

Corporate Profile



- Dairy Projects
- Food Processing Projects
- Fruit & Vegetable Projects
- Environmental Projects

SSP PVT LIMITED

ISO 9001:2008, CERTIFIED & ASME 'U' STAMP HOLDER

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**Instant Coffee Plant at
Odessa, Ukraine**



Milk Powder Plant





From the Desk of the Chairman



R.P. Banerjee
Chairman
SSP PVT LIMITED

Dear Customer,

SSP PVT LIMITED welcomes you to the world of processing Industry.

Whether you are venturing into Food, Fruit, Dairy Processing industry or even if you are a budding entrepreneur thinking of starting your own processing unit, or if you have a need for expansion of your existing industry, We are there to help you, give you the best industrial solution as per your requirement to enable you to take the challenge of the 21st century market. For the last 30+ years, we are providing need based, customized, highly energy efficient & cost effective turnkey projects to meet our customers industrial need.

"SSP", pledges to provide a green, eco friendly industrial environment & with that vision & objective, SSP has developed Zero Liquid Discharge Effluent Treatment Solution for industrial effluents. Today "SSP" has developed technologies for treatment of effluents of Distillery, Textiles, Pharmaceuticals, Paper, Tannery & Chemical industries which helps in presentation of environment.

SSP's core competency lies in Evaporation & Drying technologies, based on which, SSP manufactures all its projects & provides process solutions. So far SSP has supplied more than 350 projects across the globe.

SSP, is equipped with its own R & D Centre & four manufacturing units with highly skilled, educated & experienced professionals, to provide you the best project/ plant of international quality standards.

SSP, is always striving to develop new technologies & provide you with the most cost effective process solutions.

"SSP" has now market in 43 countries & receives 50% repeat orders, which signifies the motto of "SSP" "Customer First," approach. "SSP" will continue its endeavor to be always committed to its customers, We always value Customers feedback, as we feel customer feedback and suggestions helps us to further improve our products and services.

"SSP" is looking for equipment manufactures and fabricators in different countries for collaboration and technology transfer, which will enable us to reach customers effectively & to serve them more efficiently.

Our vision is to provide highly energy efficient, cost effective & quality industrial projects to industries across the globe through development of latest technologies by innovative R&D activities.

To know in details about our organization, our projects and technology, I request you to please browse through the pages of our corporate profile.

R.P. Banerjee
Chairman



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About Us

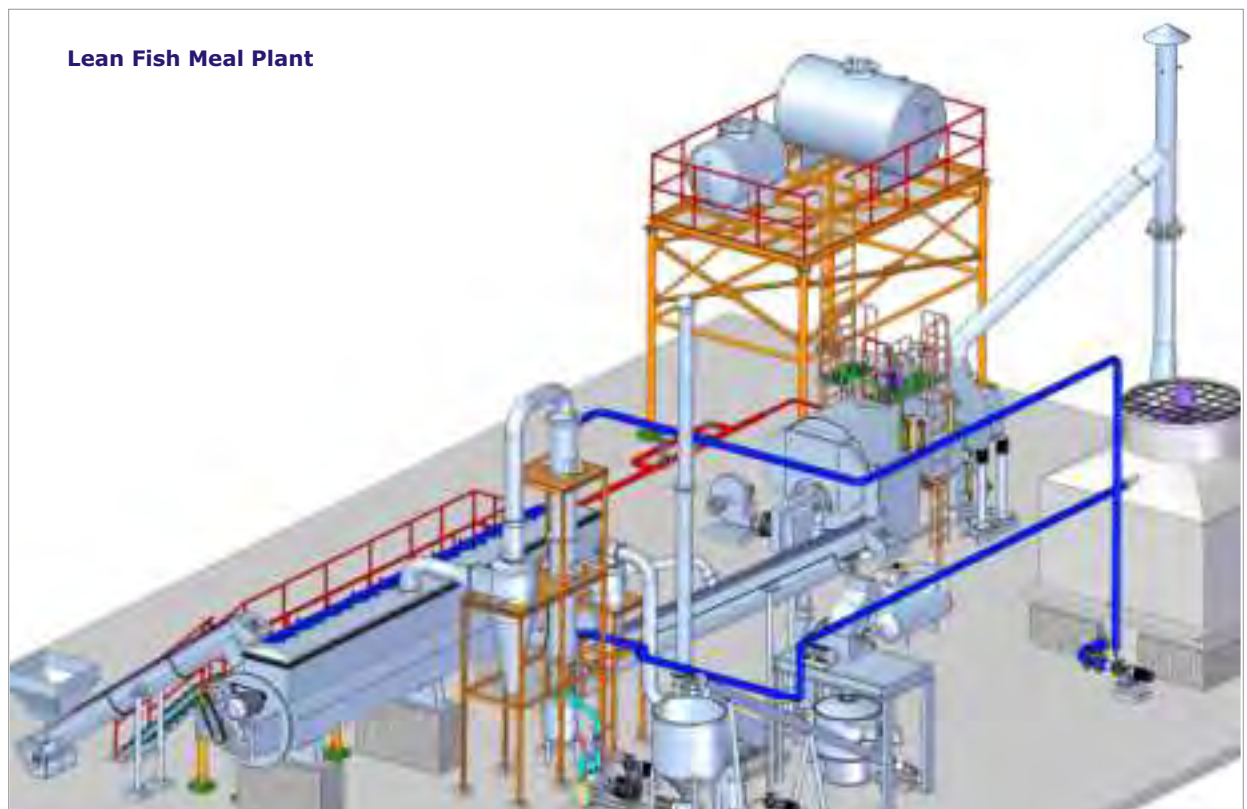
- The company was founded in 1977.
- The company provides customized turnkey projects & solutions to the industries, pertaining to food processing sector, dairy processing sector, fruit & vegetable processing sector, chemical industries and effluent treatment plant for various industries.
- It has client base in 43 countries.
- 'SSP' is an ISO 9001:2008 certified company & ASME 'U' stamp holder.
- Infrastructure wise "SSP" has **FOUR** manufacturing units with latest generation fabrication machines.
- 'SSP' has technically sound, highly skilled & experienced work force, numbering to **450+**.
- Supplied more than **350** projects all over the globe.
- Supplied more than **600** Evaporators & **400** Dryers round the globe.
- Proven Technology.
- Highly Energy Efficient Plants.
- Receive 50 - 60% repeat orders every year.
- Follow International Standards of Operation & Production.





Milestones

2011	<ul style="list-style-type: none"> Obtained ASME 'U' stamp certification.
2010	<ul style="list-style-type: none"> Developed continuous Freeze Dryer. Developed continuous Vacuum Band Dryer. Upgradation to ISO 9001:2008
2009	<ul style="list-style-type: none"> R&D Centre shifted to unit-1. Unit-1 shifted to Chandpur. New Corporate office constructed. G.D. Machines merged with SSP.
2007	<ul style="list-style-type: none"> 4th production unit with latest generation manufacturing equipments was established in Sitarganj, India.
2004	<ul style="list-style-type: none"> 3rd production unit was established in Noida, India in an export processing zone.
1999 2000-03	<ul style="list-style-type: none"> Award for 'Highest Export Performance' among the SSI exports in food processing by the Engineering Export Promotion Council - "EEPC".
2002	<ul style="list-style-type: none"> ISO 9001-2000 Certification obtained.
1994	<ul style="list-style-type: none"> 2nd production unit was established in Nagpur, India.
1987	<ul style="list-style-type: none"> R&D Centre Established & approved by DSIR (Ministry of Science & Technology, Govt. of India). Starts design and supply of new Evaporators & Dryers.
1982	<ul style="list-style-type: none"> 1st production unit established in Faridabad, India. Starts expansion of existing evaporators & Dryers.
1977/78	<ul style="list-style-type: none"> Establishment of SSP on 29th August 1977.





Achievements



Business Sphere Award for Export Excellence



Award for
'Outstanding Export Performance'
by EEPC



Award for
'Excellence in Technology & Innovation'
by ITPO



Trophy for **'Highest Export'** by EEPC



Awarding the Contract for Licorice Extraction Plant by MD - BRK Leasing of Kazakhstan Development Bank



International Drying Symposium



Our Chairman, Shri R. P. Banerjee, received the **"Lifetime Achievement Award"** for his contribution to the industry from All India Achievers Podium, in New Delhi, on 25-12-2009.



Our Managing Director, Mr. Tapas Chatterjee, received **'Udyog Patra Award'** in recognition of endeavour as Self-made Industrialist from Institute of Trade & Industrial Development, New Delhi on 16-04-2010.



Mr. Tanmay Chatterjee, receiving **"Subhakaran Jatia Memorial Award"** from Shri. Subodh Kant Sahai, Hon'ble Minister of Food Processing, Govt. of India, on behalf of Mr. Tapas Chatterjee, our Managing Director. The award was conferred to Mr. Tapas Chatterjee by All India Food Processors' Association (AIFPA)



Shri Shyamal Acharya, Dy Managing Director & Group Executive (Mid Corporate Group), State Bank of India, felicitating Shri Tapas Chatterjee, Managing Director of M/s SSP Pvt Limited, for 33 years of valuable association with the Bank Shri V.G. Kannan, Chief General Manager, MCG,, State Bank of India, looking on



Quality Assurance

- SSP has been certified as an ISO 9001:2008 quality management company. SSP has a dedicated quality control department that takes care of the standards for all our ongoing processes.
- SSP is committed to the most stringent norms of quality. All manufacturing facilities are well equipped with latest generation production machines. Raw material are procured directly from the manufacturers ensuring quality. For design and fabrication SSP follows international standards like ASME section VIII Division I for pressure vessels, American 3A for food processing machineries. Also project can be manufactured in accordance with GMP and CE certification can be obtained on a case to case basis.
- Our manufacturing processes and plants have also been approved by engineering consultancy groups like UDHE, LURGI, TCS, EIL, JACOBS, LLOYDS, SGS, ITS etc.
- We integrate the finest and most experienced human resources, information technology and process control to deliver the best quality as per the deadlines.



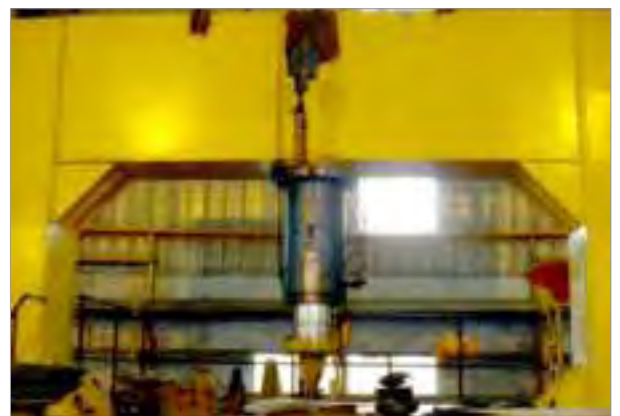
CNC Lathe Machine



CNC Waterjet Cutting Machine



CNC Rolling Machine



Dishend Forming and Flanging Machine



R&D Facility

- For SSP, the process of establishing a plant begins at SSP's Research & Development Centre. We call it our Central Nervous System.
- The company dedicates its best in research, production and quality control, in order to keep pace with the fast changing technology in Food Processing / Chemical Industry. We are in continuous process to incorporate latest technology by developing models of energy efficient and cost effective plants.
- Recognized by the Ministry of Science and Technology of Govt. of India, SSP's R&D centre works towards developing new technologies, qualitative improvements & achieving import substitution. It is complete with a design department, laboratory, pilot plants, technical library, data bank and documentation centre.
- Such an elaborate R&D setup is extremely uncommon in the industry, which highlights SSP's commitment to provide innovative technologies. As a result SSP has developed many innovative processes.
- Latest R&D endeavour includes:-
 - Evaporator without condenser
 - Vacuum band drying
 - Freeze drying
 - Rotary cone aroma recovery technique for coffee
 - Agglomeration plant for coffee
 - 3 stage drying system
 - Soy Milk Processing Plants
 - High Yield Pressure Extraction System for spent coffee
 - ATFE (Agitated Thin Film Evaporator) for high temp solvent recovery





Manufacturing Facilities





Unit Locations



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R & D CENTRE

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UNIT-I

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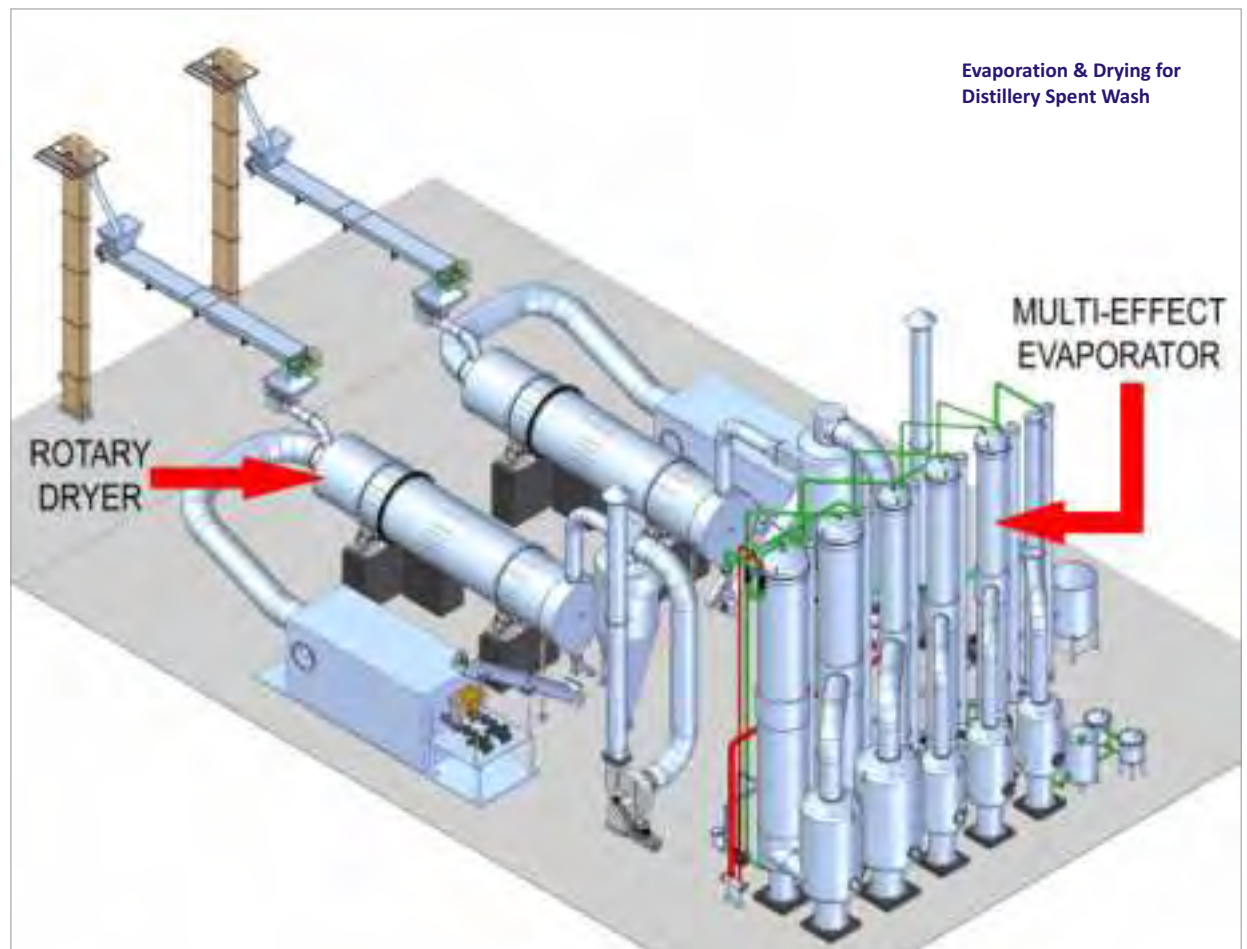
Our Core Competency

