

Approval By Govt. of India

GSTIN NO. 24CYXPS1245N1ZL



- TURNKEY PROJECTS
- PROJECTS ENGINEERING
- ENGINEERING & CONSULTANCY



- ❑ EDIBLE OILS
- ❑ OLEOCHEMICALS
- ❑ COSMETICS

We are specialized in sourcing, Recruiting and placements of highly qualified, experienced and skilled manpower for Edible Oils Industries. Poultry feed & Oleo chemicals. Specialty fats (Margarine and sorting) Soap Industries. Soya Chunks activities & Plastics Industries Flour Mills & Ethanol distilleries Associated.

www.kanishkaconsultancy.in
info@kanishkaconsultancy.in

A CRISIL RATED COMPANY

ABOUT US

Kanishka Consultancy was established in 2015. The practice operates out of its established offices in India. We do obtain a large portion of our referrals from offshore sources and we take pride in this and our confidence to of being the best in the business. Our Director understands and is particularly empathetic to the rigours, uncertainty, frustrations and difficulties associated with migration. Our company's aim is to simplify the migration process for our clients.

Apart from assisting individual migrants, Kanishka Consultancy is retained as advisor to a number of large clients. We are also regularly interviewed by the media for our opinion on issues of governmental immigration policy, when changes take place.

The fact that we already have 1,000 satisfied clients speaks wonders for our abilities and quality of work. You as the client can always be sure that you are receiving the latest migration information and advice from us. No matter what the issues is, be it business or general resettlement, etc, we have the depth of knowledge and research capabilities to provide you our expert opinion.11100



Kanishka Consultancy

Special for Edible Oil Field, Oleo Chem, 12 HSA & Cosmetics





Kanishka Consultancy

Special for Edible Oil Field, Oleo Chem, 12 HSA & Cosmetics



Poultryfeed



Soya Chunks



Flour Mills



Ethanol & Distillery



Plastics Industries

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SERVICES**

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SUBJECT / OBJECTIVE / EXPERIENCE

Subject: -

Process control for energy saving and quality products through chemical & Physical Refineries Fractionation & Refractionation. Harding Plant & Interesterification Esterification Dewaxing. And Seed crushing units Solvents Extractions process Consultancy.



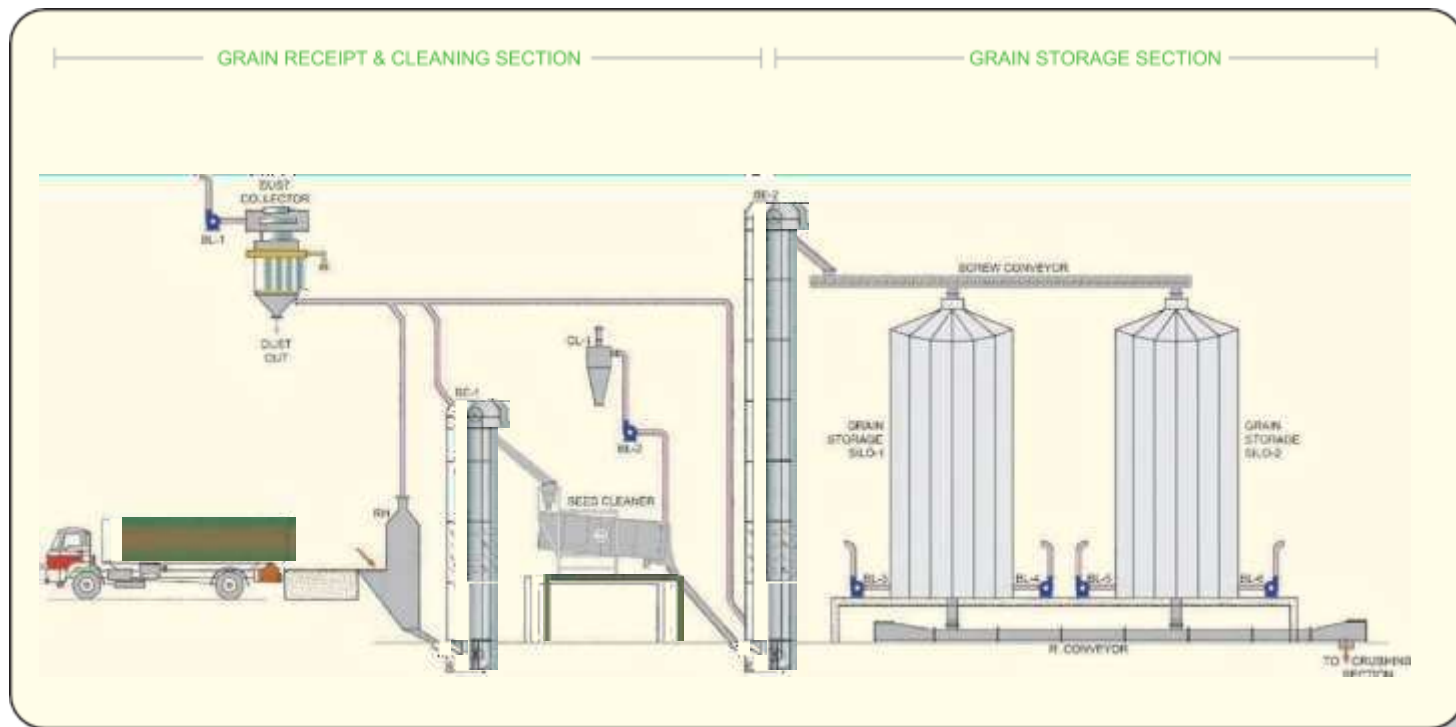
Objective:

Thoroughly observation and implementation of quality parameters to make organization of international repute, which will enable us to contribute our skills & expertise in the organization development and also to enhance our knowledge towards its growth by dedicated and high quality. work.

More Than 20 Year's Hand Experience:-

Specialization in Reducing Utility Consumptions. Overall Cost, Lowering of Net and Dead Looses .Specialized in Reducing. Loads of Effluent to Treatment in Edible Oils Industries. Dewaxing. And Seed crushing units Solvents Extractions process.

GRAIN RECEIPT, CLEANING & STORAGE SECTION



Welcome to turnkey project house with more than a decade experience.

Specially Design Expellers Installed For Processing Mustered Seed/cotton Seed/ Ground Nut Seed/gingelly Seed, And Other Various Oil Seeds.



OIL MILL SECTION



Advantages

Cooker Steam jacked horizontal/vertical multistage cooker mounted on the main expeller body.

Gear Box Heavy duty double reduction gear box assembly precision work-man ship and fitted with heavy duty taper roller bearing to with stand radial axial loads for crushing.

Main Shaft A unique hollow drive sleeve arrangement to allow the main worm shaft to remove at ease without affecting the gear box assembly. Also provision for water

cooling arrangement for better quality oil and cake. Alloy steel main shaft, worms and cage bars are made from special steel material with proper hardening to withstand operating pressure and long life.

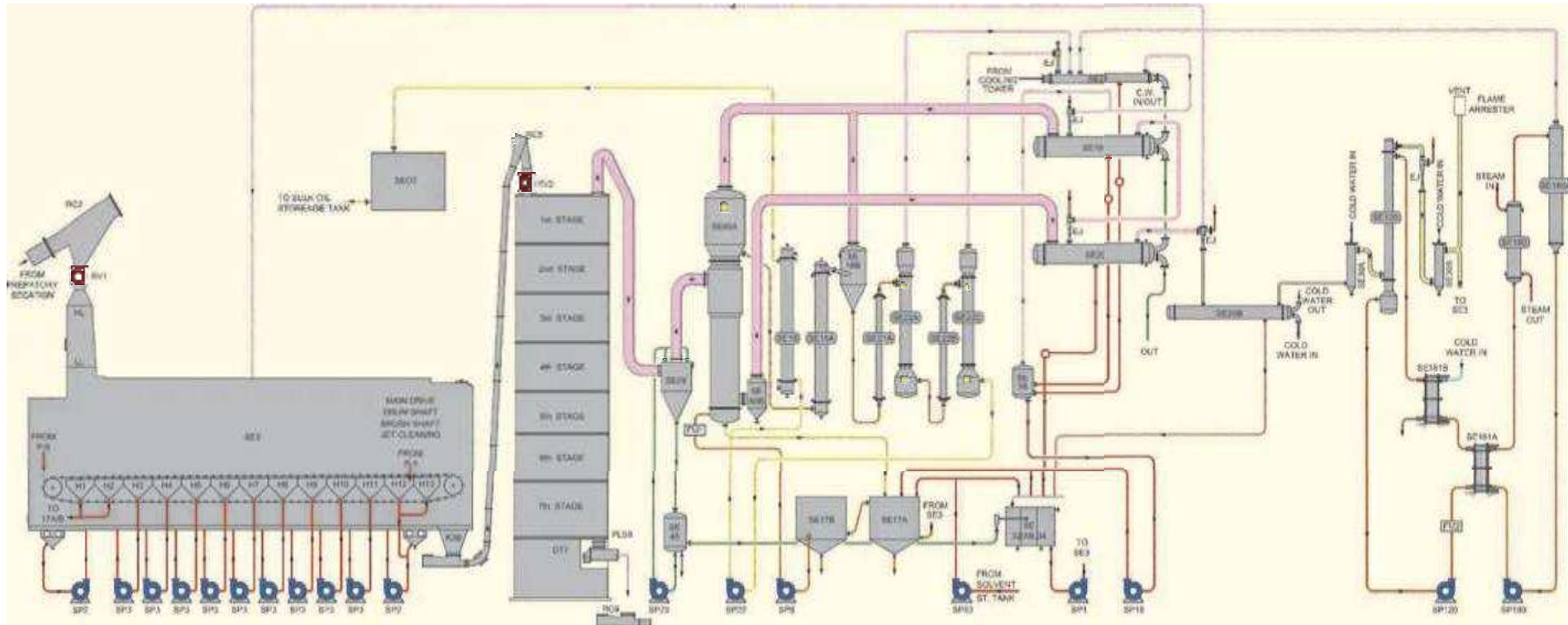
Electric Motor Expeller drive with heavy duty electric motor with special starter-slow start up with reversible switch panel board, low wear and tear, easy restart incase of power failure.

