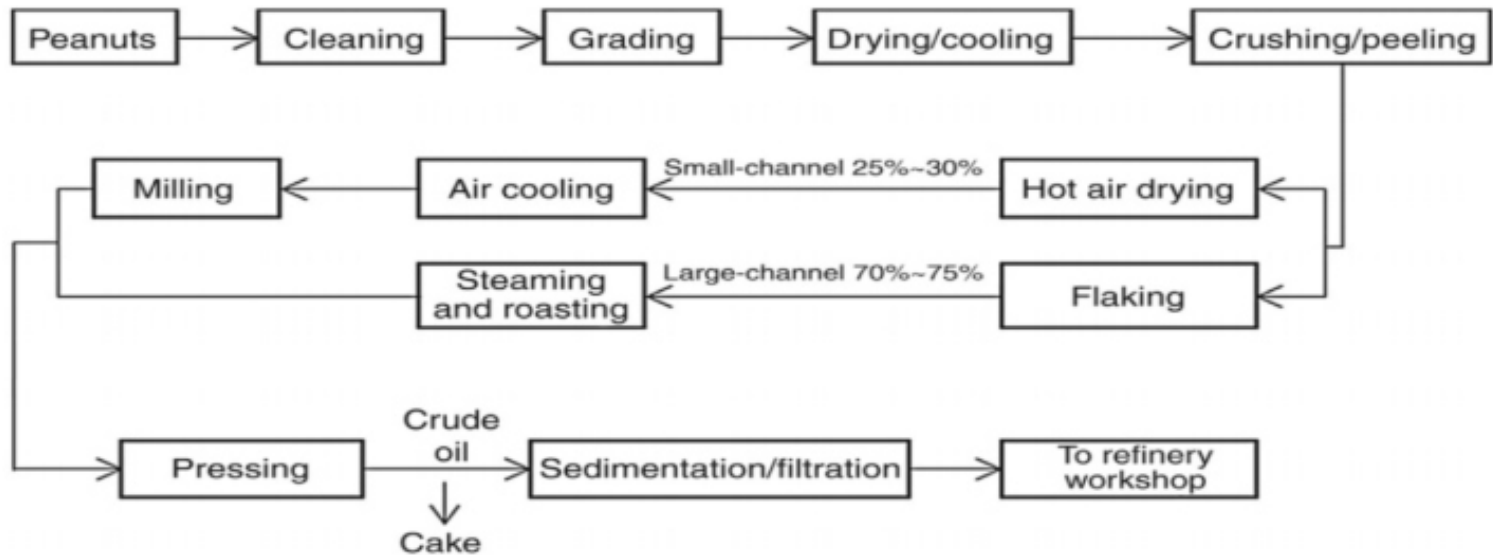
DRYING OF PEANUTS



- Peanuts are subjected to drying followed by air cooling in order to lower the water content of the kernels
- This enables the red skin of the kernels, crisp and easy to peel.
- The drying process is temperature controlled and lies in the range of 40-80 C
- Below 5 % water content of the peanut kernels, peeling efficiency is relatively high.

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HIGH TEMPERATURE PRESSING METHOD FLOWCHART



High-temperature peanut oil production flow chart.

HIGH TEMPERATURE PRESSED PEANUT OIL



Temperature

The small-channel kernels are again subjected to 180-200°C in a stir-fry furnace.



Moisture content

Hot air dryer is used repeatedly to bring down the water content in the range of 5-6%



Residual cake

The large-channel kernels are pressed into flakes known as uncooked flakes.