INDUSTRIAL EVAPORATORS

- Falling Film
- Rising Film
- Agitated Thin Film Evaporator (ATFE)
- Forced Circulation
- Scrapped Surface
- Combination Type
- Flash Evaporator
- Evaporative Crystallizer

INDUSTRIAL DRYERS

- Spray Dryer
- Steam Tube Dryer
- Fluid Bed Dryer
- Rotary Dryer / RVD
- Spin Flash Dryer
- Vacuum Band Dryer
- Vertical Thin Film Dryer (VTFD)
- Freeze Dryer





Innovations

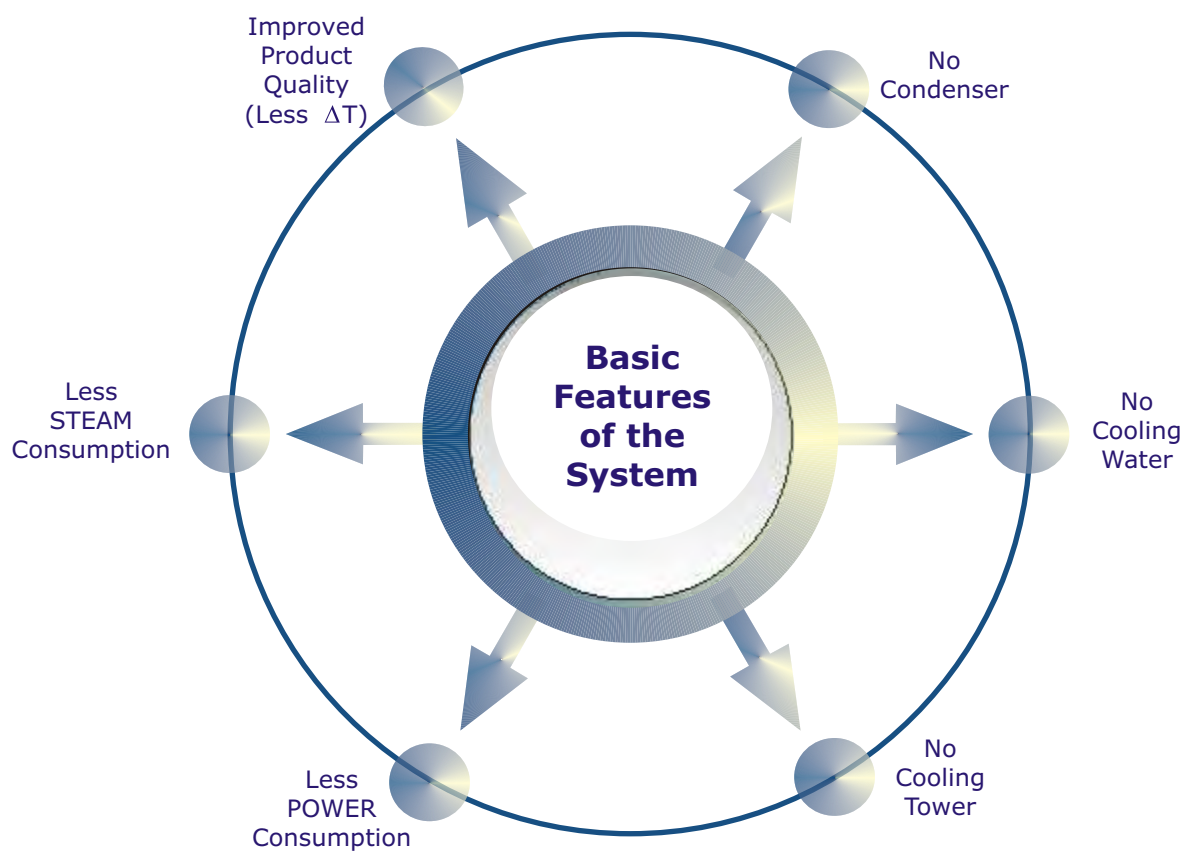
Evaporator without Condenser

BASIC FEATURES OF THE SYSTEM:

- Evaporator Without Condenser.
- No need of Cooling Tower.
- Utilises all the vapours within the system.
- Reduces POWER Requirement.
- Reduces STEAM Requirement.

DEVELOPMENTS:

- Highest Steam Economy, Most Energy Efficient Plant.
- Evaporation Plant with 7 Effects having Specific Steam Consumption less than 0.1kg per kg Water Evaporation.





Evaporators

- SSP is one of the most experienced manufacturer of multiple effect evaporators in India for Dairy, Food processing and Chemical industries.
- SSP has developed energy efficient evaporators indigenously and in a short span of its existence has become a force to reckon with.
- SSP has to its credit more than 600 evaporators installed across the globe, for handling variety of products.
- SSP Supplies the following types of Evaporators:
 - Falling Film
 - Agitated Thin Film Evaporator (ATFE)
 - Scrapped Surface
 - Flash Evaporator
 - Rising Film
 - Forced Circulation
 - Combination Type
 - Evaporative Crystallizer

Evaporators supplied for:

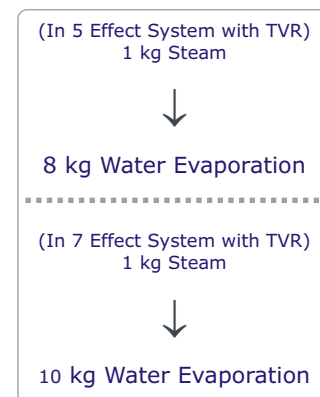
Dairy & Food Products :

Milk & Milk Derivatives, Honey, Whey, Fruit Juice, Tomato Juice, Malt Extract, Sugar, Invert Sugar, Coffee Extract, Tea Extract, Tannin Extract, Dextrose/Fructose & Herbal Extract.

Chemical & Pharmaceuticals :

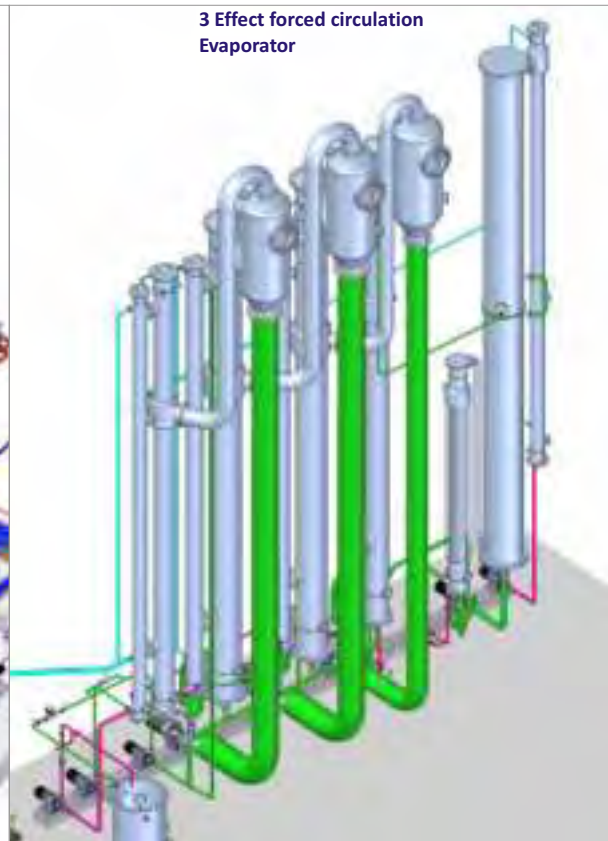
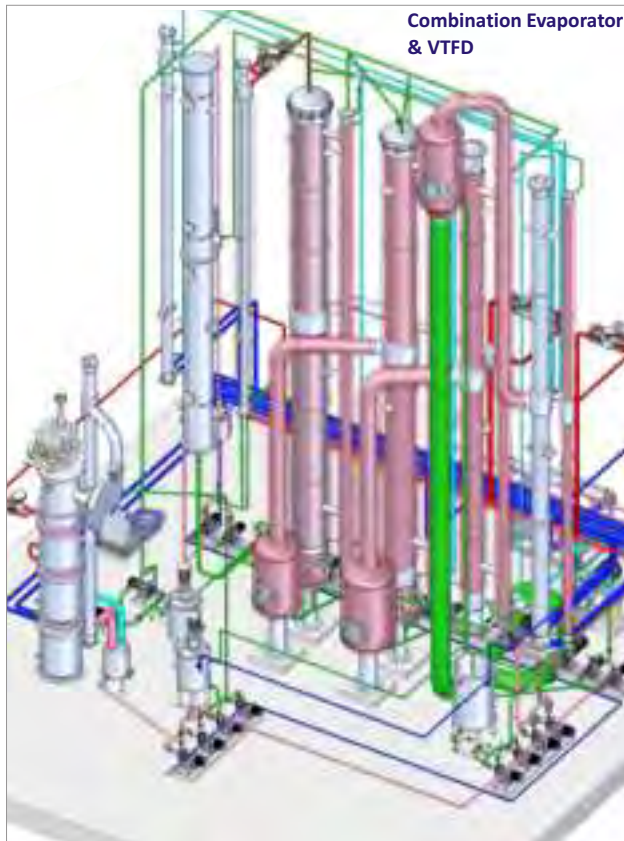
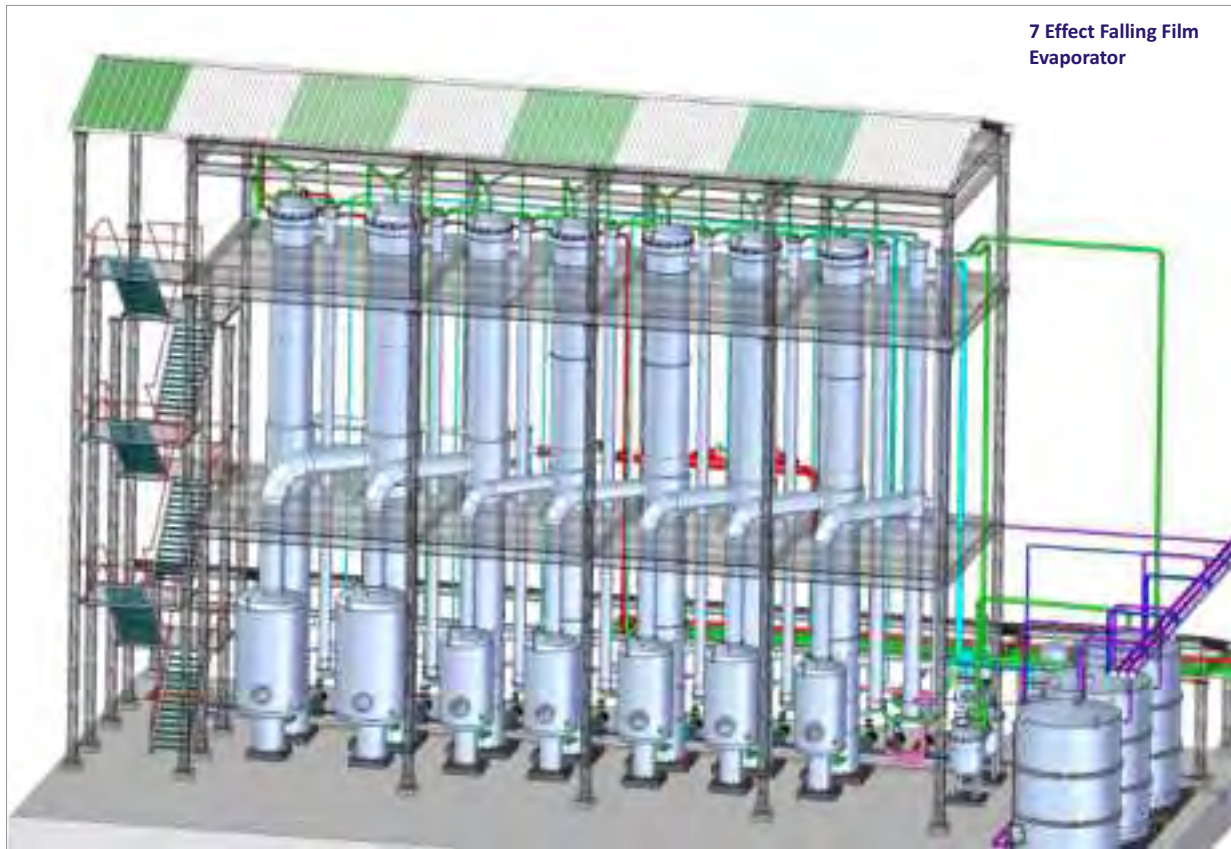
Spent Wash, Black Liquor, Salt, Amino Acid, Enzymes, Gelatin/Glue Sodium Sulphate, Katha & Kutch, Dye, Dye Intermediates, Effluents, Acid & Phosphoric Acid, High temperature solvent recovery.

- SSP evaporators are most energy efficient. In a 5 effect plant with TVR the specific steam consumption is 0.12 Kg/Kg i.e. 1 Kg of steam evaporates 8 Kgs of water & in a 7 effect plant with TVR the specific steam consumption is 0.12 Kg/Kg i.e. 1 Kg of steam evaporates 10 Kgs of water.
- SSP has supplied evaporators having capacity upto 1,20,000LPH evaporation and has the capability to design any higher capacity.
- SSP has developed its own mathematical module for designing evaporators which gives exact heat and mass transfer calculations.
- **SSP's Unique Design Ensures:**
 - Highly energy efficiency.
 - Compact design.
 - Low operation cost
 - High Product Quality.
 - Easy operation & automatic control





Different types of Evaporators





Dryers

SSP offers most modern Drying Plants for Dairy, Food, Chemical and Pharmaceutical industries based on indigenously developed technology. As drying is an energy intensive process and dryers are expensive pieces of equipment, SSP offers most economical dryers matching the specific requirements.