EXTRACTION

DRYING & TOASTING

DISTILLATION

RECUPERATION



SOLVENT
EXTRACTION PLANT

S.NO.	TAG NO	DESCRIPTION	S.NO.	TAG NO	DESCRIPTION	S.NO.	TAG NO	DESCRIPTION	S.NO.	TAG NO	DESCRIPTION
1	RC-2	C. FEED CONVEYOR	13	SE-18B	FLASHER	25	SE-208	SECONDARY CONDENSER	37	SPM-9	HOT WATER CIRCULATION PUMP
2	RV-1	R. ROTARY VALVE	14	SE-21A	SECONDARY VACUUM EVAPORATOR	26	SE-209	CONTACT COOLER	38	SP-1	HOPPER LOADING PUMP
3	RC-5	C. SOLVENT TIGHT CONVEYOR	15	SE-22A	FIRST STRIPPER	27	SE-210	VAPOUR ABSORBER	39	SP-63	FRESH SOLVENT PUMP
4	RV-2	R. ROTARY VALVE	16	SE-22B	THIRD EVAPORATOR	28	SE-209	CONTACT COOLER	40	SP-49	SOLVENT RECOVERY PUMP
5	DT-7	D. DRYER TOASTER	17	SE-22C	FINAL STRIPPER	29	SE-190	HEATER	41	SP-8	MISCELLA CIRCULATION PUMP
6	RLS-8	R. SPLUG SEAL CONVEYOR	18	SE-48	VACUUM BREAKER	30	SE-300A	FINAL ABSORBER	42	SP-22	FINAL OIL PUMP
7	SE-45	SE. HOT WATER BOILER	19	SE-17A	MISCELLANEOUS TANK	31	SE-191A	PHE. #2	43	SP-10	RECUPERATION PUMP
8	SE-29	SE. WET DUST CATCHER	20	SE-17B	MISCELLANEOUS TANK	32	SE-191B	PHE. #1	44	SP-10	RECUPERATION PUMP
9	SE-60A	SE. ECONOMIZER WITH FLASHER	21	SE-32AB	SOLVENT WATER SEPARATOR	33	SE-3	CONTINUOUS EXTRACTOR	45	SE	EXTRACTOR
10	SE-60B	SE. SOLVENT RECEIVER	22	SE-23	CONDENSER	34	ROB-0	FINAL CONVEYOR			
11	SE-18	SE. FINAL OIL COOLER	23	SE-19	CONDENSER	35	SP-2	RINSING HOPPER SPRAY PUMP			
12	SE-18A	SE. FIRST EVAPORATOR	24	SE-20	FIRST (DT) CONDENSER	36	SP-3	MISCELLA CIRCULATION PUMP			



SOLVENT EXTRACTION PLANT



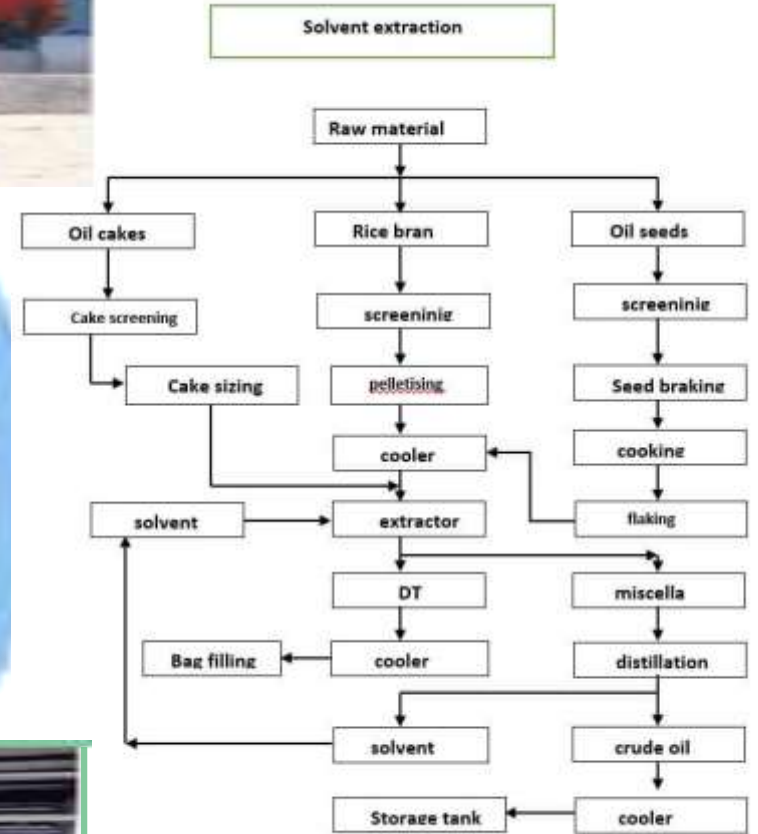
Solvent Extraction Process

Mechanical method is the combination of high pressure, high temperature & high moisture, which causes color fixation, oxidation, hydrolysis. Some seeds like rice bran & soya cannot be handled by the expellers. Continuous solvent extraction plant does not cause any alteration to the property of oil and recovers it with the characteristics as where present in the raw material and can handle all materials.

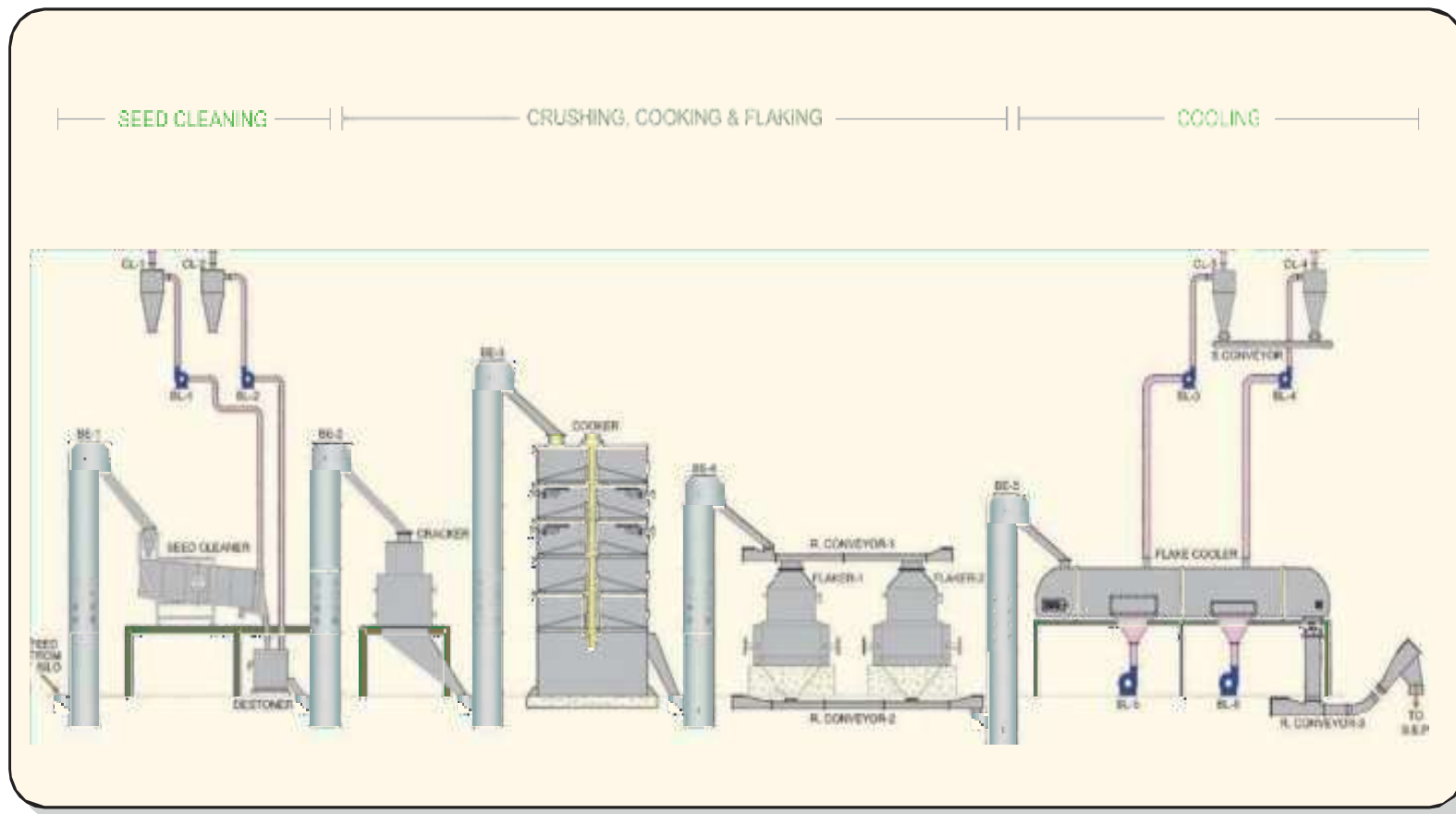
Capacity-50 TPD To 2000 TPD

Continuous Solvent Extraction Plant Consists of

- Seed preparatory section
- Solvent extraction section
- Distillation section
- Meal Desolventizing section
- Recuperation section
- Meal conditioning section