Acceptability

Strong fragrant flavour leading to mass acceptability by consumers



Organoleptic properties

Destroyed in the process due to high temperature

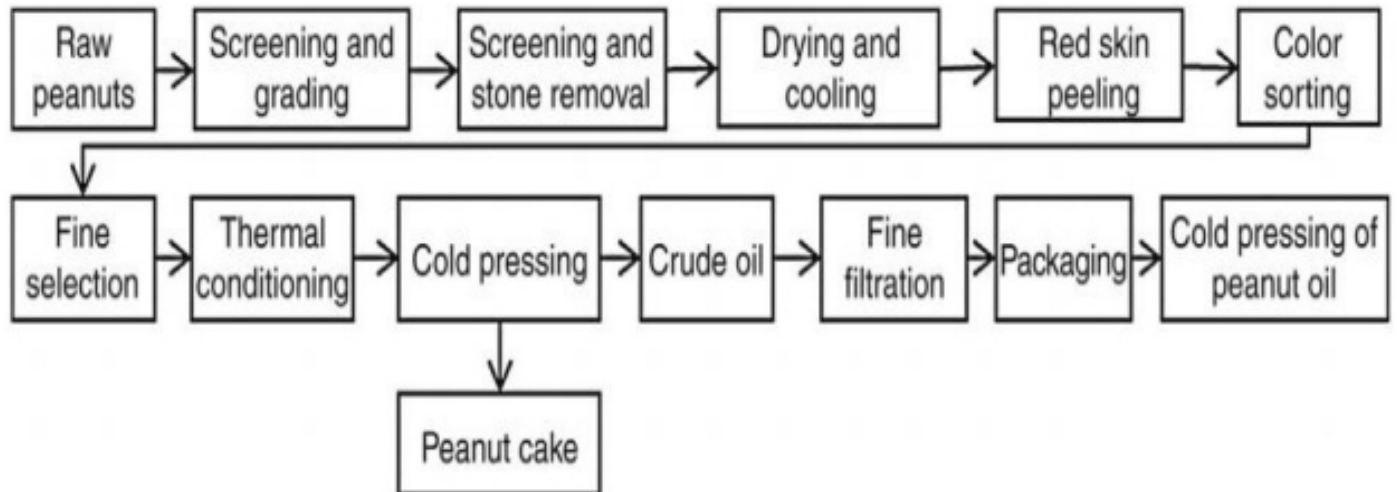


Nutrients

Heavy loss of Vitamin E, sterol, wheat germ phenol, phospholipids and other nutritional factors

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COLD PRESSING FLOWCHART



COLD PRESED PEANUT OIL



Temperature

In cold press techniques the conducted temperature lies in the range of 60-70 °C.



Moisture content

Hot air dryer is used repeatedly to bring down the water content in the range of 5-6%



Residual cake

The large-channel kernels are pressed into flakes using flaking machine but residual cake does not take shape



Acceptability

Better nutritional properties and subtle flavour leading to mass acceptability by consumers.



Profit

Peanut protein powder with low variability are produced with greater quality and high profit value.



Problems

Premature oil exudation making material difficult to be fed into the pres.

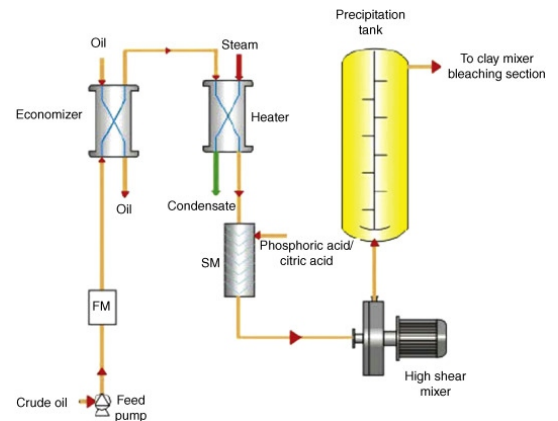
GROUND NUT OIL EXTRACTION PLANT

OIL REFINING PROCESS

Degumming

Mainly done to remove the colloidal impurities from the oil and the process include:

- Hydration degumming
- Acid Degumming



De-acidification

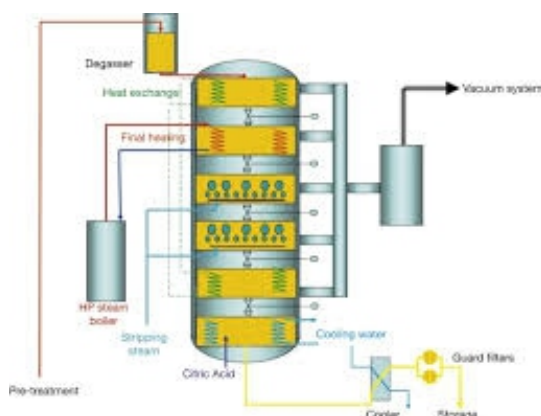
To remove the free fatty acid from the oil. The main deacidification method include:

- Distillation
- Alkali Refining

Bleaching

To remove the unwanted pigments from oil. To ensure the stability of oil and physical appearance.

The common bleaching method adopted in industry is Absorption bleaching method.



Deodorisation

- Elimination of unpleasant odour from the oil.
- Improving the smoke point of the oil.
- Increasing the shelf life/stability of oil.
- Improving the colour and overall quality of oil.

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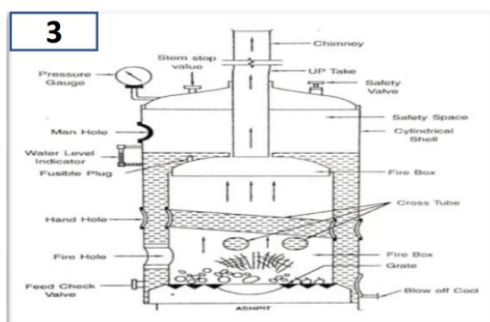
MACHINERIES AND EQUIPMENTS



Vibratory pre-cleaner machine



Groundnut decorticator machine



Cross tube boiler



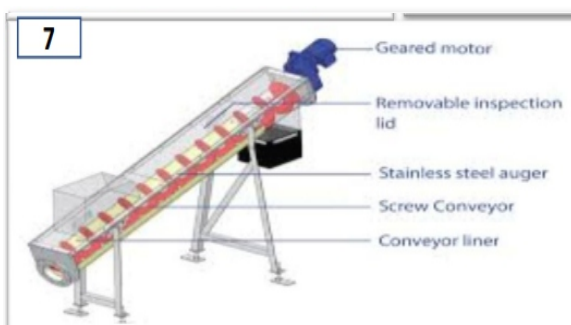
Oil expeller



Oil filter press



Bottle filling machine



Screw conveyor



Silos / tanks



LET'S WORK TOGETHER



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