SSP supplies the following types of Dryers:

- SPRAY DRYER
 - STEAM TUBE DRYER
 - ROTARY DRYER
 - VERTICAL THIN FILM DRYER
 - 3 STAGE DRYING SYSTEM
 - FLUID BED DRYER
 - SPIN FLASH DRYER
 - **VACUUM BAND DRYER**
 - **FREEZE DRYER**
- SSP Spray Dryers are relatively simple in operation which accept feed in fluid state and convert it into a dried particulate form by spraying the fluid into a hot drying medium.
 - Atomization is done using high pressure nozzle, high pressure air, two fluid nozzles or centrifugal disc atomizer.
 - The heating of drying air can be of either steam coils or thermic fluid or air heater according to the service conditions available.
 - The unique Fines Re-circulation System produces highest quality of agglomerated powder.

BASIC FEATURES OF THE SYSTEM:

- Production of INSTANT POWDER
- Flexibility in Controlling POWDER QUALITY
- Negligible - deposition of Powder in Chamber
- Less DOWNTIME for Maintenance.
- EXPANDABLE up to 100% Capacity

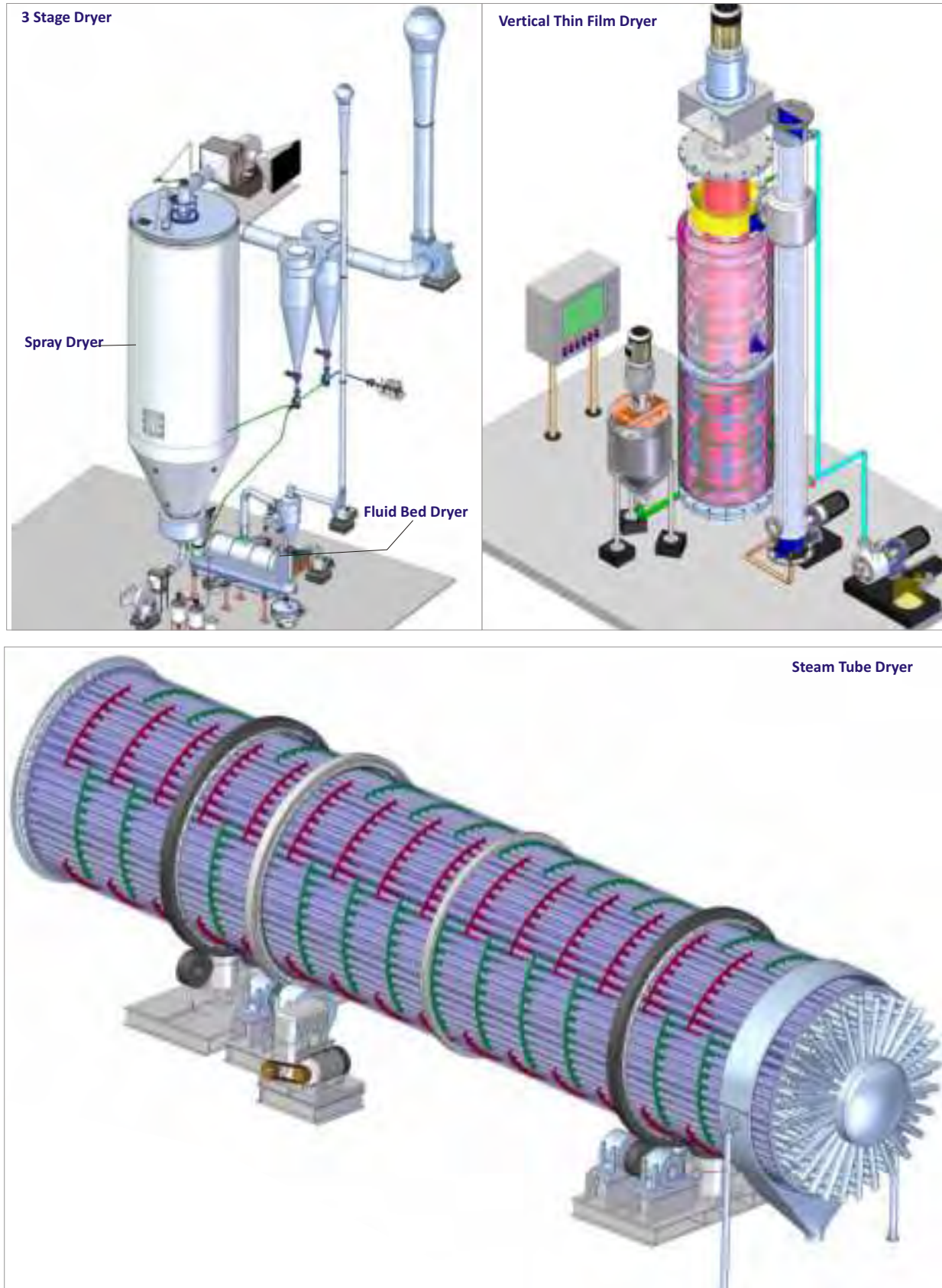
DEVELOPMENTS:

- Spray dryer with Nozzle Atomization & Disc Atomization
- Modern Spray Dryer design with both types atomization in the same dryer to get desired quality of powder
- Instant WMP Powder (Lecithinated)
- No sticking in the drying chamber even with Dairy Whitener.
- 3 Stage Drying System





Different types of Dryers





Turnkey Projects

FOR DAIRY INDUSTRY

- Milk Powder Plant
- Malted Milk Plant
- Evaporated Milk Plant
- Dairy Whitener Plant
- Khoa Making Machine
- Liquid Milk Processing
- Baby Food Formulation Plant
- Sweetened Condensed Milk Plant
- Whey, Casein & Lactose Processing Plant

FOR FOOD PROCESSING INDUSTRY

- Instant Coffee Plant
- Instant Tea Plant
- Coffee Creamer Plant
- Egg Powder Plant
- Malt Extracts Plant
- Honey Processing Plant
- Herbal Extraction Plant
- Starch, Glucose & Its Derivatives
- Spirulina Algae Powder Plant
- Refined Iodized Free Flowing Salt Plant

OTHER FIELDS OF SPECIALIZATION

- Aroma Recovery Plant
- Coffee Agglomerator
- Steam jet Ejectors (EIL approved vendor)
- SS Centrifugal Pumps
- Pneumatic Conveying & Storage System
- Hydrocyclone Washing System

FOR FRUIT & VEGETABLE INDUSTRY

- Fruit Processing & Concentration Plant
- Coconut Milk Processing Plant
- Tomato Paste / Ketchup Plant
- Fruit Juice Powder Plant
- Soya Milk / Powder Plant

FOR OTHER INDUSTRY

- Detergent Powder Plant
- Gelatin (Edible / Industrial / Pharma)
- Herbal Extraction Plant
- Vegetable Dyes Plant

FOR EFFLUENT TREATMENT PLANT

- Molasses based distilleries
- Grain based distilleries
- Edible oil refineries
- Bulk drug manufacturing units
- Tannery industries
- Textile-dyeing industries
- Black liquor in paper industries
- Resin/Gelatin industries
- Yeast plant
- Caustic recovery from mercenising unit
- Pharmaceutical industries
- Electroplating Industries



Milk Processing Plant

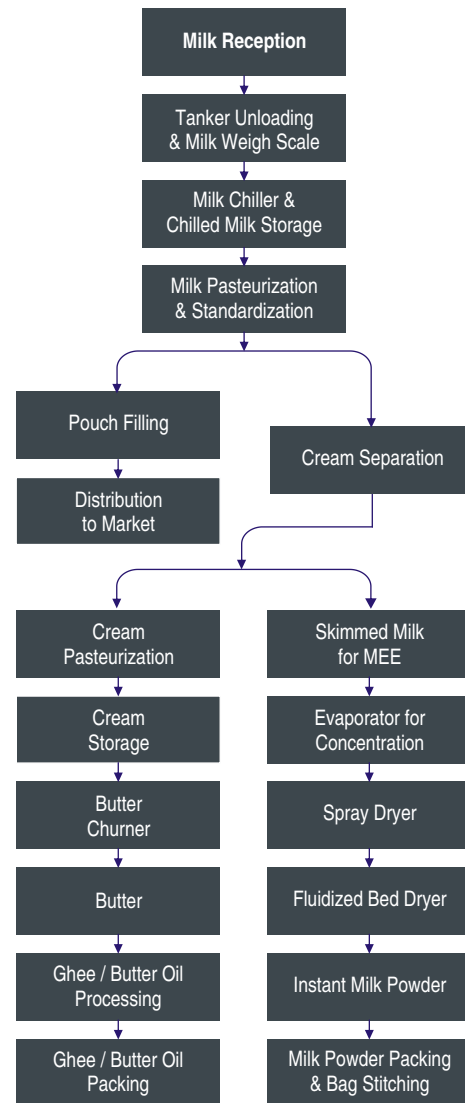
MILK is widely considered as one of the world's most valuable protein food. As a raw material, it is available in various forms, and it is processed into ever increasing variety of nutritional milk products.

The knowledge gained from experience and process technology available through SSP extends to all kind of consumer milk products, whether they are manufactured by way of traditional processing techniques or by more sophisticated ones such as evaporating, spray drying and fluidised bed drying.

MILK PRODUCTS:

- Pasteurized Milk
- Flavored Milk
- Chocolate Milk
- Sweetened Condensed Milk
- Milk Shake Powder
- Whole Milk Powder
- Skim Milk Powder
- Ice Cream Mix Powder
- Cultured Milk
- Cream
- Butter
- Butter Oil
- Malted Milk
- Baby Food
- Whey Powder
- Casein
- Lactose

FLOW DIAGRAM FOR MILK PROCESSING





Coconut Milk Processing Plant

A large number of products can be manufactured from coconut. Desiccated coconut, coconut cream. Coconut Milk and Spray dried Coconut milk powder. These products find a good market not only in India but also in various other countries. Fresh coconut water and coconut water concentrate and coconut vinegar are also used extensively.

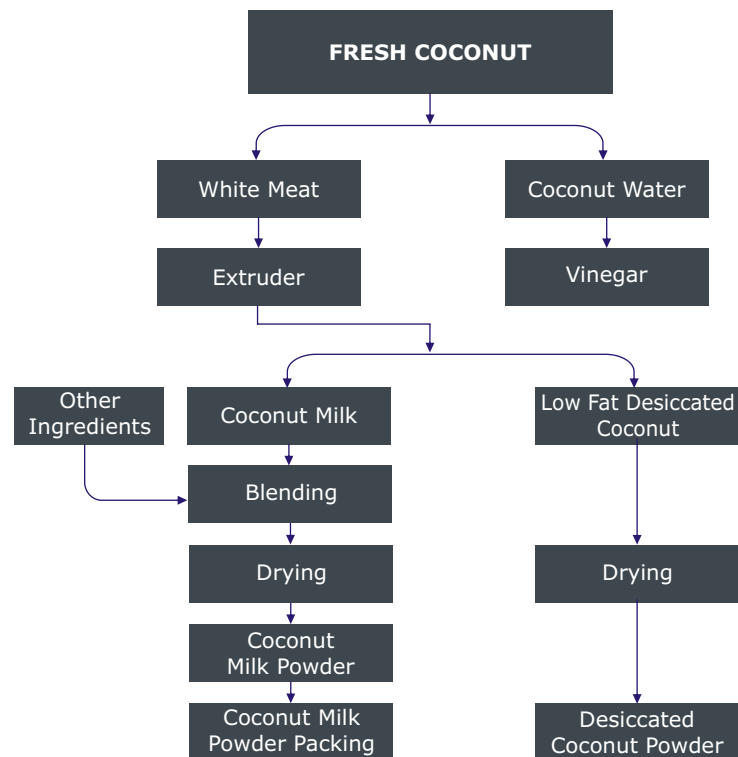
Desiccated coconut is marketed in bulk as well as in small parts. Deflated desiccated coconut is also in demand for various food preparations.

Coconut cream & Coconut milk finds its application in various food preparation as a substitute to milk extracted from raw kernel in traditional methods. They can be made available in cans and aseptic packages.

Spray dried Coconut milk powder has advantage of long shelf life. Less storage place requirement and lower cost of bulk packing.

Instant Coconut Milk Powder, desiccated coconut powder along with vinegar from Coconut water is a highly feasible project.

COCONUT MILK & COCONUT MILK POWDER PROCESSING





Honey Processing Plant

Honey being a biological substance and intended for food & pharmaceutical use needs greater attention in quality and its handling. The moisture content in honey plays an important role in deciding the quality of honey. Honey with more than 20% moisture are thinner in consistency. The moisture content in honey increases due to hygroscopic nature of honey in which the surrounding atmosphere moisture is absorbed by honey.

If the moisture content is more than 20% the honey is liable to spoilage due to fermentation & granulation. Considering the present practice of collection, storage & handling of honey under uncontrolled conditions including climatic factors the honey needs processing, reduction of moisture & packing by utmost care to protect the valuable natural properties.

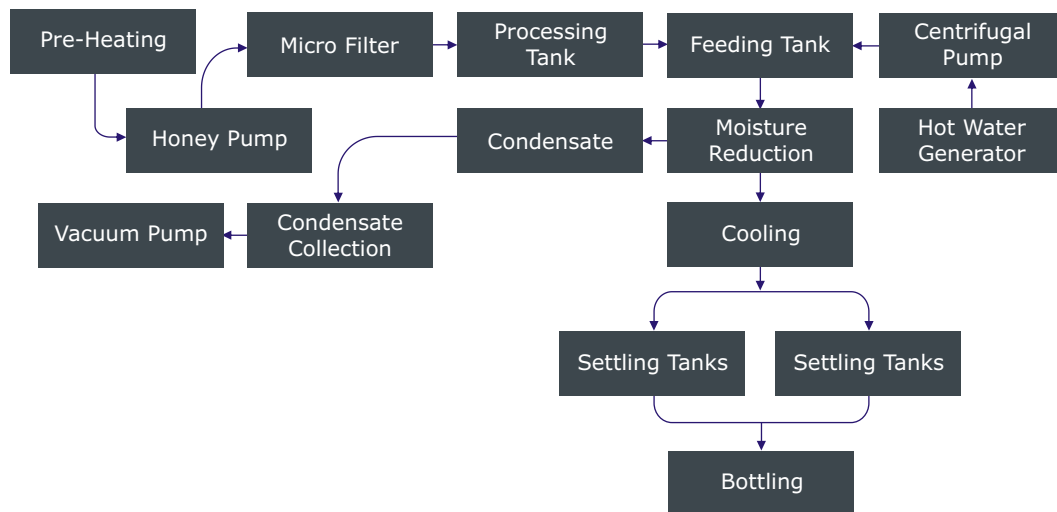
COMPOSITION:

Water (Moisture)	-	20%
Fructose (Laevulose)	-	37%
Glucose (Dextrose)	-	34%
Sucrose (Non Reducing Sugar)	-	5.0%
Total Ash (Minerals)	-	0.25%
Acids Organic	-	0.20%
Proteins, Amino Acids, etc.	-	1.50%
Other ingredients including pollen grains	-	1.05%

BRIEF PROCESS DESCRIPTION:

- Liquification
- Pre-Heating and Straining
- Micro-filtration
- Inactivation of Yeast Cells (Processing)
- Vacuum Evaporation
- Cooling of Honey

HONEY EXTRACTION PROCESS





Egg Processing Plant

Eggs are an excellent food containing many essential nutrients. The higher nutrients density of eggs relative to their calorie content makes them excellent food. Two large chicken eggs contains about 12 gms of protein, 1.2 gms of carbohydrate 11 gms of lipids and substantial amount of iron, phosphorous, vitamin A, E, K and most of the B complex vitamins. White portion of the egg contains almost 90% water, but contributes about 50% protein, niacin and riboflavin. Most of the vitamins and minerals are found in egg yolk. The yellow color of egg yolk is due to the presence of xanthophylls pigment.