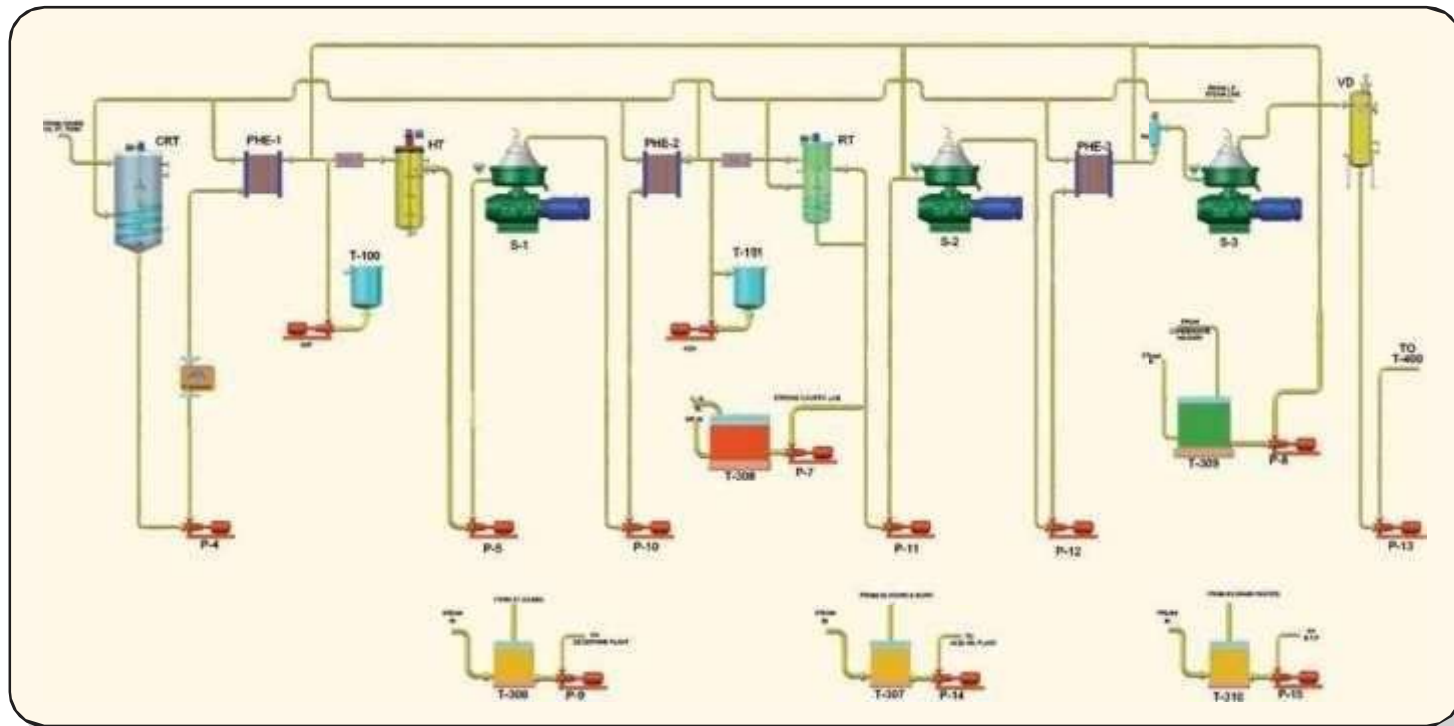
PREPARATORY SECTION



Preparation is the process of properly preparing seeds for extraction of oil either by solvent or mechanical method. While a particular seed may contain from 20% - 50% oil, the oil is tightly bound within the cell & mechanical action must be taken to either forcefully remove the oil or to make the oil accessible to

subsequent, Solvent extraction. The unit operations typically involved are scaling, cleaning, cracking, conditioning (or cooking) & flaking / pelleting. Depending on process & oilseed in question, process drying and hulling may be employed, as may expander and collect dryer/coolers.

CONTINUOUS DEGUMMING/ALKALI REFINING SECTION



Basic process of refining is same in both batch & continuous refinery. Only difference is, instead of a measured batch, crude oil is processed continuously with constant stream of flow. In between required utilities & chemicals are added continuously in measured quantity.

Basic stages of the process are as below

Neutralizing, Bleaching, Dewaxing & Deodorizing. Crude oil obtained from expellers / solvent extraction plant

contains foreign impurities such as mucilage, gums and unfiltered proteinuous matter from the seed. It also contains free fatty acid which making it unfit for edible purpose.

Refining process consists of following sections.

- 1) Neutralizing
- 2) Bleaching
- 3) Dewaxing
- 4) Deodorizing

The first stage of refining is to separate these gums & foreign impurities with chemicals and hot water

The following steps are used to dewax sunflower oil: Crude oil is refined and bleached to low phosphorus (<1ppm) and low moisture content (<0.1%). The oil is heated to 55°C to make sure the oil is fully liquid. The oil is cooled slowly to 7–8°C. Cooled oil is held in a specially insulated tank with a special slow-speed mechanical agitator. Preferably, the oil is held for 12–24h at this temperature. The oil is mixed with diatomaceous earth/filter aid through an in-line mixing system and filtered through a pressure leaf filter pre-coated with diatomaceous earth/filter aid. The filtered oil is collected, checked for cold test and filterable impurities, and then deodorized. The deodorized oil is checked again for cold test along with the other analyses listed earlier.

Dewaxing is the process of removing wax from base oil feedstock's before further processing into lubricants. Dewaxing is done in two ways: selective hydrocracking to crack the wax molecules, and crystallization through refrigeration and dilution

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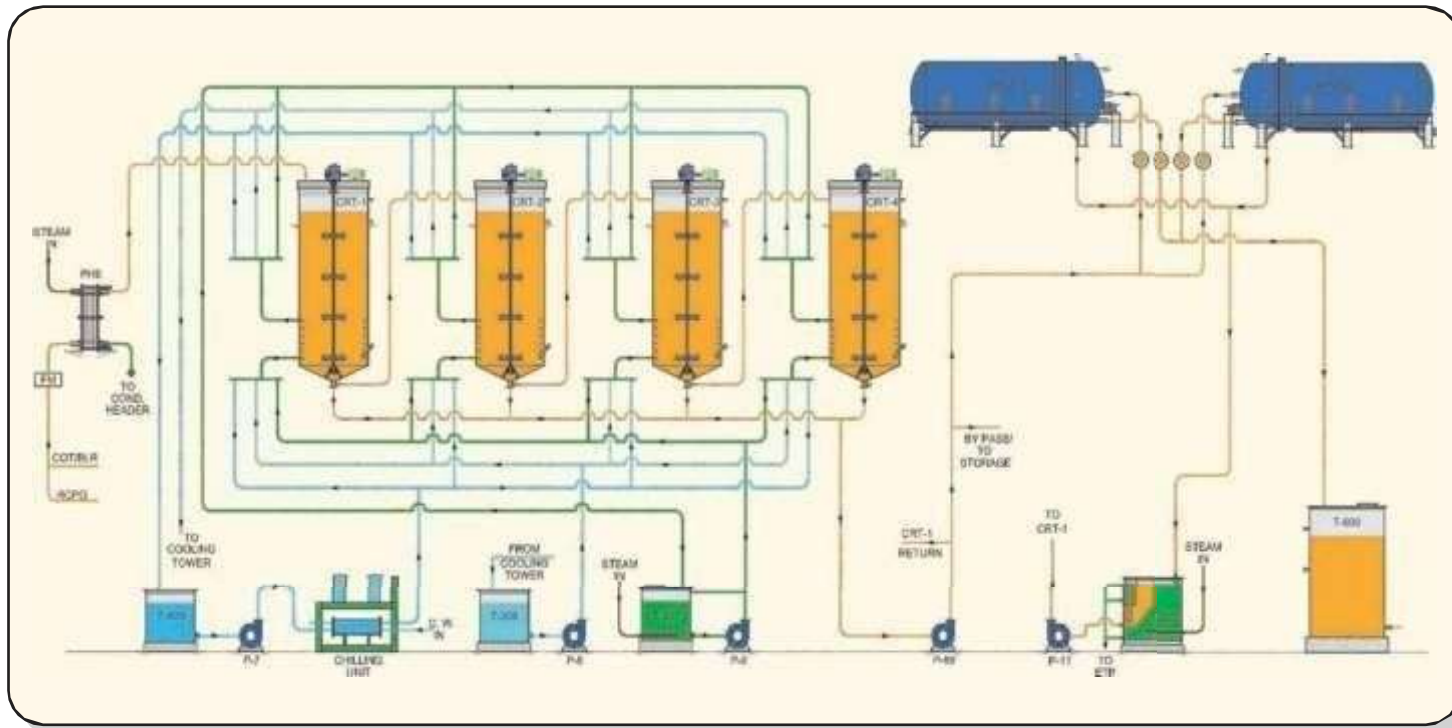
CONTINUOUS BLEACHING SECTION



treatment called as degumming/neutralizing process. Thereafter the degummed oil is further processed in bleaching section under vacuum and treated with activated bleaching earth and carbon for reduction of color pigments. Next it will be deodorized under high vacuum. The edible oil obtained from Refinery is of good quality meeting all requirements of international standards. De-gummed oil from NOT is pumped to the BLEACHER at

the same time part of oil is carried to the SLURRY TANK oil is cooled before passing to slurry mixer. Pre-calculated amount of bleaching earth is added in the slurry mixer, this slurry is sucked by means of vacuum to the bleacher. After proper holding & mixing this oil is sent to the alternative operating set of PRESSURE LEAF FILTER by alternative operating set of polishing filters. Then it is cooled by shell and tube cooler before it reaches to the BOT.

CONTINUOUS DE-WAXING / WINTERIZATION



De-waxing is the process to cool the oil at the temperature, at which wax converts in solid form (actually in slurry form) but oil remains in liquid form as it is. For this oil is cooled slowly and step by step, with cold water and then chilled water. The bleached oil from BOT is pumped continuously with stream of flow to the series of crystallizers, where oil is cooled slowly and steadily in counter current manner, so as to crystallized the wax for

the purpose of easy filtration after this oil is carried to the maturater. Which is again in series to the crystallizers, here oil will mature in terms of temperature it will be increased or decreased as per requirement to assure the crystal formation of wax. Finally this oil is filtered by the Horizontal PP / CI Filter presses / Horizontal pressure leaf filter.



CONTINUOUS DEODORIZING SECTION



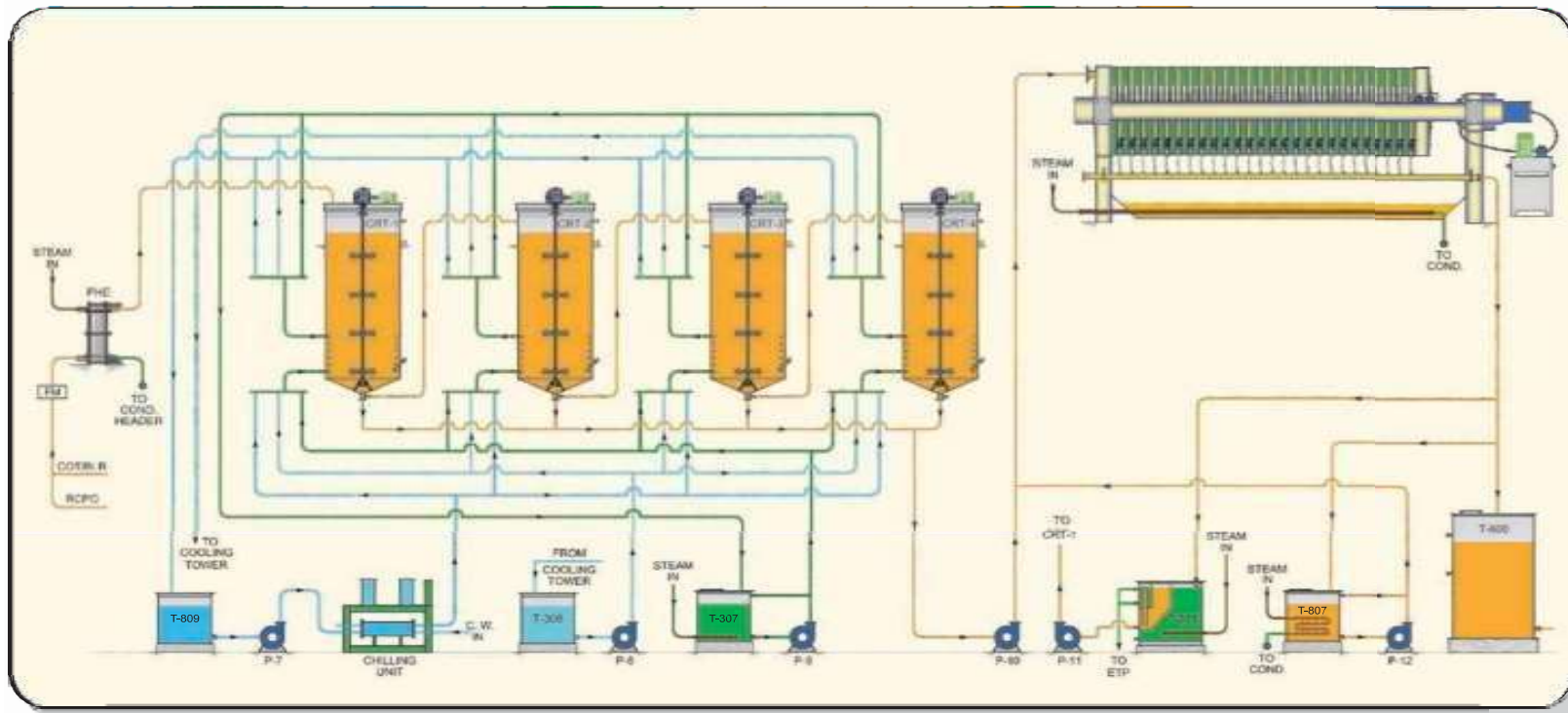
Deodorizing is nothing but the distillation process. In which fatty acid is distilled from oil. Under high temperature condition and in presence of high vacuum, with the help of sparging & agitation steam. Further this fatty acid in vapors form is condensed & recovered in liquid form by the vapors scrubbing system. De-waxed / bleached oil from intermediate storage tank is pumped by to primary heating plate heat exchanger. Which is used only in startup conditions. To heat the incoming cold de-waxed oil. Further it will be travel from oil to oil heat exchanger. Where de-waxed oil is getting heated by the outgoing hot refined oil.

Then this oil is going to the pre-heater via. Peripheral coils of the regenerative heat exchanger which is the bottom compartment of the multipurpose deodorizer. In regenerative heat exchanger de-waxed oil flows through the coils & refined oil flows through the open space of the exchanger. In counter current manner, continuous steam agitation at open steam side assures continuous and

maximum heat exchange. After recovering maximum heat from the refined oil. Oil is further heated up to the required temperature, suitable for the deodorizing in final heater. This heater is equipped with agitation and sparging steam, continuous flow of superheated steam through this assures effective primary vaporization of fatty acid.

Deodorizer is multi-compartment vertical vessel, where each and every tray is specially designed which ensures uniform steam distribution in each tray. Specially designed trays provide sufficient mass transfer surface for effective removal of volatile matters. Flow control system at the outlet of the deodorizer, ensures the maintenance of required level at the bottom tray. The steam used for stripping the steam meets the deodorized oil. Stripped off the volatile matter and rises through the vacuum. Stripping the volatile matter from the oil. The counter-current flow of steam and oil in specially designed trays lowers steam consumption, than the conventional deodorizers. The deodorized oil leaving regenerative heat

CONTINUOUS DRY FRACTIONATION



offers a wide range of batch & continuous dry fractionation plants.

Most of the natural oils & fats have only a limited applications in their original forms as a consequence of their specific chemical composition. In order to widen their uses the oils go through a variety of modifications, fractionation is one of them.

Fractionation is the fully reversible modification process.

It is basically a thermo chemical separation process in which a multi component mixture is physically separated into two or more fractions with distinct physical & chemical properties that can be based on a difference in solidification, solubility or different compounds.

dry fractionation plant is a custom design to allow you to achieve selective crystallization of different triglycerides in edible oil. This is a plant you can count on

PALM OIL

producing stable & filterable crystals giving you a product fit to your standards and quality requirements.

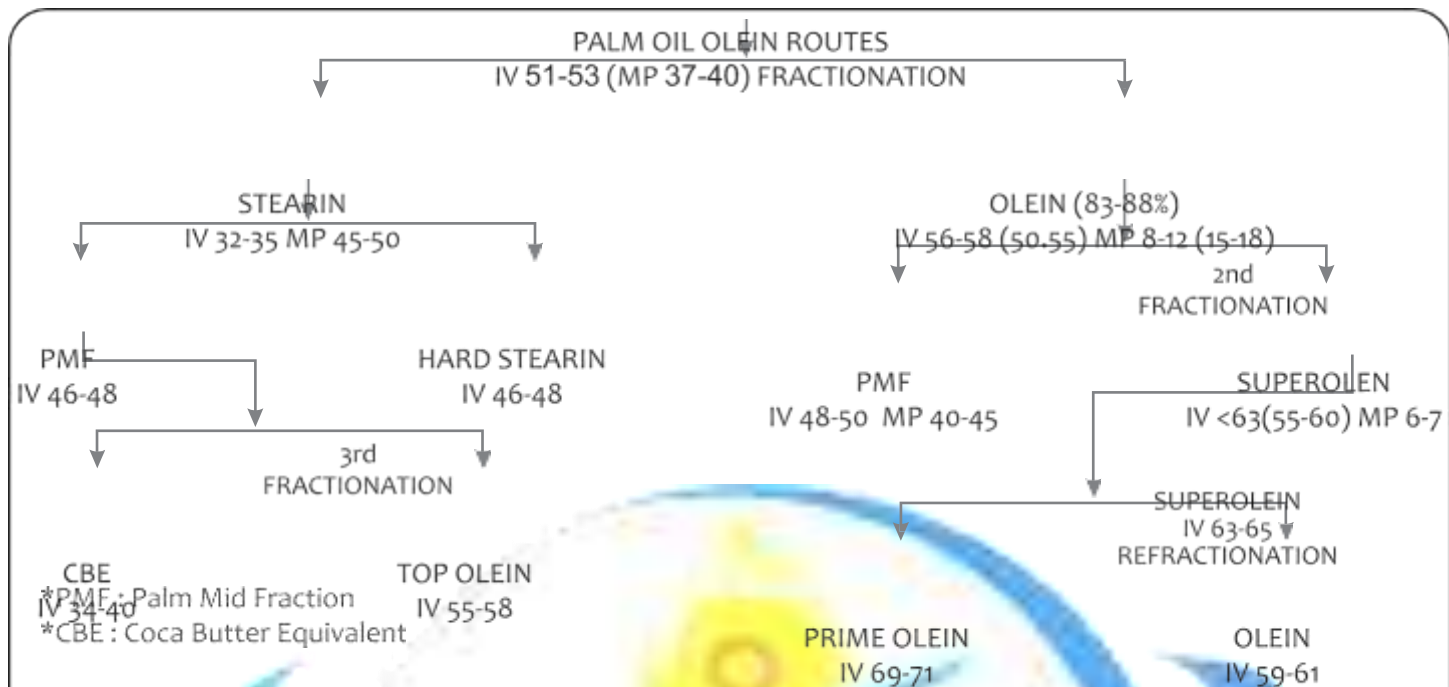
SPECTEC's Dry Fractionation System is designed to process crude, pre-treated or RBD palm oil. The process is divided in few steps as below.