PROCESS:

Eggs are taken from the cold storage and weighed. Dirty eggs are sent to a washing machine before they are broken. Rotten eggs are removed by candling. Egg breaking can be done manually or by using continuous egg breaking & separation machines. A skilled operator can break 500 to 800 eggs per hour. In case of large handling fully automatic machines are available.

For processing egg whites, efficient separation of egg whites from yolks is of great importance as no yolk must contaminate the whites. Even a small amount of yolk oil in albumen greatly

reduces the quality of the product. Modern machines can achieve the limits of yolk oil in egg white to the extent of 0.02%, which is acceptable.

In the production process of whole-egg or egg-yolk powder, whole eggs/egg yolks are homogenized, filtered to remove membranes and fragments of shell pieces. Pasteurization will be done at 64 to 66°C, with a holding time of 2 to 4 min. This ensures inactivation of most of the microbes such as E. coli and Salmonella which can cause ill health, if not inactivation.

After pasteurization whole eggs (solids content 20 to 27%) or egg yolk (solids content 40 to 48%) are fed to the spray dryer. The drying-air inlet temperature ranges between 150°C and 200°C. Final powder has a moisture content of 2 to 4% and bulk density of 0.3 to 0.35 g/cm³. The powder is then packed suitably after subsequent cooling.



FLOW DIAGRAM FOR EGG PROCESSING PLANT





Fruit Juice Concentrates Plants

The study, design & manufacturing of this processing line are the result of many years devoted to the research of processing methods focused on preserving the organoleptic, physical and aromatic characteristics of the processed fruit in order to produce a juice of high quality in color and clearness.

Fresh juices are best in taste and colour and are best to be consumed fresh. The efforts to preserve them & to ensure their quality, various techniques are to be adopted. This includes various process and preservation methods. The most important aspect is to ensure such methods which helps to retain these properties to the maximum extent.

The most important steps involved in processing of Juices and beverages are:-

- Selection and preparation of fruits
- Extraction of Juices
- Straining, Filtration and clarification
- Blending Pasteurisation.
- Filling, Sealing and sterilization
- Cooling, Labelling and Packing

For Juice Concentration, vacuum evaporation is another step in fruit processing line. The final concentrate can be filled in aseptic bags in drums for export purposes.

Clear Juices can be formulated, blended and spray dried at best conditions to convert them into readily soluble powders.

SSP offers all the above processing plants to produce ready to drink juices, juice concentrate and juice powders.





Tomato Processing Plant

For Manufacturing Tomato Ketchup/Puree/Paste

SSP offers complete process line on turnkey basis to produce the following end products from tomatoes:

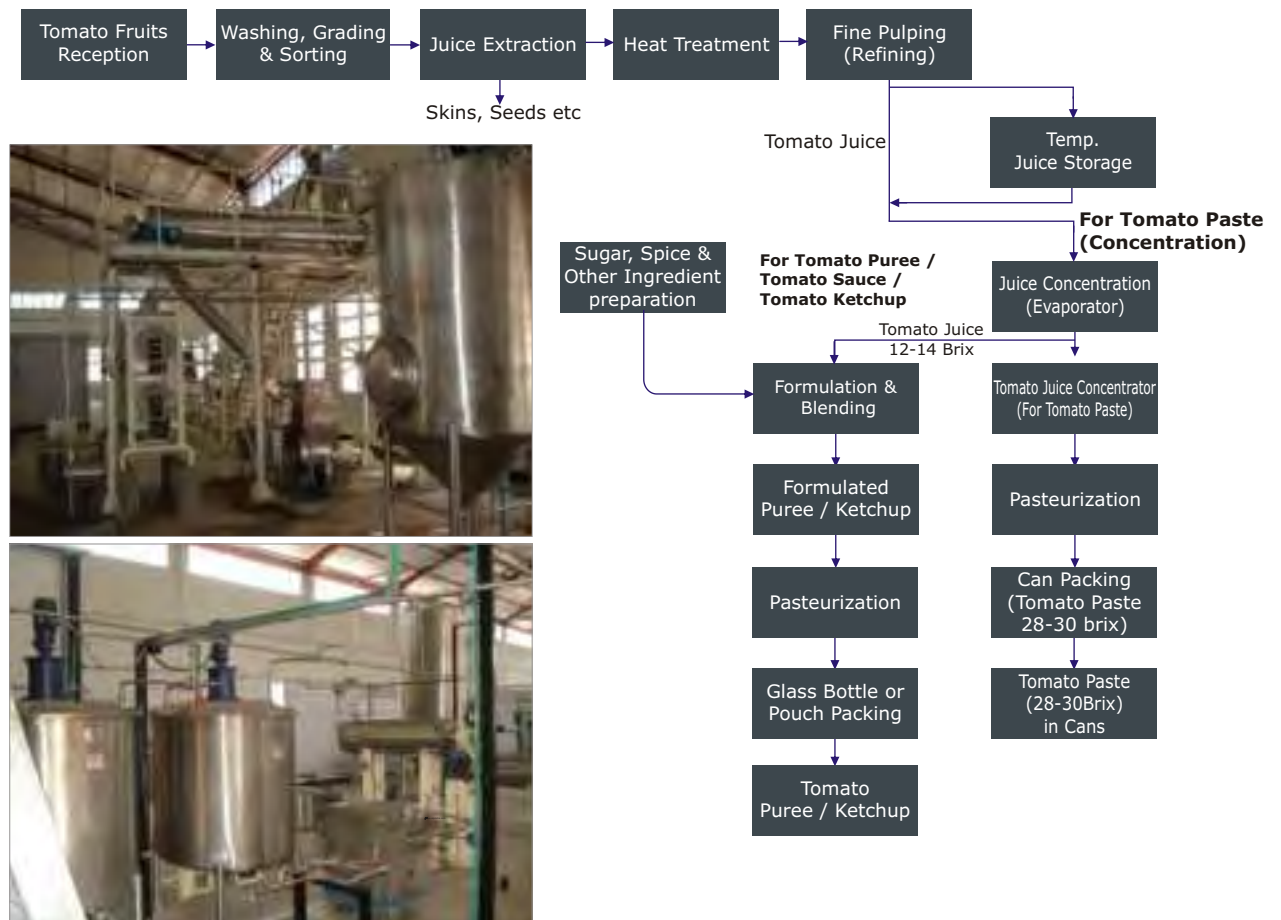
- Tomato Puree
- Tomato Paste
- Tomato Ketchup/Sauces
- Tomato Juices

Packing lines can be offered depending upon the requirement, like Product in glass bottles, Cans, Drums, etc. manufacturing process involves most modern technology of vacuum evaporation using forced circulation evaporators/scrapped surface evaporators. Evaporation plants are versatile to concentrate other juices also.

Salient Features are:

- High yield upto 90% of juice.
- Low energy cost.
- Low temperature evaporation resulting improved quality of products.
- User friendly.
- Semi automatic as well as fully automatic systems available.
- Both hot break and cold break systems available

TOMATO PROCESSING





Refined Iodised Salt Processing Plant

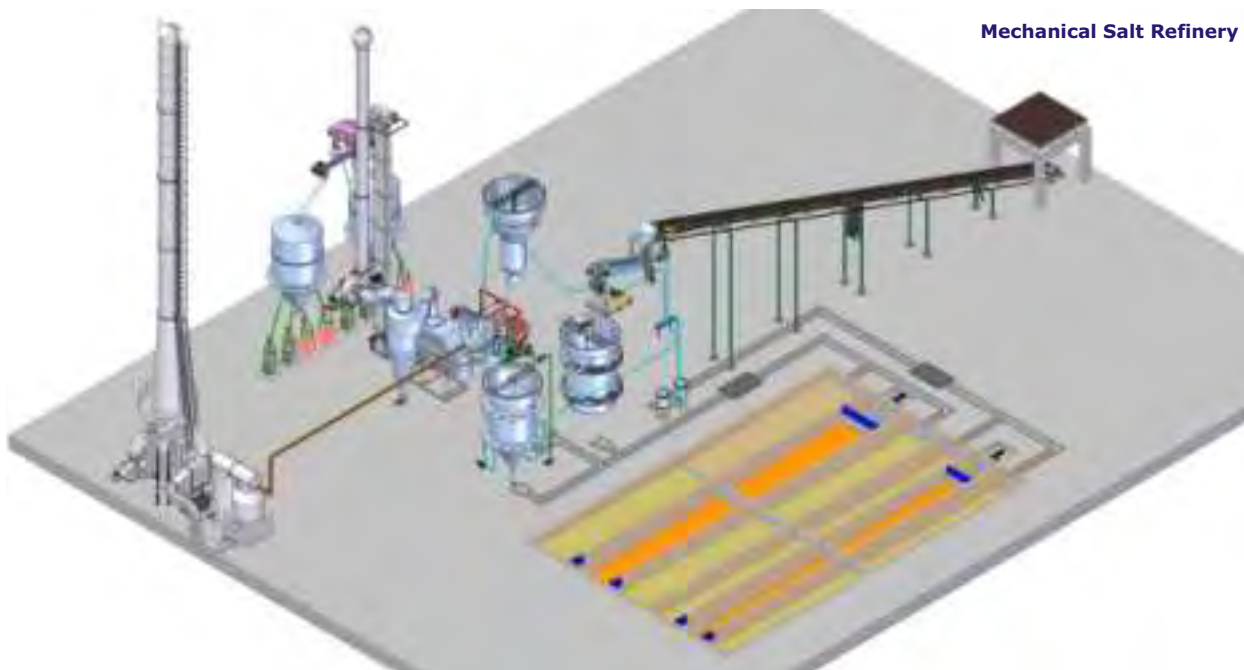
Main source of salt is rocks and sea. Maximum consumption of salt is in its natural form after being produced from sea or directly from rock. But with time, awareness of uses of salt have grown manifold and the demand of refined iodised salt is increasing tremendously during the last few years. Refining not only helps in increasing purity of salt but also improves flow-ability and use of anti-caking agents helps in keeping quality too. During refining and drying process iodisation is

done which is important for human body to avoid various diseases. Refined salt is further graded for various applications like kitchen salt, table salt and industrial salt.

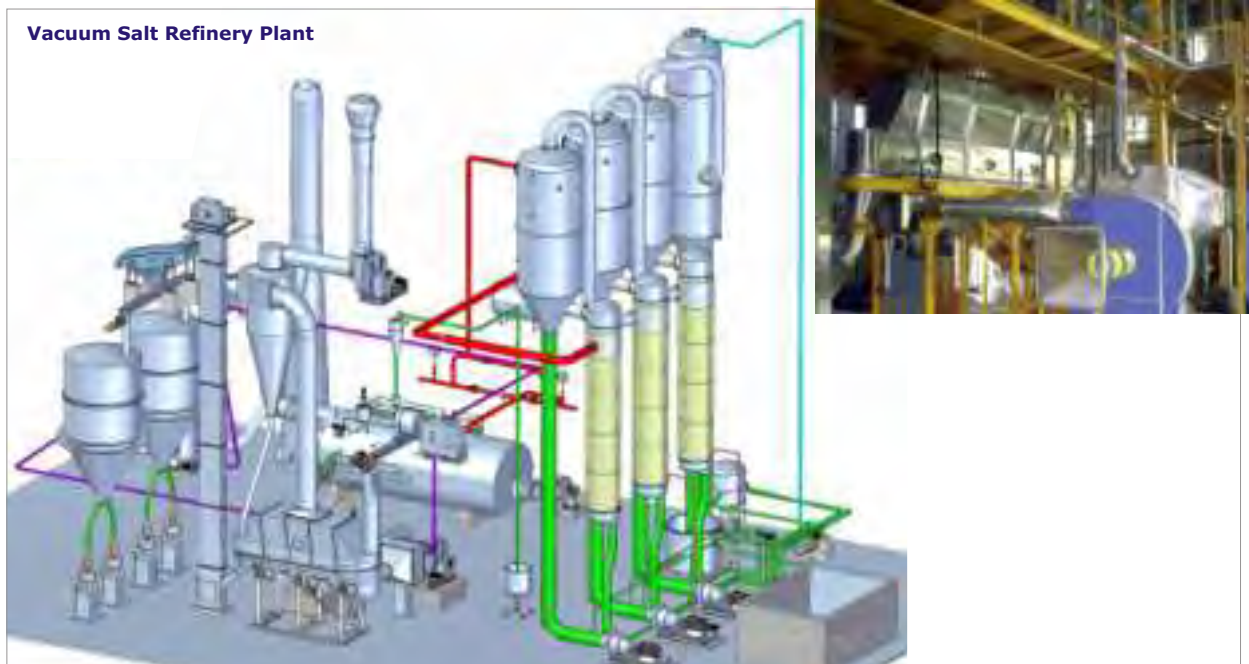
PROCESS:

SSP has developed two basic process for refining of salt:

- Mechanical Salt.
- Vacuum Crystallisation.



Mechanical Salt Refinery



Vacuum Salt Refinery Plant



Instant Coffee Plant

Approximately 90% of world coffee production is represented by the species Coffee arabica; about 9% by, the species Coffee Robasta; with minor production from the species Coffee liberica. The amount of Coffee Robasta grown has increased because of certain superior values in the manufacture of soluble-coffee products. Several varieties of Coffee arabica are grown in different countries. In Africa, varieties grown include Bronze Tip, Gimma, Local Bronze, Sidana, and Tchertcher. In India Kents is commonly grown. In Indonesia (Java), a popular variety is Blawan Paseomah. In Brazil, Common or Typica is grown. There is considerable variation in the size of the green beans produced by the three species: For Coffee arabica, there are 545 beans per Kg; Coffee Robasta there are 726; and for coffee liberica there are 363. The ultimate producers of commercial coffees usually blend beans from various sources to obtain the desired characteristic flavor and aroma of their brand.

PROCESS:

Coffee Cleaning & Blending: The first step is through cleaning, removal of defective beans; blending of different types and size to ensure best flavour.

Roasting & Grinding: The second step is roasting through either batch or continuous roasters. Roasted coffee reduced in grinding to suitable size.

Extraction: The third step is extraction of ground material through a continuous jacketed pressure vessel with hot water. The alternate approach is through a batch extraction counter – current column battery unit.

Aroma Recovery: The extracted coffee liquor is passed through the aroma recovery plant. In the plant the volatile aroma is stripped off from the coffee before it enters the evaporator. The flavor is returned just prior to the spray dryer.

Concentration: The fifth step is concentration of the extract through multi-effect evaporators with TVR system.

Spray Drying: The sixth step is conversion of concentrate to instant coffee powder by spray drying; Drying is done under controlled conditions to protect and preserve aroma and flavour. Fluidised bed dryer is coupled with the system.

Agglomeration: Spray dried powder then converted into soluble granules in an agglomerator tower.

Packing & Filling: The Instant Coffee Powder is taken to the filling and packing stage. There the tote bins are emptied in the filling machine silos. For filling into tins or jars vacuum operated filling system is used. For filling into sachets a form fill-sealing machine is used. Then the filled containers/flexible packings are packed in the shipping cartons and sent for dispatch to the finished goods warehouse.

Freeze Dryer: Freeze dryer retains aroma, improves appearance and taste because freeze drying takes place at a low temperature which minimizes heat damage and retains volatile components (aroma). It also increases the shelf life of the dried product as compared to standard drying practices. Freeze-drying involves dehydration of food products at low temperature and pressure. As a result only the moisture is removed, leaving the molecular structure intact. The end product is light in weight with least or no change in volume. Worldwide freeze-drying technology is considered as the ultimate amongst all other dehydration methods. Hence this technique is currently being used for the production of instant coffee.





Instant Tea Processing Plant

Instant tea can be produced from black, green or oolong teas which originates from the same plant *camellia sinensis*. The difference between various instant teas, is based on various methods used to produce instant teas from above varieties.

Tea contains many types of antioxidants (Bio-flavouoids), which are highly beneficial for fighting free radicals from human body.

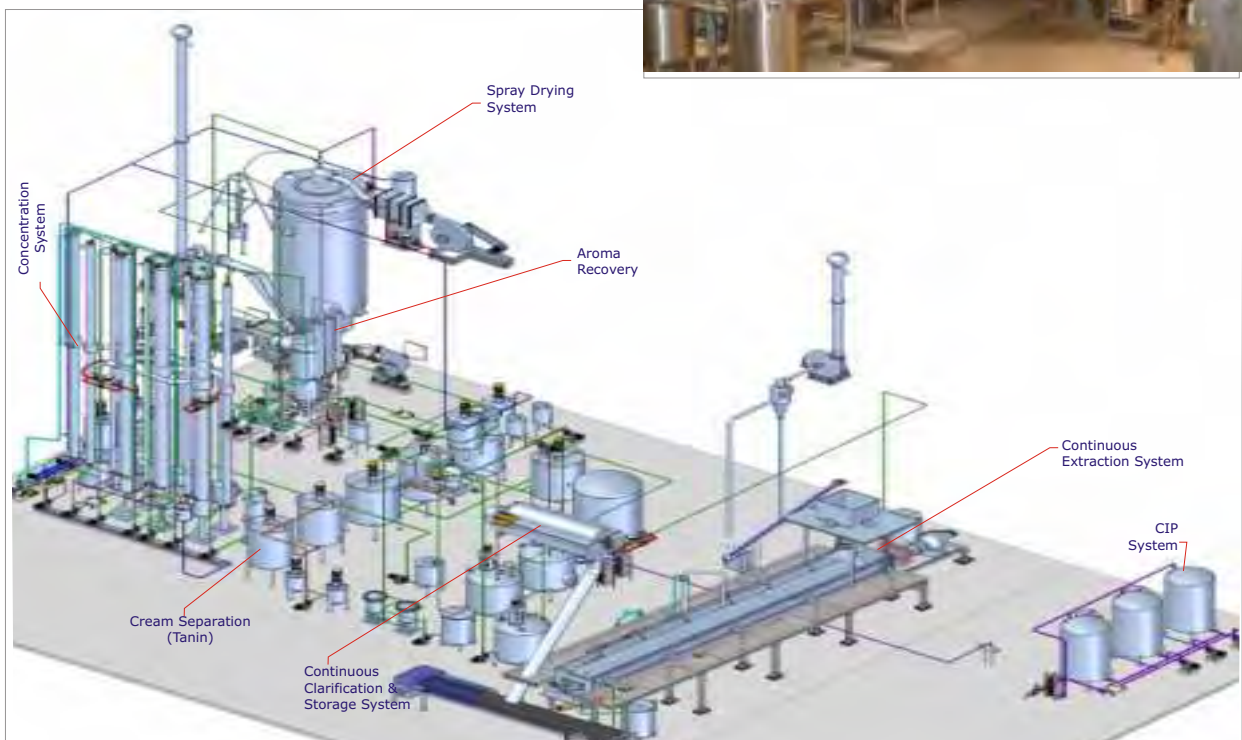
Instant tea also can be produced from the waste/leftovers generated in CTC / Orthodox leaf tea, hence are very economical for its process.

THE PROCESS

Extraction of CTC / Orthodox tea can be carried out in hot or cold water in batch or continuous extraction systems. Hot extraction is good for hot tea beverages and cold extraction is preferred for ice tea beverages.

The time and temperature of the extraction to be varied as per the quality standards laid down for each product final specification.

- The extracted slurry is subjected to pass through continuous decanters and clarifiers to remove the non soluble suspended matter from the extract.
- The clarified extract, may still have to be processed to separate or reduce the excess tannin contents which may hamper the quality of instant tea. These un-desirable tannins are separated by precipitation process which is also known as cream separation.
- The Clean and clarified extract, then passes through Aroma recovery columns for enriched and distilled aroma collection, before concentration of clear extract in multistage Falling Film Evaporator under vacuum.
- Blending of tea concentrate with aroma returns the rich flavor of tea. The aroma rich concentrate is then spray dried or freeze dried as per the requirements.





Herbal Extraction Plant

All the plants / herbs have very complex structure. Most of the active ingredients present in the form of natural organic compounds.

The process of extraction for a particular compound or multiple compounds are dependent on the solubility of the rich components in an extraction media such as aqua (water) or organic solvent or a mixture of organic solvents by using the principle of physical separation and the property of solubility of those compounds in that particular extraction media.

The process and the plant design of extraction system is invariably different from product to product and component to component. Its very difficult to generalize a process to extract isolated compounds from various herbs. From raw material to isolated compound, a series of processes will be involved. In the first step of process, the rich compound(s) can be extracted in a generalized manner with an extraction media. The second stage is followed by purification and isolation by various physical / chemical processes.

From a generalized extraction process, the rich herbal extracts can be used directly in herbal formulations for herbal, pharmaceuticals, food and cosmetic industries. Some of the herbal extracts can be used as natural dyes for textile, leather, food and cosmetic applications as coloring matters.

Process Technologies Available for:

A. Categorize Herbal extraction projects

For Herbal formulations / Food Industry:

- Instant Coffee
- Instant Tea
- Phyto Chemical Separation Systems for Steviosides, Tannins, etc.
- Protein Hydrolysates for Baby Food Formulations

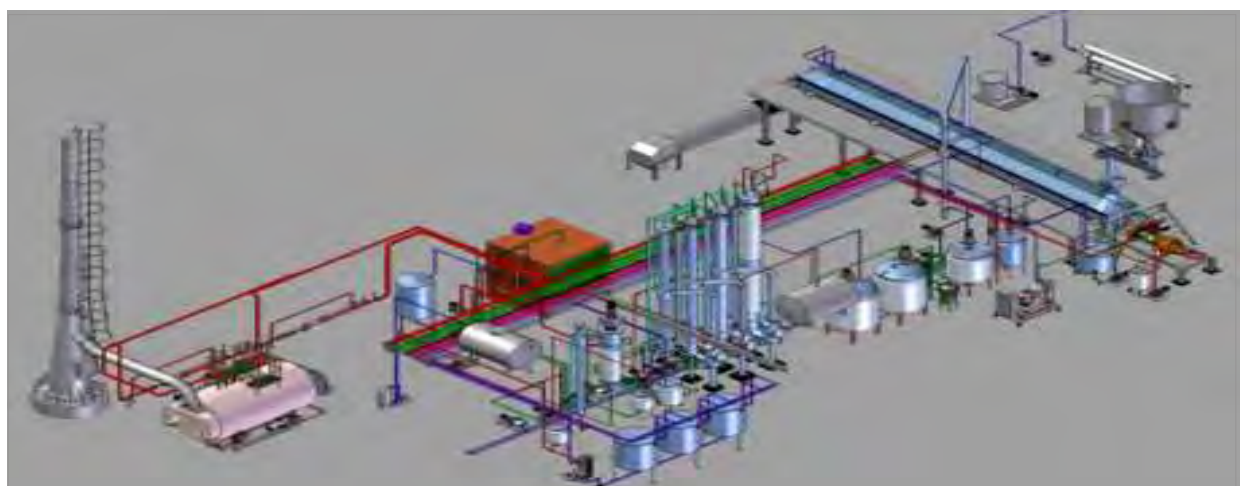
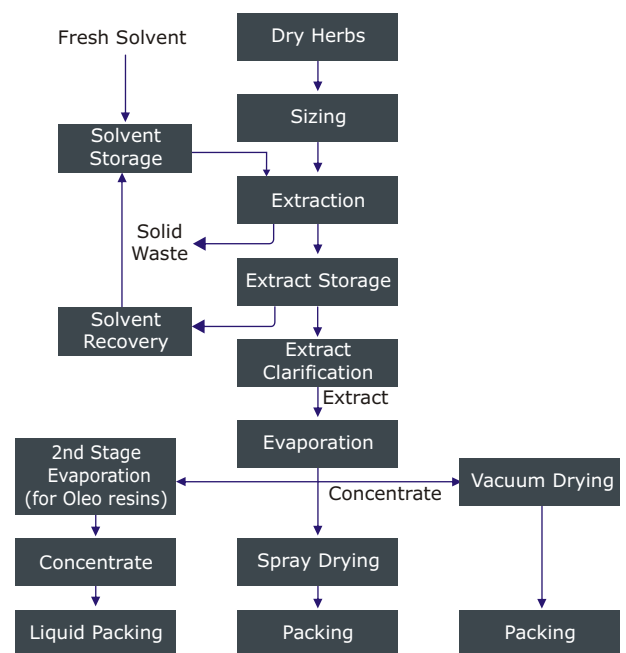
B. General Herbal Extraction projects

- Natural dyes for textile dyeing industries.
- Tanin extracts for tanneries / leather industries.
- Katha extracts.

C. Organic Solvent Based Extraction Projects

- Formulation industries.
- Oleo Resins.
- Vegetable gums.
- Natural food coloring matters etc.

HERBAL EXTRACTION PROCESS





Soy milk Powder Plant

Soy milk and its related food products are getting popular throughout the world due to their nutritional and medicinal qualities.

Soy milk is high in protein and low in fat and carbohydrate and contains no cholesterol.

Soy milk is an excellent food for babies, children and the elderly people including pregnant and lactating women as it contains vegetable protein that is very easy to digest.

SSP - 100 Continuous Soy Milk Plant

The plant has been designed for handling 100 liters of Soy milk per hour from 15 kg/hr Soybeans.

The plant is a skid mounted one and requires only 15 sqm. area.

Only one skilled operator and one helper is sufficient to operate the plant.

SSP also offers higher capacity machines - **SSP-200, SSP- 500, SSP-1000 & SSP-2000** machines are also available for production of **200Lph, 500Lph, 1000Lph & 2000Lph** Soy milk respectively.

Okara Dryer

Okara is the residual fibers after extraction of milk from soy bean. It contains about 80% moisture and can be dried by a drying system to get dried product with 4-12% moisture content.

The dried Okara can be used as a source of good fibre and can be used in making Biscuits, Sweets.

Tofu (Soy Paneer)

Tofu can be made by acidification of Soy Milk by use of lactic acid. The Coagulated mass so obtained is washed and pressed to get Tofu.

Tofu can be packed in vacuum packages to extend its life upto one month.

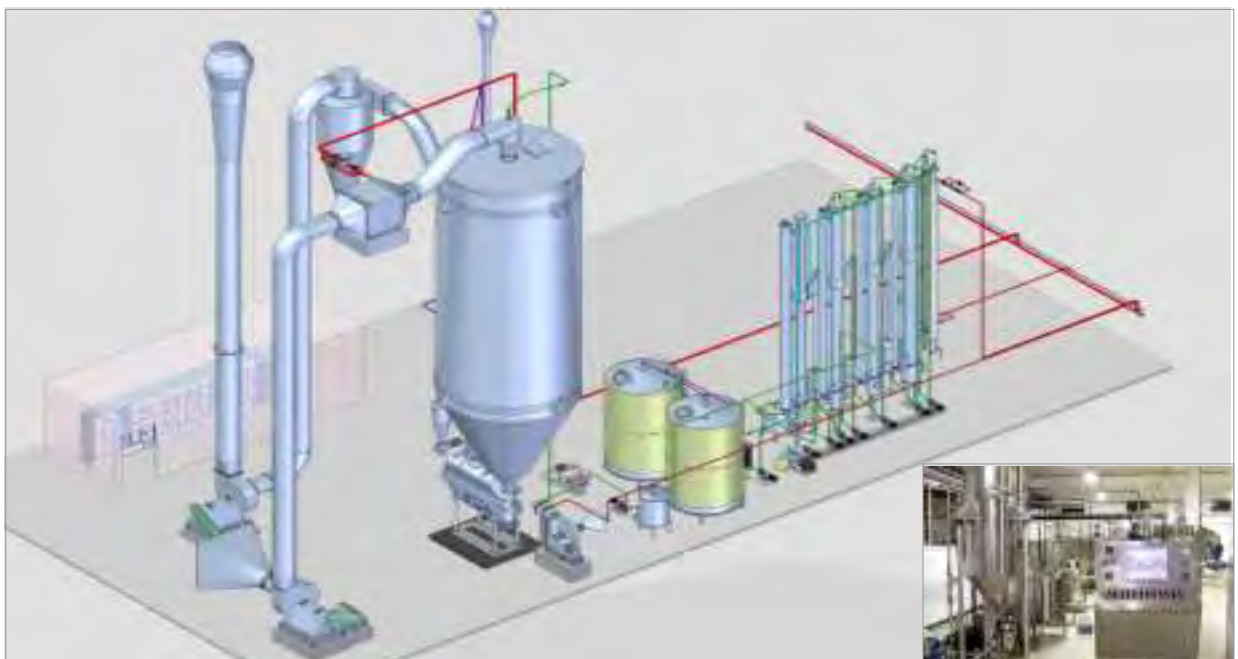
Flavoured Soy Milk

Soy milk can be formulated by addition of sugar and flavour to produce flavoured soy milk. Varieties of flavours like Chocolate, Vanilla, Coffee etc. can be used to produce tasty soy milk drink. The flavoured Soy milk so produced can be sterilized in a sterilizer and can be marketed. The shelf life of sterilized soy milk will be six months.

Soy milk Powder Plant

SSP also offers suitable multiple effect Evaporator to concentrate soy milk upto 22% followed by Spray Dryer for manufacture of Soy milk powder.

Instant Soy milk powder can be made by addition of lecithination system along with Spray Dryer.





Gelatin Processing Plant

Gelatin is derived from Degreased Crushed Bones (DCB) through acid treatment followed by alkaline process. DCB are first treated with acid for removal of inorganic salts in bone. The bones after acid treatment are referred to as Ossein.