The latest development in fractionation of palm oil have made it possible to produce super olein with IV of 70 & more these prime or top olein products are obtained by re-fractionation of super olein.

- 🔴 Feed oil heating
- 🔴 Crystal formation under controlled cooling
- 🔴 Crystal growth
- 🔴 Crystal maturation
- 🔴 Filtration

General uses of Stearin - frying fats, margarine & shortenings.

General uses of Olein - cooking, salad, bleaching



Comparison of Vacuum Drum Filter / Membrane Filter		
	DRUM	MEMBRENE
IV PALM OIL	582	522
IV OLEIN	587	527
IV STEARIN	40	34
SFC SLURRU	12%	12%
SFC CAKE	41%	55%
YIELD OLEIN	71%	78%

Effect of Squeeze VS Pressure		
FRACTIONATION DATA	MEMBERANE	FILLARATION
IV PALM OIL	6 BAR	20 BAR
IV RANNOIL	55.8	55.8
IV SUPEROLEIN	63.4	63.9
IV PMF	44.5	44.5
SFC SLURRY	32%	32%
SFC CAKE	56%	71%
YEILD OLEIN	44%	55%
OLEIN ENTERTENMENT	56%	45%

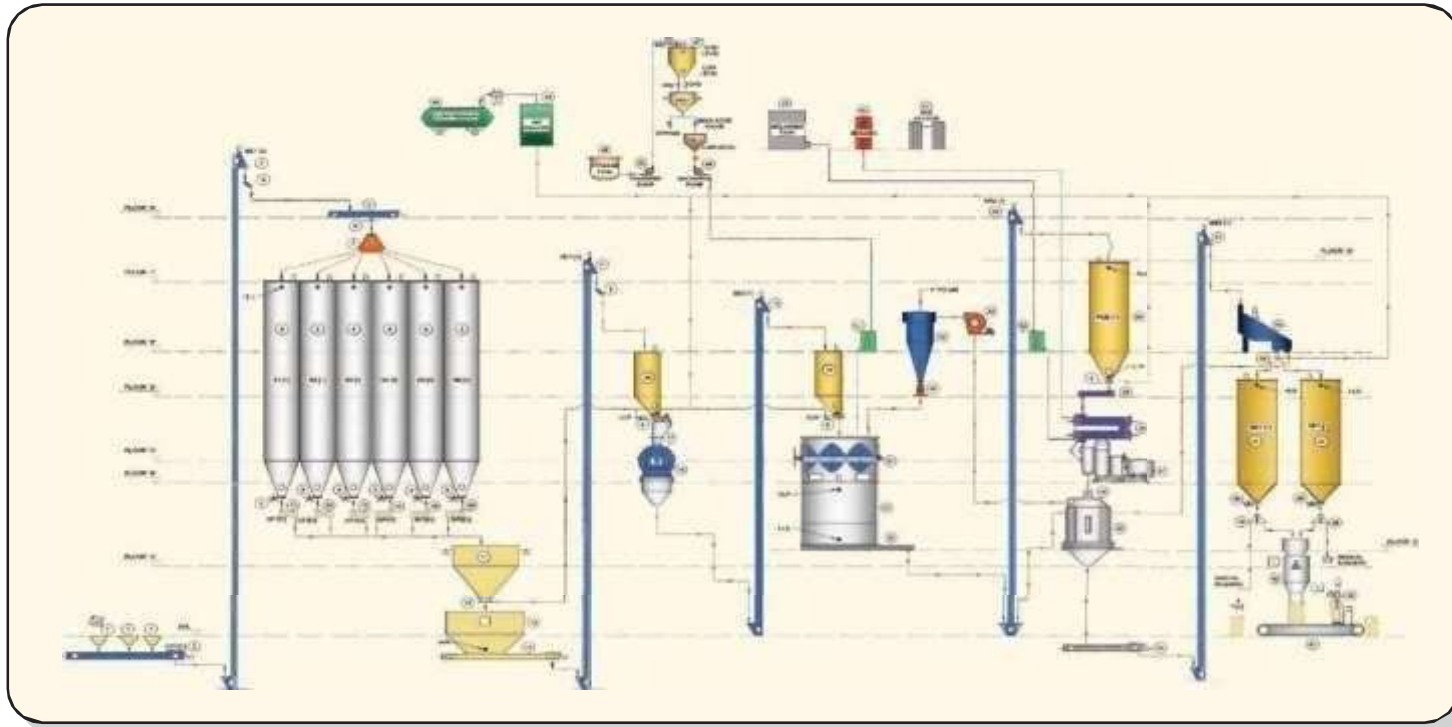
* SFC : Solid Fat Content

IV is a measurable degree of instauration. During crystallization more saturated & hence higher melting triglycerides concentrate in to solid phase, where as the olein fractions becomes enriched in more unsaturated

triglycerides. The change in IV also measurable for separation efficiency as it can be used to quantify the separation.

$$\text{Yield stearin (\%)} = \frac{\text{IV OLEIN} - \text{IV INITIAL}}{\text{IV OLEIN} - \text{IV STEARIN}} \times 100$$

CATTLE, POULTRY FEED PLANT



Fully automatic & dust free cattle & poultry feed plants are highly specialized in global market.

Raw Material Intake

All the solid ingredients packed in bags for feed production would be received in plant by road. Their materials will be store in store godown. According to requirement these material will be dumped manually in dumping hopper and conveyed to the pre-cleaner through the mechanical conveyor system.

Pre-cleaning

Pre-cleaning is a process of removing unwanted material from our ingredients. As we received the material, there will be possibility of having unwanted material such as iron pieces, jutes threads, oversize pieces which can jam our silos/system. So for cleaning we use a pre-cleaning machine. Then these pre-cleaned materials are transferred to silos through mechanical conveyors and elevators.

:- Design Data & Design basis of Feed Formula for pelletized feed for Milk Cattle :-

Sr. No.	Feed formulation (General)	% Basis of Dry matter		
		Ordinary	By-Pass	Limit
1	Crude protein	20	22	Minimum
2	Crude fibre	12	12	Maximum
3	Ether extract (fat)	2.5	3	Minimum
4	Acid insoluble ash (sand, silica)	4	4	Maximum
5	Common Salt	2	2	Maximum
6	Vitamin A	500 iu/kg	500 iu/kg	Minimum
7	Calcium	0.5	0.5	Minimum
8	Phosphorus	0.5	0.5	Minimum
	Other requirements for feed			
1	Grains	10	20	Minimum
2	Moisture	10	10	Maximum
3	Molasses	10	10	Maximum
4	Premix of salt, urea & mineral mixture with a carrier	10	10	Maximum

Batching

Batching is process of combining each and every material in a proportioning ratio called feed formula it is very important process of every feed plant. A better and accurate ration of material will give is a better quality and a fully nutrients feed. This batching process may be a computerized controlled or may have manual control room to cut the cost of the plant.

Grinding

Grinding is a process of breaking solid ingredients to a required size. Finer the material higher will be the surface area exposure to heat and moisture to accomplish the gelatinization in conditioning. A fine grinding material can transfer his maximum energy to the animal as compare to a course grinded material. It is a very energy consuming process.

Mixing

As the name implies mixing is a process of combining\blending of micro ingredients. A proper mixing can be defined with a unit called co-efficient of variation. Of variation higher will be the quality of mixing. Our well designed mixer machine has such a great quality. Beyond this is a mixer machine should have a provision to mix liquid to it as we need oil or molasses addition to the feed.

Conditioning

Conditioning is a checking process. We decide whether our material is ready to pellet or not. When the material will be ready only then it will be allowed to transfer to the



pellet mill. Conditioning is a process of adding heat & moisture in the mixed feed to achieve gelatinization and making the product more pliable for pelleting. Heating is done to roast the mixed feed which will increase its digestibility quality. And moisture is increase to easy pelleting of feed. A good conditioning should have a desired retention time.

Pelleting

Pelleting is a main step of any pelleting plant. It is a process of converting any powder to solid shape called pallet. In this process the powder material is extruded through a well designed die with the help of rollers to convert it in to pellets. The quality & production of pellet mill depends on so many parameters.

1. Feed formula
2. Die configuration

:- Typical feed formula : (Tentative figures and can change with seasons/costing etc.) :-

Sr. No.	Type - 1		By-Pass Feed	
	Ingredient	Percentage	Ingredient	Percentage
1	De-oiled Rice Bran (DORB)	49	De-oiled Rice Bran (DORB)	26.6
2	DOCSC	10	DOCSC	37
3	Maize/ Broken Rice	10.1	Grain (Maize)	9.5
4	Broken Rice / Maize	5	Molasses	13 (Max.)
5	Molasses	13 (Max.)	Mineral Mixture	0.5
6	Rice Polish	8.4	Calcite	1.5
7	Mineral Mixture	0.5	Common Salt	1.5
8	Calcite	1.5	Urea	1
9	Common Salt	1.5	Rice Polish	9.4
10	Urea	1		

Typical raw materials - Maize, Groundnut De-oiled Cake, De-oiled Rice Bran, Broken

Rice, Rice Polish, De-oiled Cotton Seed Cake, Molasses,

Mineral Mixture, Common Salt, Urea etc.

3. Quality of grinding
 4. Quality of conditioning
- No doubt every material can be converted into pellets whether it may be a wood.

Cooling is a process of removing heat. As we know during conditioning we add heat and moisture and also through pelleting process heat generates by extrusion process. But the pellet should have a standard moisture and heat to attain its life of storage and make it safe from fungus. So we have to remove extra heat and moisture from the pellet. All this is done with the help of a well designed counter flow cooler. Here we use atmosphere air to cool the pellet.

Crumbling

Crumbling is a process in which pellets after cooling is broken in to small pieces to make it suitable for small chicks or hens. When there is no need of crumbling, we by-pass the feed directly to the screen with the help of by-pass mechanism. A well when there is no need of crumbling, we by-pass the feed directly to the screen with the help of by-pass mechanism. A well designed Crumbler should have capability to break the pellets without making much finer.

Screening

Product coming out of Crumbler is or their in pellets form (if we use by-pass) or in crumbs form. This is required to

STANDARD SPECIFICATION FEED

-: Cattle Feed :-

Characteristics	Cattle (Type 1)	Cattle (Type 2)	Calf (Starter)	Calf (Grower)
Moisture Max%	11	11	10	10
Crude Protein Min%	22	20	23-26	22-25
Ether Extract Min%	3	2.5	4	4
Crude Fiber Max %	7	12	7	10
AIA Max%	3	4	2.5	3-5
Salt Max% (as NaCl)	2	2		
Calcium Min% (as Ca)	0.5	0.5		
Available Phosphorus	0.5	0.5		
Vitamin A (IU/kg)	5000	5000		



screen to remove fines and oversize particle. Double deck screeners are used to remove both fine and oversize particles. Fines are directed to pellet mill for re-pelletizing while oversize particles are directed to Crumbler for reprocessing. A well desired screener should have capability to remove fine and over size to desired percentages, and it should not be clog frequently.

Bagging

The end of process in every plant is bagging also called packing. After screening the finished products are filled in to bags. In small and medium plants, bagging can be carried out manually but for higher production it is better to go for electronic bagging machine.



:- Poultry Feed :-

Characteristics	Broiler Starter	Broiler Finisher Feed	Chick Feed	Growing Chicken Feed	Laying Chicken Feed	Breeder Laying Feed
Moisture Max%	11	11	11	11	11	11
Crude Protein Min%	23	20	20	16	18	18
Crude Fiber Max%	6	6	7	8	8	8
AIA Max%	3	3	4	4	4	4
Salt Max% (as NaCl)	0.6	0.6	0.6	0.6	0.6	0.6
Calcium Min% (as Ca)	1.2	1.2	1	1	3	3
Available Phosphorus Min%	0.5	0.5	0.5	0.5	0.5	0.5
Vitamin A (iu/kg)	6000	6000	6000	6000	6000	6000
ME Min% (Kcal/Kg)	2800	2900	2600	2600	2600	2600

BAKERY SHORTENING, MARGRAINE & LECITHIN PLANTS



We are a leading manufacturer & exporter of process equipments & Turnkey Projects for processing bakery shortening. The plant will be capable of producing up to 1,000 kgs/hour when cooling from an inlet temperature of 45 C TO 23/25 C suitable for semi-liquid filling into cans. The capacity is dependent upon product formulations and inlet temperature of the product to be processed.

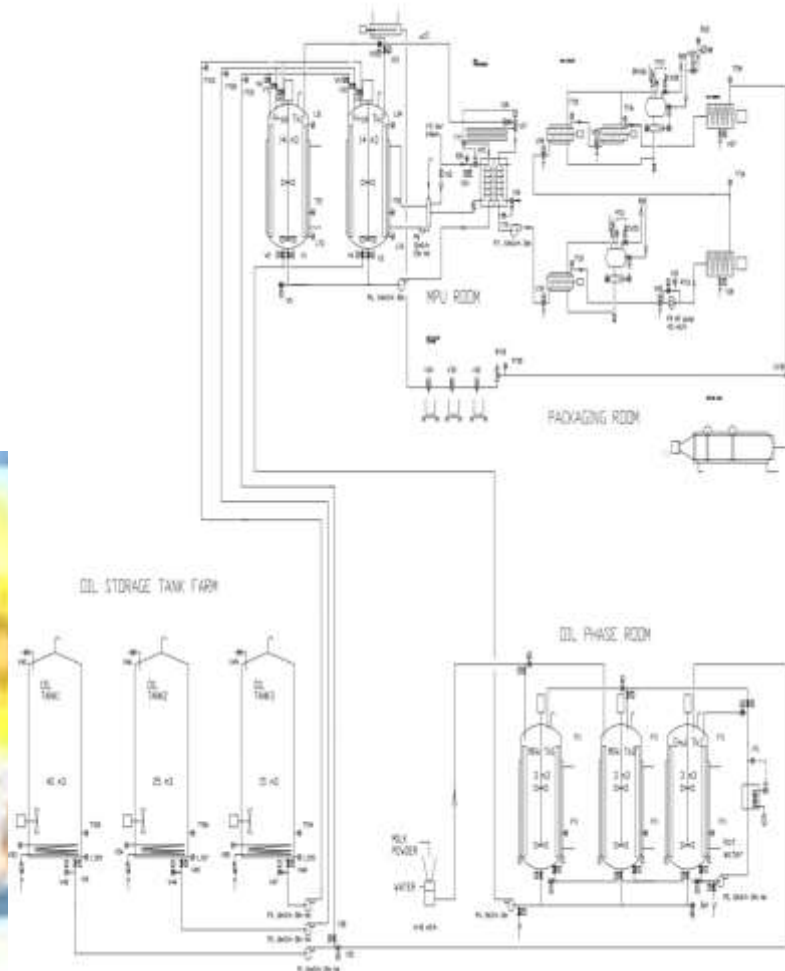
The Plant Consist Of The Following

1. Esessprocessor-Heat transfer cylinder assembly.
2. Crystal distribution cum stabilizer.
3. Triplex plunger reciprocating pump.
4. Nitrogen gas purging system.
5. Interconnecting product pipeline.
6. Control panel.

Esessprocessor

Two numbers of interconnected esessprocessor consisting of a single horizontal heat transfer cylinder assembly mounted on an open frame. The cylinder is jacketed and lagged for use with glycol solution. The removable heat transfer cylinder will be internally hard chrome plated. The esessprocessor shaft is concentrically mounted within the cylinder and has four diametrically opposed rows of floating type scraper blades and is driven by suitable motor hose proof to IP55 standard via belts and pulleys suitably guarded.

All the product contact parts are made of stainless steel AISI 304 materials. The scraping blades, seal parts and 'o' rings will be compatible with the product, the frame and



the external product non-contact parts are in carbon steel and finished painted with metallic paint.

Esessprocessor chilling jacket is suitably insulated for eliminating heat loss and clad with stainless steel sheets for maintaining utmost hygiene.

Crystal Distribution Cum Stabilizer

Horizontally mounted and sequentially connected to the two number of esessprocessors mentioned above. The cylinder has two rows of fixed pins at 180 with a concentric shaft carrying pins in a helical arrangement which intermesh with fixed pins while rotating, driven through a gear box and a suitable motor hose proof to IP55.

All product contact parts are made of stainless steel AISI 304 materials. Two numbers of heaters are provided for heating of the product in case of product solidification inside the product cylinder during power failure or production stoppage.

The cylinder is suitably insulated for eliminating heat loss and clad with stainless sheets for maintaining utmost hygiene.

Triplex Plunger Reciprocating Pump

Triplex model single acting reciprocating plunger pump is used for feeding the product to the system. The capacity



We is leading turnkey project supplier in distillation process. Fatty acids are widely distributed in nature as components of lipids, both of vegetable and animal origin like liquid (oil) or solid form (fat) and they have long been employed in a very wide range of industrial applications as free fatty acids.

Pretreatment

Before being subjected to splitting, crude commercial fats are sometimes purified by removing troublesome impurities, such as minerals, gums, soaps, and proteins.



Edible Oil Refinery

Manpower in Cosmetics Field



Global Cosmetics production process is divided in 5 critical stages. From acceptance of raw material to delivery we assure a smooth cosmetic manufacture.



SOAP STOCK SPLITTING / ACID OIL PLANT



We offers new generation, completely environment friendly Soap Stock Splitting/Acid Oil Plants.

This Latest designed Plants are completely closed & does not pass any acid fumes to the atmosphere. The final output will be acid oil with good color which is the direct raw materials for the soap plants.