Ossein is then treated with alkali for partial hydrolysis. During the partial hydrolysis the collagen material is softened from the non-collagen. Non-Collagen gets removed with weak alkali solution. The temperature is controlled during maceration and liming to avoid any yield losses. Limed Ossein is then washed with water and then treated with dilute solution of weak acid. Ossein after weak acid treatment is taken for Gelatin extraction.

Gelatin is extracted in the form of weak liquor, which is then filtered and passed through ion exchange (deashing system) for reduction of the dissolved ash(dissolved minerals) in the gelatin solution.

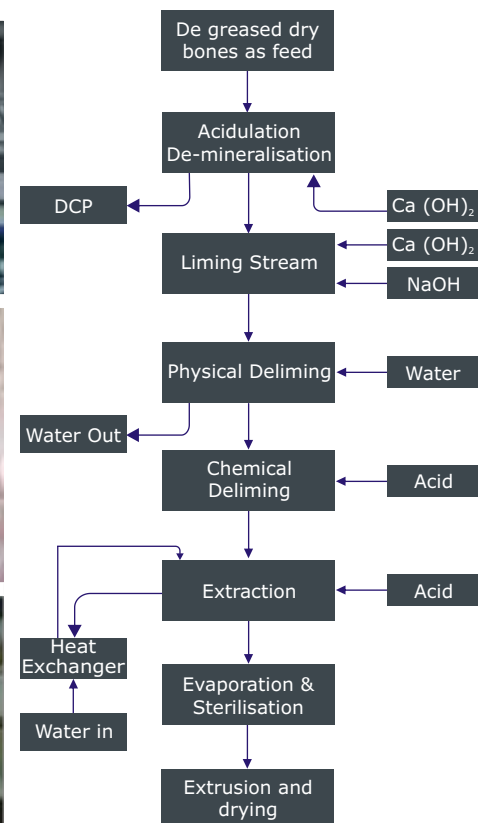
This de-ionised weak liquor of Gelatin is then concentrated under vacuum to avoid any destruction to the basic tri skeleton structure of Gelatin.

Concentrated liquor is then passed through sterilisation system followed by extrusion for making noodles to facilitate proper drying of Gelatin in the next stage.

Gelatin drying is very critical process since fast heating will melt the gelatin instead of drying and slow drying will result in gelatin moisture out of limits so Gelatin is dried very carefully with dehumidified air by gradual increase of temperature gradually to 60°C.

Dried Gelatin is then crushed to required mesh size as per the market demand. During Gelatin manufacturing, DCP is produced as a by product, which is a main constituent for the cattle and poultry feed.

GENERAL BLOCK DIAGRAM DEPICTING GELATIN MANUFACTURING PROCESS FROM DEGREASED DRY BONES





Starch, Glucose & Its Derivatives

Starch can be produced from various starch containing materials like maize, cassava / Tapioca roots, potatoes, wheat, rice etc. There are different technologies for each raw material for recovery of starch. Starch is mostly used for industrial purposes. Starch is tailor made to meet the requirements of the end users by changing reaction condition (Temp, pH, additives) and strict process control. These specialty products are called modified starches. Modified starch has improved qualities in the starch and used for different industrial uses.

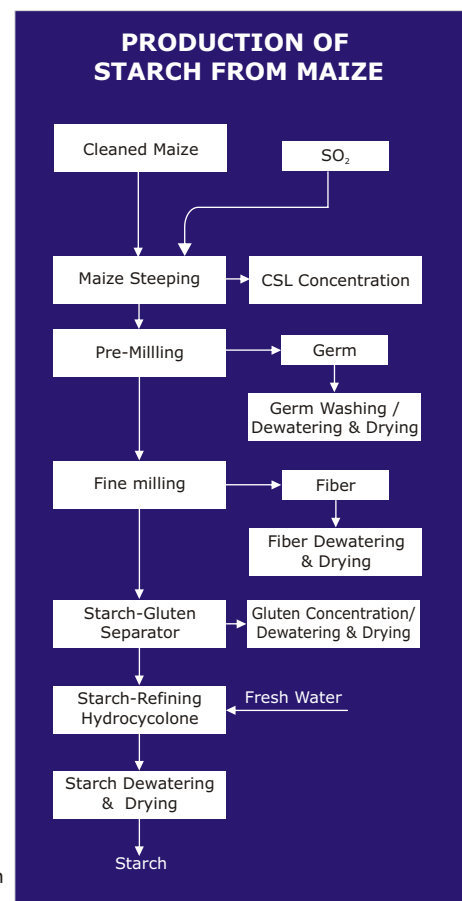
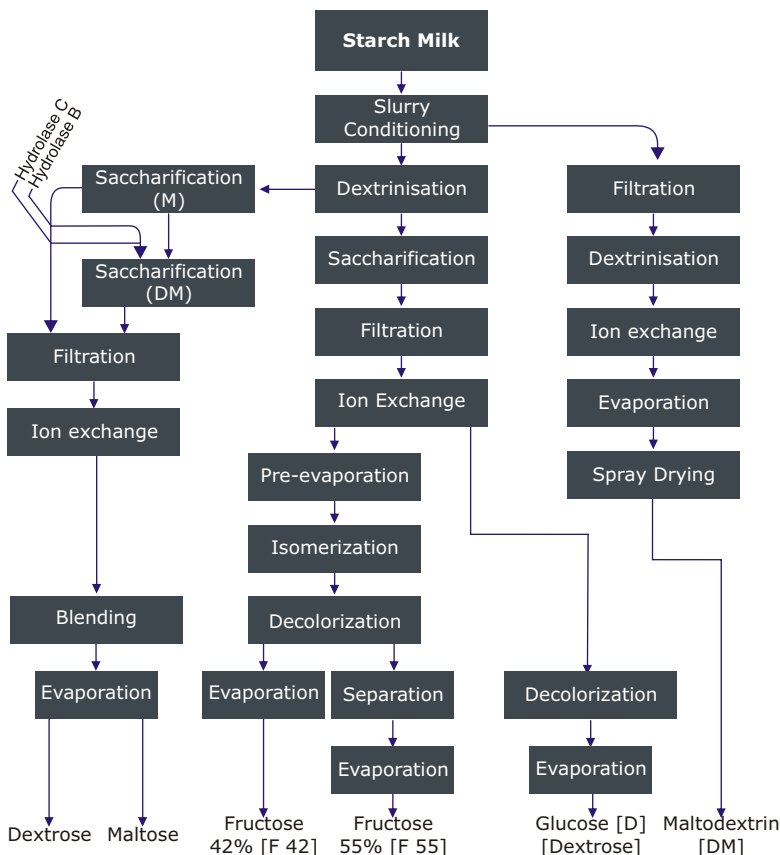
Being a pure renewable natural polymer starch has many applications. Its significance as a polysaccharide being able to breakdown into their monomeric and or oligomeric components leads to production of Dextrose, glucose, fructose, maltose & sorbitol. In fact starch has become an important material for the sugar industry, which was otherwise relying upon sugar cane and beet sugar.

The most common uses of starch is in the following industries:

- Paper industry for sizing, pulp making & surfacing.
- Textile industry for pointing & finishing.
- Ceramic Industry as binder.
- Adhesive & Abrasive industry as major ingredient.
- Rubber industry as filler.
- Food industries as glucose, dextrose, fructose, sweetener.



PRODUCTION OF STARCH SACCHARIDES





Detergent Powder Plant

Synthetic detergents are widely used in cleaning of all types of laundry, kitchenware utensils and can work even with hard water. The coarse powder granules in bead form are free flowing, non-dusty and readily dissolve in water. Shelf life is excellent, with no tendency to loss of quality or to form lumps. The feed can be continuous formulated in batches. The preparation technique has definite influence on the final dried properties.

Precise weighing / metering, mixing, homogenizing and de-aeration take place before spray drying. The feed can have high solid content (60-70%) to give the desired powder bulk density and best economic use of the spray dryer.

The method used for detergent powder unit is the combined neutralization method. In this process the un-neutralized Do-decyl benzene sulfonic acid is neutralized with soda ash, and mixed with the other builders and perfume, color, and sodium perborate and a solution of 60-65% is made. This homogenized mixture is then spray dried in a counter current spray dryer. In built agglomerator using fluidised bed technology is an optional supply.

SSP's Detergent Powder Processing Plant ensures desired particle size free of dust with uniform granular or beady texture. A blue color can be very attractive detergent powder and can be varied for varied interests of the manufacturer with mild perfumes such as Citrus, Cologne or Pine. A good formulation also ensures correct foaming and good detergency.

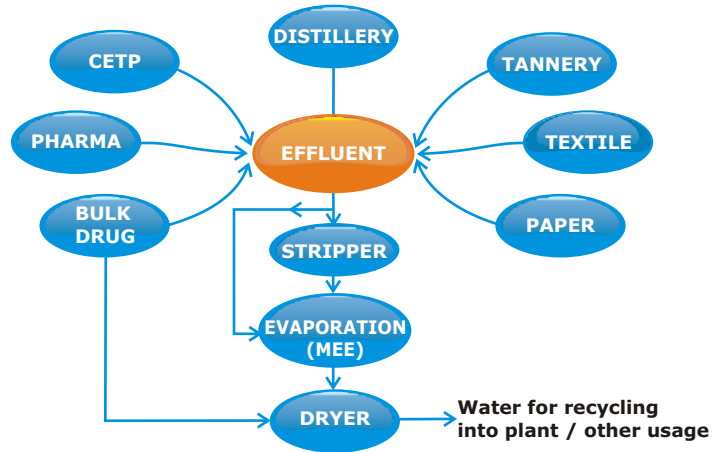




Environmental Solutions for Zero Liquid Discharge Systems



General Scheme for ETP Solutions

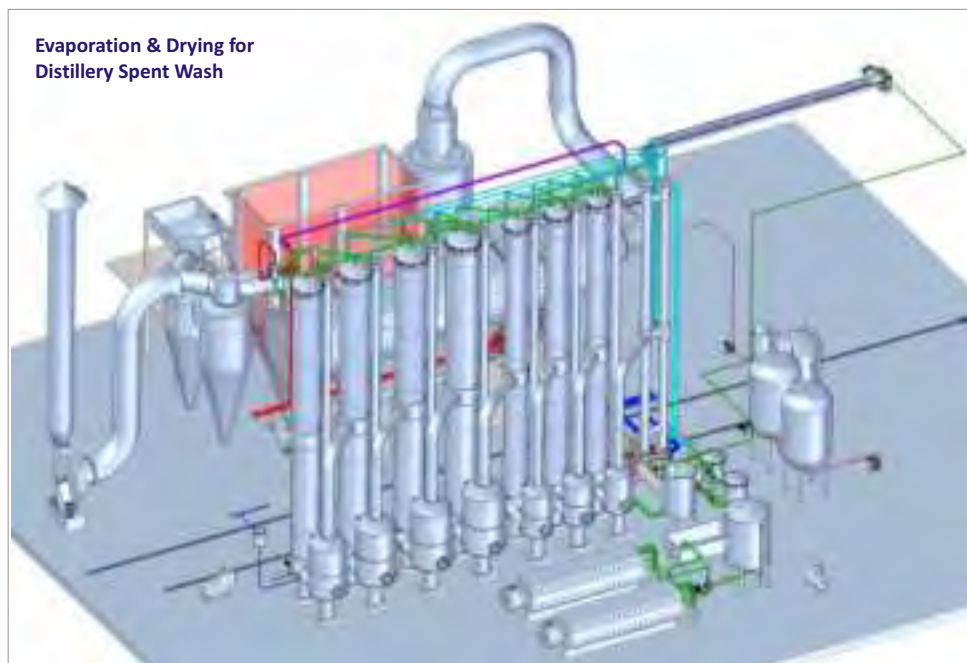


EFFLUENT TREATMENT PLANT FOR:

- Molasses based distilleries
- Grain based distilleries
- Edible oil refineries
- Bulk drug manufacturing units
- Tannery industries
- Textile-dyeing industries
- Black liquor in paper industries
- Resin/Gelatin industries
- Yeast plant
- Caustic recovery from mercenising unit
- Pharmaceutical industries
- Electroplating industries

ADVANTAGES OF TECHNOLOGY:

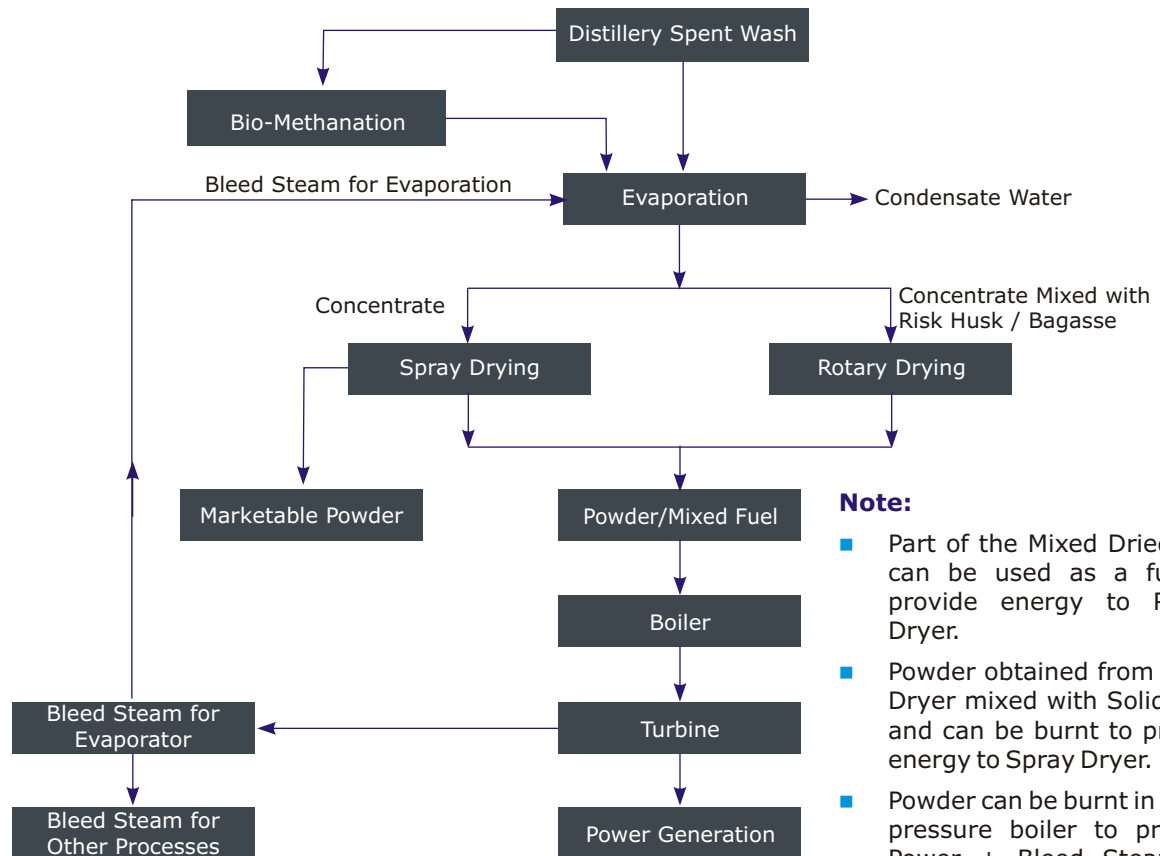
- Totally integrated zero discharge system.
- By Product is marketable commodity in most of the cases.
- Complete use of condensate water.
- Compact plant requires very less space.
- No Scaling & Froth formation in evaporator.
- User friendly plant.





Molasses Based Distilleries

Flow Diagram for Molasses Based Distilleries



Note:

- Part of the Mixed Dried Fuel can be used as a fuel to provide energy to Rotary Dryer.
- Powder obtained from Spray Dryer mixed with Solid fuels and can be burnt to provide energy to Spray Dryer.
- Powder can be burnt in a high pressure boiler to produce Power + Bleed Steam for operation of Evaporator.

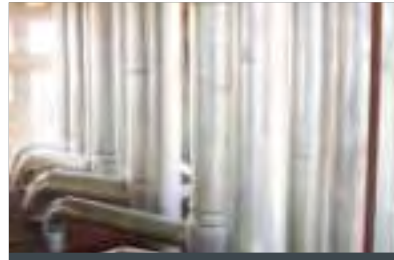




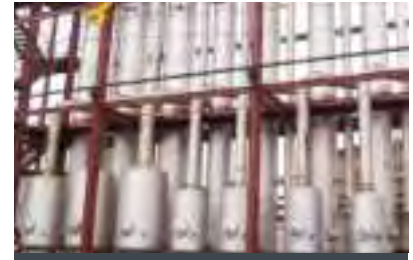
Installation Photographs Molasses Based Distilleries



2400m³ / Day 5 Effect
Falling Film Evaporation Plant (ETP)
IGL (GORAKHPUR), INDIA



700m³ / Day 5 Effect Evaporator for (ETP) –
Ashoka Distilleries (HATHIN, HARYANA) INDIA



750m³ / Day ETP Plant for Spent Wash –
M/s Shree Tatyasaheb Kore Warana SSK Limited,
Maharashtra, INDIA



700m³ / Day Dryer –
Ashoka Distilleries (HATHIN, HARYANA) INDIA



900m³ / Day 5 Effect Falling Film Evaporator
and Spray Dryer –
IFB Agro Industries Ltd. (West Bengal), INDIA



300m³ /Day 5 Stage Evaporation Plant (ETP)-
KANORIA CHEMICALS (ANKALESHWAR), INDIA



120m³ / Hr W.E. 5 Effect
Falling Film Evaporation Plant (ETP) –
IGL (Kashipur, Uttarakhnad), INDIA



750m³ / Day 7 Effect Falling Film Evaporator –
Kolhapur Sugar Mills (Maharashtra) INDIA.



180m³ / Day ETP Plant for Spent Wash –
M/s Sa Sucrierie Et Rhumeries De Marie
Galante - GRAND BOURG (GUADELOUPE)



360m³ / Day Effluent Treatment Plant (ETP)
UGAR SUGAR WORKS, UGAR KHURD
(KARNATAKA), INDIA



180m³ / Day ETP Plant for Spent Wash –
M/s Sa Sucrierie Et Rhumeries De Marie
Galante - GRAND BOURG (GUADELOUPE)

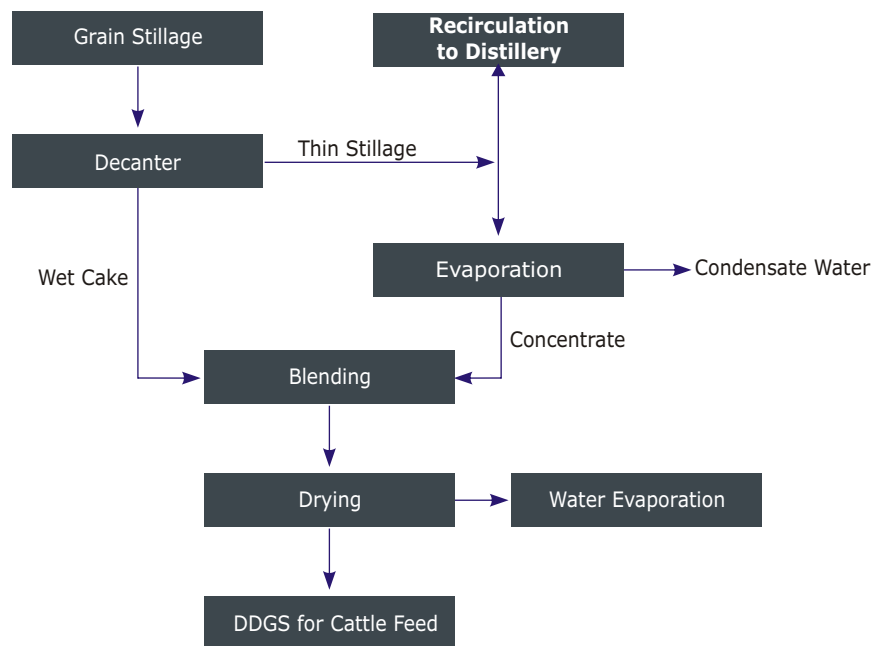


300KLPD-ETP Plant for Molasses Base Distillery-
Silk Route Sugar -Tamilnadu, India



Grain Based Distilleries

Flow Diagram for Grain Based Distilleries

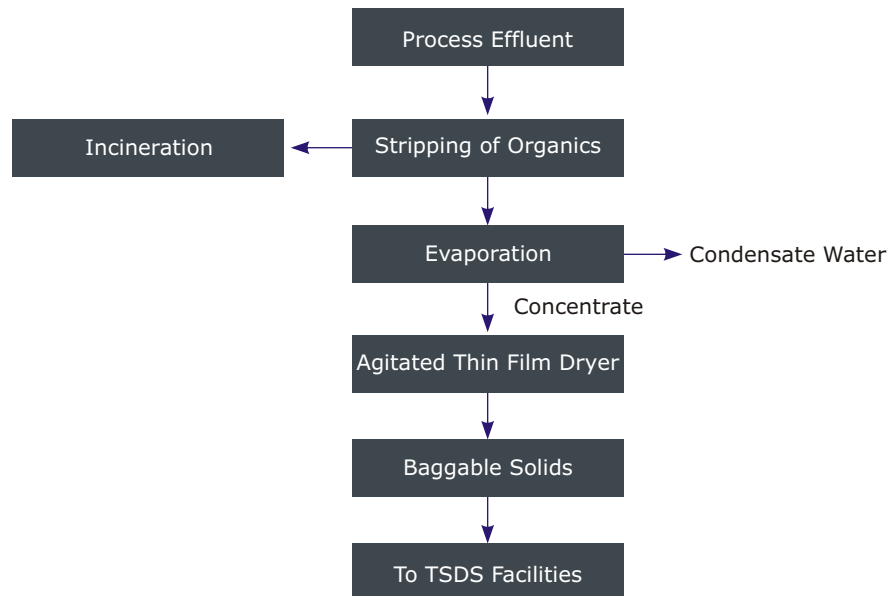


900 KLPD - ETP Plant for - Biomethanated Spent Wash /Grain Spent Stillage
Lokmangal Agro Industries Pvt. Limited, Solapur



Bulk Drug Industries

Flow Diagram for Bulk Drug Industries



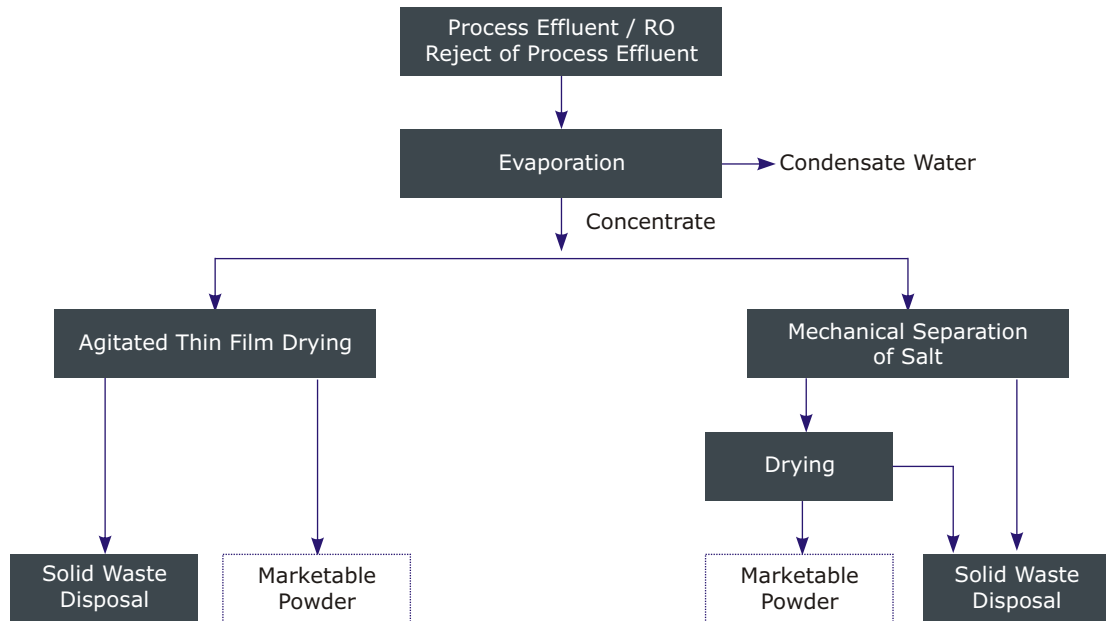
Installation Photographs for Bulk Drug Industries





Textile Dyeing Industries

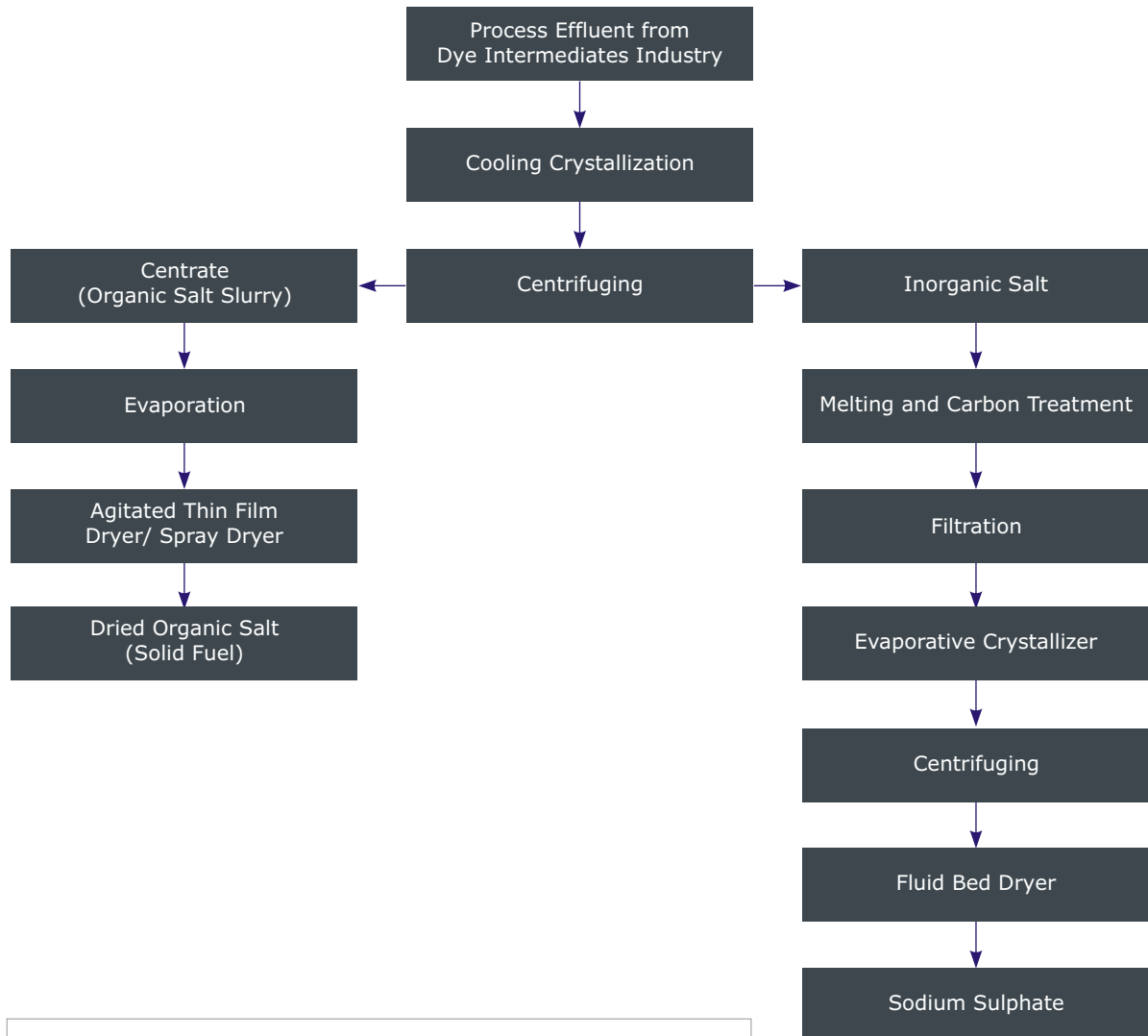
Flow Diagram for Textile Dyeing Industries





Dye Intermediates Industries

Flow Diagram for Dye Intermediates Industries

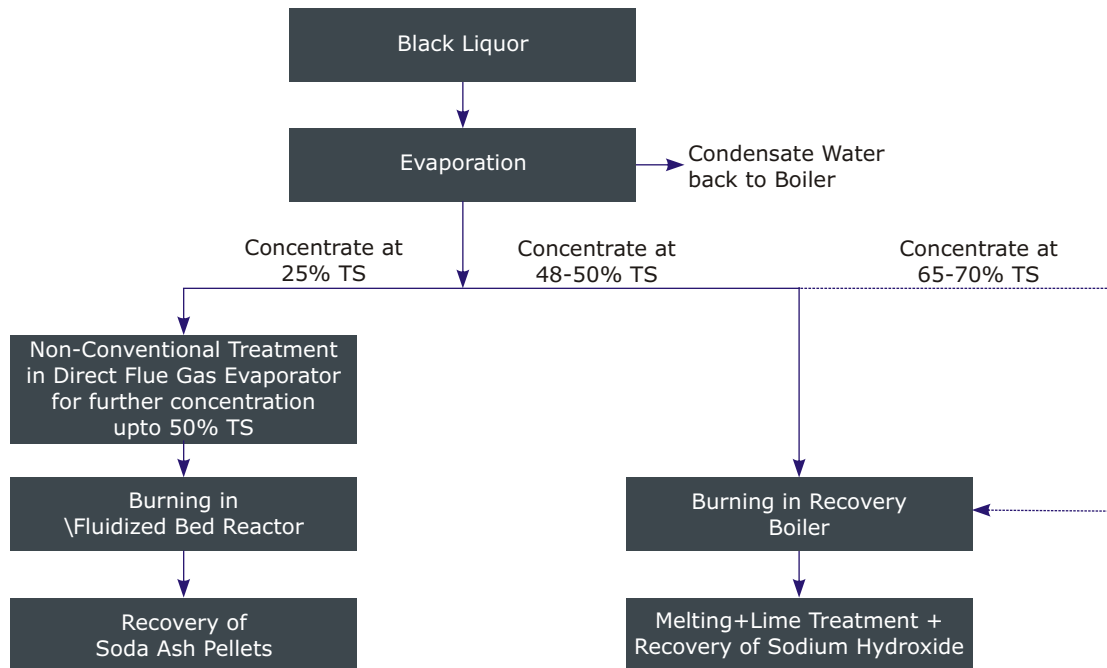


50m³ / day Triple Effect Evaporator with ATFD – VASANT CHEMICALS, HYDERABAD, INDIA