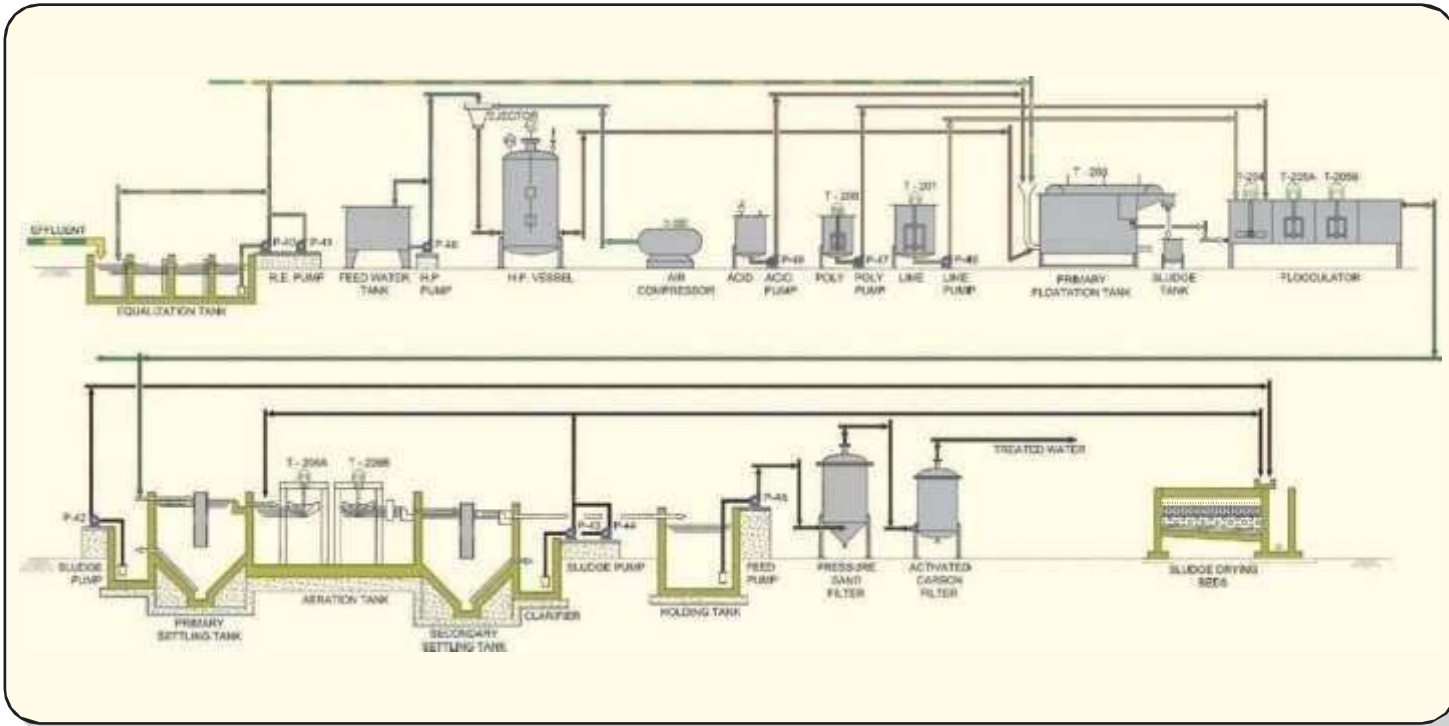
Process Description

Soap stock from process house is accumulated in a homogenization tank, which is equipped with the open steam heating arrangement. In this soap stock is heated with the open steam, so as to evaporate moisture as per as possible in term of minimizing acid consumption for splitting.

This soap stock is pumped through the horizontal screw pump to the acid Reactors for splitting, Reactors are PP FRP constructed fully closed vessel, equipped with copper Stem heating cum agitation coils, light & sight Glasses, inspection manhole etc. splitting takes place in semi-continuous manner. Reactor are used in cycle for splitting operation. After getting appropriate charge in selected reactor, the soap stock is getting boiled in term of drying with steam heating cum agitation coils. After removing maximum moisture pre-calculated amount of acid (H_2SO_4) will be added slowly splitting is done under continues observation so as to maintain appropriate acid value of final product also avoiding excess acid fumes.

After completion of splitting operation, settling process starts for 3-4 hour. After that water is getting drained to the fat trap tank and clear acid oil is pumped to the

EFFLUENT WATER TREATMENT PLANT



We offers a wide range of new generation effluent treatment plants which are having various industrial applications.

The proposed effluent scheme is based on dissolved air floatation technique followed by the conventional activated sludge process and pressure sand filtration and activated carbon filtration to achieve the final parameters.

- I. Equalization
- II. Acidification
- III. Floatation
- IV. Fat recovery
- V. Chemical conditioning
- VI. Flocculation
- VII. Removal of chemical sludge
- VIII. Biological oxidation by activated sludge process
- IX. Bio-clarification/sludge recycle
- X. Up flow pressure sand filtration
- XI. Activated carbon filtration
- XII. Refuse options

Parameters after final treatment

Ph	7-8
Cod	<200 PPM
Bod	<30 PPM
Tss	<50 PPM
Fog	<5 PPM
Temp.	AMBIENT
Color	SPARKLING WHITE
Bio assays	90% survival in 96 hours on fish

The segregated effluent streams from the process plant will join the equalization tank, with adequate retention time. The effluents will be received in the equalization tank to check and stabilize the variations in the PH the other impurities. By this step differences in the temp. Rate of flow of various streams balances out and acquire homogeneity so as to facilitate optimum treatment conditions. The homogeneous effluent from the equalization tank will be pumped at the required rate into the primary floatation tank



EFFLUENT WATER TREATMENT PLANT

and predetermined quantity of acid will be dosed to split the free floating as well as the emulsified oils and fats and other colloidal impurities. At this PH (3-4) most of the soluble and insoluble fats and oils are separated and could be separated quickly by injecting the dispersion water made by the dissolved air floatation technique. Air is dissolved in water under pressure and is injected in the floatation tank, wherein because of the difference in pressure, air comes out in water as of millions of minute air bubbles. This minute air bubbles get attached to the suspended and colloidal impurities and float them to the surface of the floatation tank. These floated oils and greases could be removed with the help of mechanical scraper provided and could be used for making acid oil. Or crude soap hence a valuable by-product.

After the removal of fats and oils acidified effluent will be coagulated and neutralized with help of common coagulants like hydrated lime solution in specially designed flash mixer cum flocculator. In order to affect complete coagulation it is advisable to make use of polyelectrolyte this will combine the flocks as well as the rate of separation of chemical flocks to achieve the max. Clarity. The purpose of chemical coagulation is to destabilize the floating, emulsified and suspended contaminant particles. With the force of repulsion suppressed, mixing gently results in particles contact and forces of attraction causes the particles to stick to each other, producing progressive agglomeration coagulant, used to enhance the process of flocculation.

The coagulated effluents from the flocculator will be piped down in the primary settling tank. The chemical sludge settles at the bottom of the tank by gravity. The chemical sludge produced is removed periodically and is de-watered with the help of sludge drying beds and treated water is taken further treatment. Also provision shall be made to recycle the effluent into the equalization tank and reprocessed till it

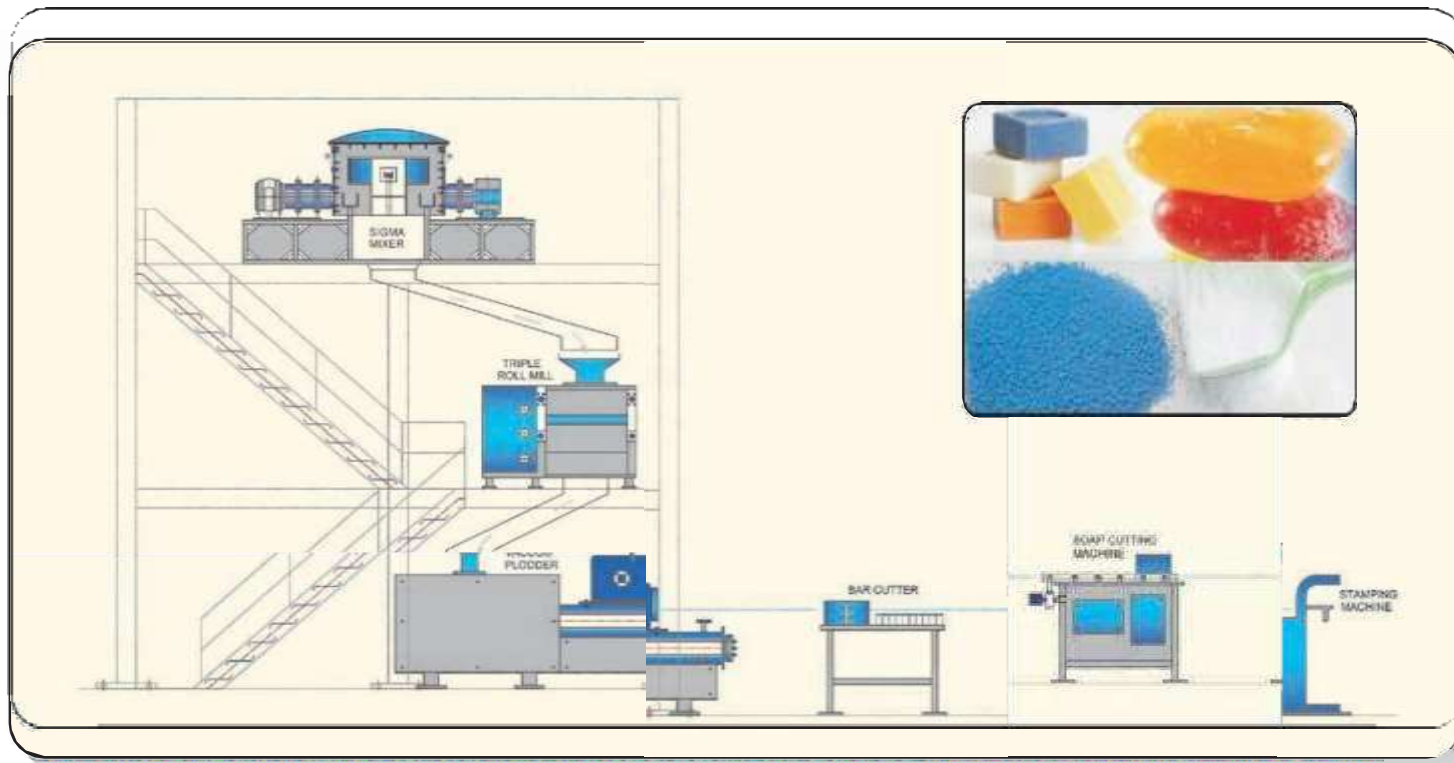
produces the required characteristics before disposal. About 70-80% reduction in BOD, COD, suspended solids and fats and oils are envisaged by these steps. Since primary treatment alone is not sufficient to meet the required standards a secondary system is incorporated. Since the biological load is high single stage activated sludge process is incorporated. The primary treated water is treated further by the activated sludge process to bring down the parameters within the prescribed limits.

The primary treated effluent is aerated in the aeration tank by surface aerators by providing enough micro organisms and nutrients. The general biological reaction that takes place is a predator-prey reaction. The wastewater supplies the organic matter (biological food) and aeration furnishes the dissolved oxygen. The primary reaction is the metabolism of the organic matter and uptake of the dissolved oxygen by bacteria releasing the CO₂ and producing substantial increase in the bacterial population. The secondary reaction results from the oxygen used by the protozoa consuming bacteria releasing carbon dioxide and protozoa cells. About 85-90% reduction is envisaged by this process.

The effluents after the aeration enter in the secondary settling tank and the biological sludge is allowed to settle down. The sludge is drawn off and re-circulated back to the aeration tank to maintain the biological population in the aeration tank whereas excess sludge is wasted through the sludge drying beds. Treated water flows in to a holding tank and is filtered in an up flow pressure sand filter to trap further suspended solids and other impurities and the filtered water is passed through an activated carbon filter to absorb the traces of the organic impurities to prevent the smell and colors. The final treated water shall be sparkling white in colour with no smell and could be taken back for indirect cooling and general washing, agricultural and gardening process.



LAUNDRY, TOILET SOAP PLANT & DETERGENT POWDER PLANT



Laundry Soap Plants

We offers a wide range of Laundry soap with the latest technologies & machineries of quality machineries, skilled & e management ensures best product qualit & efficiency from the day one of installati

Capacities-100 kg/hr to 2000 kg/hr
General process of Laundry Soap Making is derived in following steps,

- Saponification
- Drying
- Bar Cutting
- Cake Cutting
- Stamping

Basically the process classified into two section. In the first section reaction of variety of oils & fats takes place with alkali. Crude soap with moisture obtained from this section is now taken in second section which consists of finishing of soap by mixing in mixer, milling on triple roller mill, extruding under pressure to form bars and finally stamping of soap to desired shape and size.

Toilet Soap Plants

We quality machineries, skilled & experience project management ensure best product quality, best productivity & efficiency from the day one of installation.
Capacities – 100 kg/hr to 2000 kg/hr

General process of Toilet Soap Making is derived in following steps,

- Saponification
- Drying
- Mixing
- Plodding
- Roller Mill
- Vacuum Plodder
- Bar Cutting
- Cake Cutting
- Stamping

Basically the process classified into two section. In the first section reaction of oils & fats takes place with alkali. Crude soap with moisture obtained from this section is now taken in second section which consists of finishing of soap by mixing in mixer, milling on triple roller mill, extruding under pressure to form bars and finally stamping of soap to desired shape and size.

Process Description

General raw materials for soaps are oils & fatty acid. Oils are mixture of triglycerides and when this reacts with alkali the residua; will be sodium salts of fatty acid and glycerin. Generally blend of hard & soft oils are used for soap making. There are various Saponification process like

1. Cold Process- where reaction takes place in room temperature, but this process is not suitable for all the oils

LAUNDRY, TOILET SOAP PLANT & DETERGENT POWDER PLANT



2. Semi boiled process- in this glycerin is retained in the soap stock, which simplifies the process.
3. Full Boiled Saponification Process

In Full Boiled Saponification process brine is added for graining out the soap mixture. This mixture is then settled for the formation of different layers. Top layer will be soap and bottom is spent lye & glycerin. Bottom layer is drained out and soap is further boiled and washed with hot water, Alkali is getting added for syphoning unsap fatty matter.

Most favorite raw material for soap making is fatty acid. Which further simplifies the process because of less heat alkali time & power consumption.

Drying Section

Soap stock obtained from saponification process contain very high moisture, which has to be removed for further processing. For small capacity plants drying happens in open yard or oven after chipping the soap into pieces.

Sigma Mixer

SPECTEC's specially designed Sigma Mixer gives fast & homogeneous mixing and cutting of soap noodles. Sigma mixer is used for mixing soap noodles or chips with perfume, color and other additives. Double shaft sigma mixer has specially designed Z shaped blades which are rotating at different speed & direction, which ensure maximum efficiency and homogenization. Mixed materials after mixing are removed from bottom discharge mechanism or by tilting the mixer. The is mounted on heavy duty bearing. The mixing machine is lined with thick sheet of stainless steel. Supporting structure is made from mild steel angles, channel and flats. The mixture is driven by gearbox.

Soap Plodder / Extruder

Mixed soap from sigma mixer enters to the soap plodder/Extruder through the feed hopper. Plodder is nothing but a mechanical Binder, which mechanism is designed in such a way that it binds a mixed soap by pressing action.



Roller Mill

Roller mill is one of the important machine in the soap making process which makes the soap more homogenous, free from grainy appearance and transparent.

It has three horizontal rolls so commonly called as three roller mill. All rolls are rotating with different speed & efficiency. Adjustable roller arrangement allows the gap adjustment between the roll for required film thickness of the soap. Mixed soap is fed to the slower pair of the roll and carrier to the next pair, Thus milling happens twice in single machine.

Adjustable scraper continuously removes the film sticking to the roll. Collecting chute is provided at the bottom for collecting spilled materials, which is then recalculated.

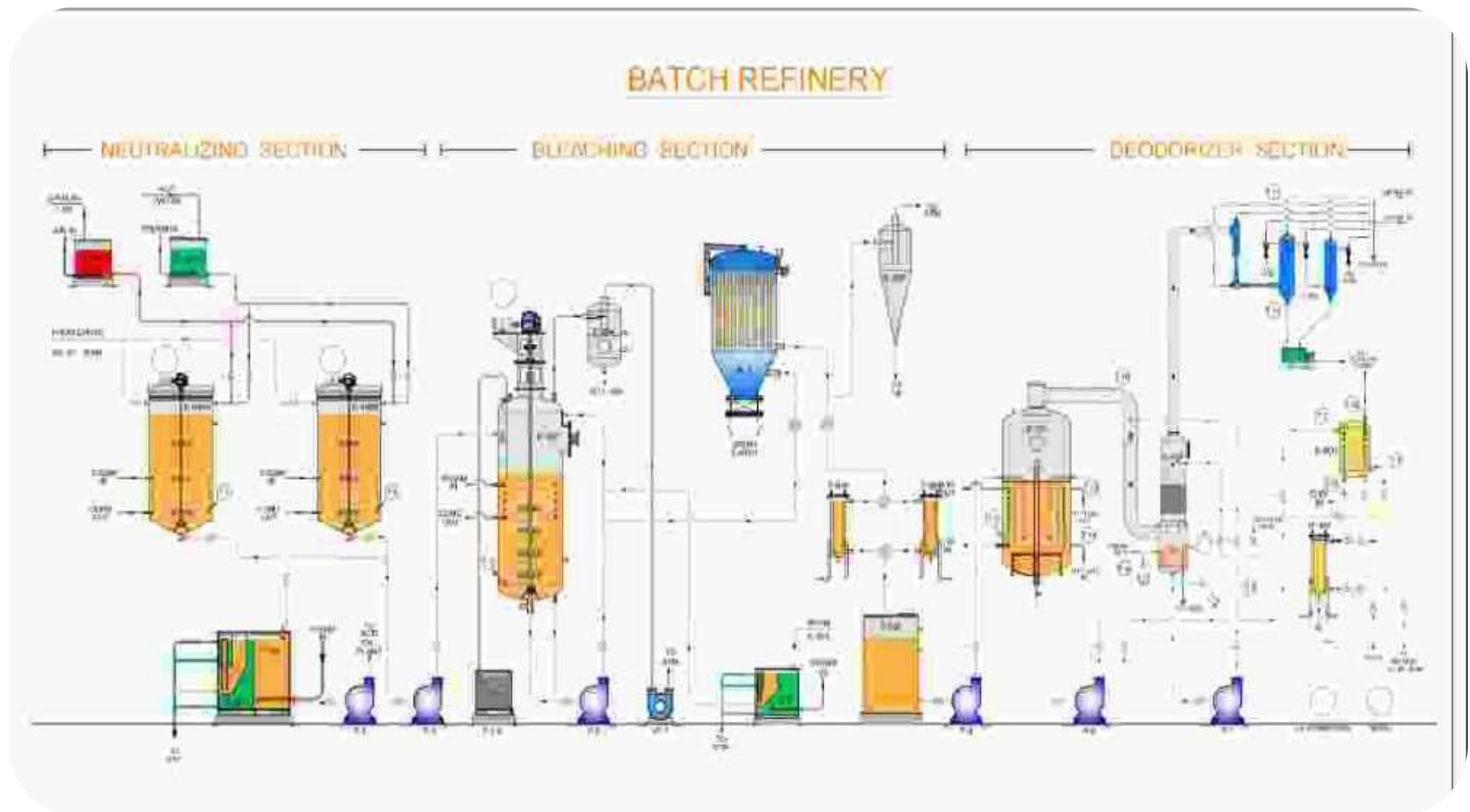
Rolls are specially hardened and chrome plated so as to remove the generated because of rubbing action.

Duplex Plodder

Duplex plodder is part of finishing line which extrudes the soap suitable for stamping. The extruder screw of top noodle plodder takes the milled soap ribbons from hopper and process the soap as it tries to pass through noodle plate. There is rotating knife which cuts the noodle as they come out of noodle plate.

The noodles fall in the vacuum chamber. The screw of the bottom screw binds the soap noodles under vacuum as the soap mass comes out under pressure from the mouth of the cone through the die.

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Kalyan Residency, Plot No. 85, SR No
282/1, Meghpar (Borichi), Near Nayara
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India - 370110



+919830540786
+91 9904434974



Email I'd- info@kanishkaconsultancy.in

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