Pulp and Paper Industries

Flow Diagram for Pulp & Paper Industries



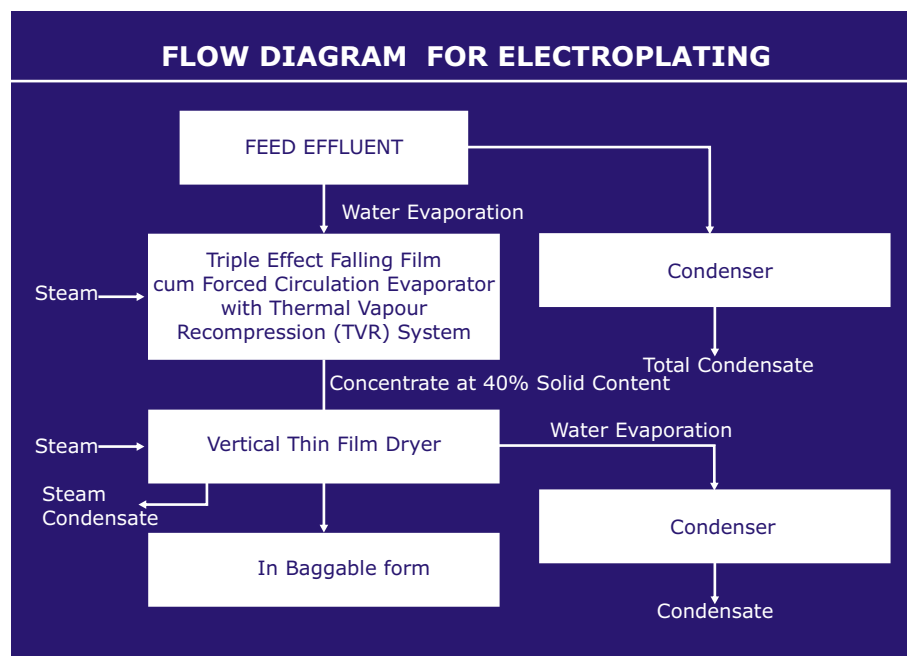


ETP Solution for Electroplating Industries

The effluent from electroplating industries is generally low in solid content and contain metals like Chromium and Manganese in the effluent content.

The effluent is preheated and then fed to Multiple Effect Falling Film Evaporator for concentration. After concentration, the concentrate is dried using an Agitated Thin Film Dryer. This dried powder can be used as solid waste disposal or as a landfill.

The condensate obtained from the evaporator is clean and colorless liquid and it can be used back in the plant as soft water.





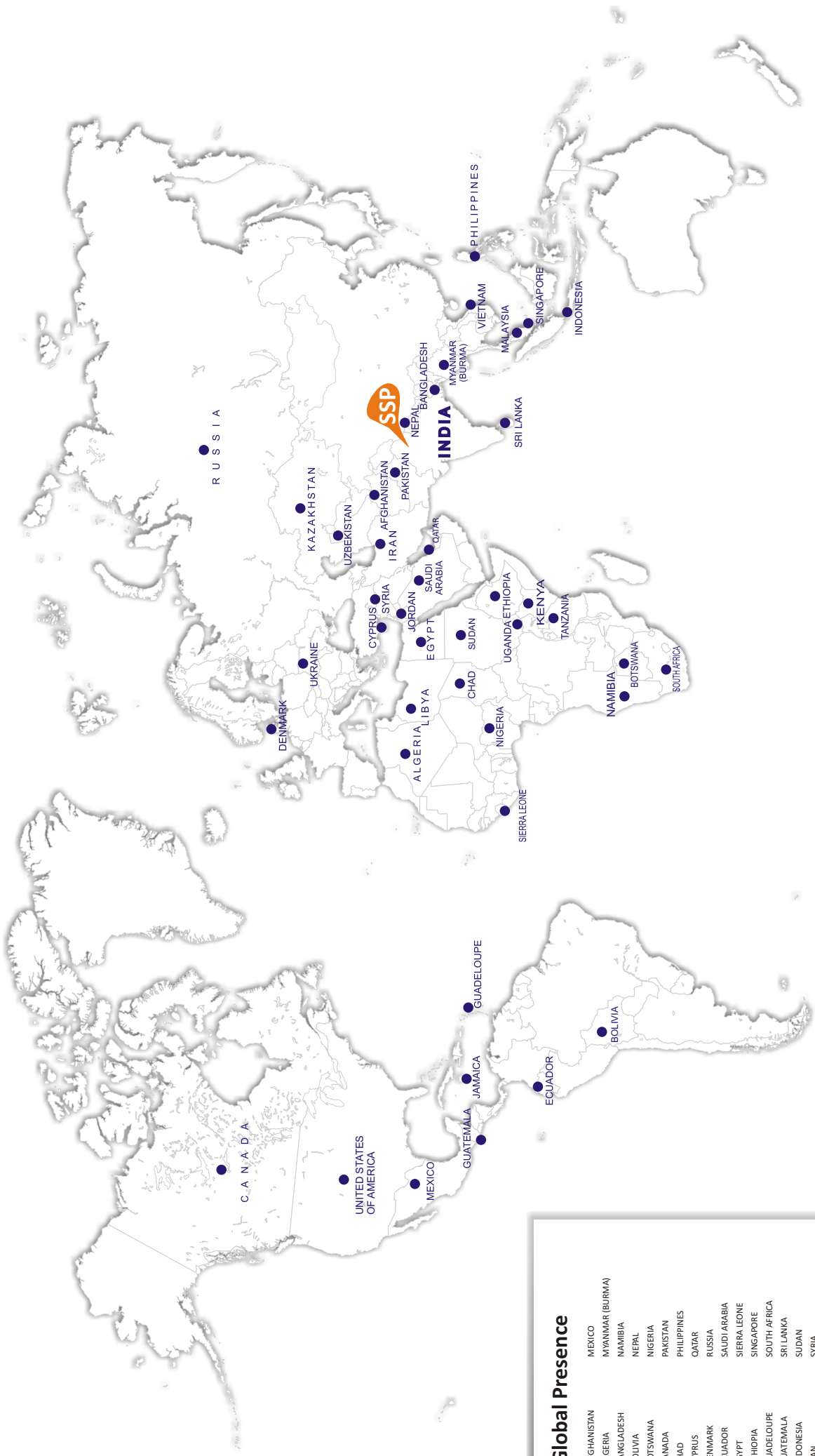
Satisfied Clients





Projects around the Globe

PROJECT	CAPACITY	CITY/STATE	COUNTRY	COMPANY
Vacuum Salt Plant	2 TPH	Bab Ezzouar	Algeria	Alfa Omega Enterprises (Groupe Kadaur Ltd.)
Soymilk and Tofu	500 LPH	Blida	Algeria	Soyatech Nutrition & Sante Ltd.
Mechanical Salt Refinery Plant	10 TPH	Mazare Sharif	Afghanistan	Yosuf Ishaq Co. Ltd. (Pamir Blaur)
Mechanical Salt Refinery Plant	6.5 TPH	Dhaka	Bangladesh	BRAC Salt
Mechanical Salt Refinery Plant	25 TPH	Dhaka	Bangladesh	Globe Salt Industries Ltd.
Salt Processing Plant	10 TPH	Dhaka	Bangladesh	Pubali Salt Industries Ltd.
Stillage - Concentration Plant	1000 Kg/Hr.	Saskatoon	Canada	Agchem Biosynthesis Inc.
Khoa Making Machine	30 kg/Hr.	Surrey BC	Canada	Dhaliwal Sweets Ltd.
Soymilk Evaporator	1800 kg/h	Ottwa	Canada	Prosoya Inc.
Protein Extract from beef/ pig/ chicken	4000 kg/HR.FR Evptr.	Logstor	Denmark	MTS Natural Taste A/S
Dicalcium Phosphate Plant	3600 kg/h Powder	Alexandria	Egypt	AV Technology (Pvt) Limited
Gelatin Powder Plant	315 Kg/ HR.	Alexandria	Egypt	El-Amin for Gelatin Factory
Honey Processing Plant	1 TPS	Mekalla	Ethiopia	Dimma Beekeeping
Spent Wash Treatment Plant	240 m3/day	GALANTE	Guadeloupe	SA DES SUCRERIES ET RHUMERIES DE MARIE
Glucose Processing Plant	3 TPH	Esfahan	Iran	Ardineh Starch Co.
Spin Flash Dryer for Okara	337 Kg/HR.	Tehran	Iran	Soyasun
Tannin Rich Powder from pomegranate	10 kg/HR.	Tehran	Iran	Karat Noor Parsian Company
Milk Powder Plant	5 TPD	Kingston	Jamaica	Jamaica Dairy Farmers Federation
Mechanical Salt Refinery Plant	1.5 TPH	Al-Zarka	Jordan	Yousef Ahmad Husein & Partners Co.
Licorice Root Extraction & concentration Plant	10000 TPD Root Processing	Uralsk	Kazakhstan	Licorice Kazakhstan (BRK-Leasing Organisation)
Salt Processing Plant	20TPH	Mombassa	Kenya	Agri – Chemicals Ltd.
Liquid Milk Plant	2000 LPD	Tripoli	Libya	Al-awael Company
Copper Oxide Powder Plant	394 kg/hr	Kuala Lumpur	Malaysia	Coogee Asia Sdn Bhd.
Palm Kernel Dryer	5 TPH	Kuala Lumpur	Malaysia	Inproser Konsortium Sdn Bhd
Malted Milk Powder Plant	300 Kg/batch	Panang	Malaysia	Family Cereal Sdn. Bhd
Chelated Mineral Plant	103 kg/HR.	Vera Cruz	Mexico	Unipharama De Mexico
Ferric Phosphate Dryer	194 kg/HR.	DEC.V	Mexico	Quimica Barquim S.A.
Spirulina Algae Plant	154 kg/HR.	Yangon	Myanmar	Legend International Development Com. PTE Ltd.
Mechanical Salt Refinery Plant	12 TPH	Walvis Bay	Namibia	Ekango Salt Refineries (Pty) Ltd.
Katha Processing Plant	1500 kg/HR.	Nepalganj	Nepal	Gurung Katha Udyog (P) Ltd.
Detergent Powder Plant	24 TPD	Lagos	Nigeria	GMMCO Ltd.
Fruit Juice / Concentrate / Juice ready to drink Plant	500 kg/HR.	Lagos	Nigeria	Techo-Quip Ltd.
Salt Processing Plant	15 Ton/HR.	Lagos	Nigeria	Agri – Chemicals Ltd.
Milk Powder Plant	20 TPD	Lahore	Pakistan	Gourmet Dairies
Milk Powder Plant/ Khoa making machine	10 TPD	Lahore	Pakistan	Premier Dairies
Milk Powder Plant	8 TPD	Lahore	Pakistan	Prime Dairies Ltd.
Coconut milk powder plant	400 kg/hr.	Quezon City	Philippines	Primex Coco Products Inc.
Detergent Power Plant	5 TPD	Doha	Qatar	Detergent Manufacturing Factory
Soymilk Powder Plant	18 TPD (F B Dryer)	Krasandar	Russia	ASSOY
Starch Plant	80 MT/day crushing	Riyadh	Saudi Arabia	ARASCO
Coffee Evaporator	7000 kg/hr.	Johannes Burg	South Africa	National Brands Limited
Liquid Milk Plant	2300 kg/hr.	Bandaragoda	Sri Lanka	Cargills Quality Dairies
Milk Powder Plant	10 Tons/day	Colombo	Sri Lanka	Pelwatte Dairy Industries (Pvt.) Limited
Fish Meal Plant	1 TPH	Khartoum	Sudan	Mohan Export
Dicalcium Phosphate Plant	3127 kg/hr	Damascus	Syria	Arabian Sources Trading FZCO
Tomato Ketchup Plant	3 TPD	Arusha	Tanzania	Darsh Industries Ltd.
Mechanical Salt Plant	7 Ton/Hr	Dar-es-salaam	Tanzania	Nyanza Mines (Tanzania) Ltd.
Salt Processing Plant	15 Ton/Hr	Dar-es-salaam	Tanzania	Seasalt Limited
Milk Powder Plant	5 TPD	Kampala	Uganda	Ra Milk Limited
Instant Coffee Powder Plant	6 TPD	Odessa	Ukraine	UKRCOFFEE LTD.
Starch Dryer	94 kg/hr.	New Jersey	USA	Lycored Corporation
Tomato Ketchup/Puree/ Paste Plant	1675 kg/h.	Tashkent	Uzbekistan	Akshay International Ltd.
Spent Wash Effluent Treatment Plant	720 m3/day	Ho Chi Minh	Vietnam	NIVL Joint Stock Co.
Dye & Dye Intermediaries Plant	100 kg/hr.	Ho Chi Minh	Vietnam	Dye Manufacturing Factory
Steam Tube Dryer for Wet/Dry Cassaba Cake	3160 kg/hr.	Quang Ngai City	Vietnam	PTSC Quang Ngai Co., Ltd.
Mechanical Salt Plant	1 Ton/Hr.	Sierra Leone	West Africa	Commonwealth Secretariat



Global Presence

AFGHANISTAN	MEXICO
ALGERIA	MYANMAR (BURMA)
BANGLADESH	NAMBIA
BOLIVIA	NEPAL
BOTSWANA	NIGERIA
CANADA	PAKISTAN
CHAD	PHILIPPINES
CYPRUS	QATAR
DENMARK	RUSSIA
ECUADOR	SAUDI ARABIA
EGYPT	SIERRA LEONE
ETHIOPIA	SINGAPORE
GUADELOUPE	SOUTH AFRICA
GUATEMALA	SRI LANKA
INDONESIA	SUDAN
IRAN	SYRIA
JAMAICA	TANZANIA
JORDAN	UGANDA
KAZAKHSTAN	UKRAINE
KENYA	UNITED STATES OF AMERICA
LIBYA	UZBEKISTAN
MALAYSIA	VIETNAM