

FOOD

PROJECTS



ABOUT SSP

- 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 44 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.



INSTANT COFFEE PROCESSING PLANT

Approximately 90% of world coffee production is represented by the species *Coffea Arabica*; about 9% by the species *Coffea Robusta*; with minor production from the species *Coffea Liberica*. The amount of coffee robusta 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, whereas, for coffee robusta there are 726, and coffee liberacia 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.

THE PROCESS:-

Coffee Cleaning & Blending:

The first step is thorough cleaning and removal of defective beans, followed by blending of different types and size to ensure best flavor.

Roasting & Grinding:

The second step is roasting through either batch or continuous roasters. Roasted coffee is reduced by grinding to suitable size.

Extraction:

The third step is extraction of ground coffee through a batch or continuous system either using a pressure vessel with hot water or an alternate approach of 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 to coffee just prior to it entering 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 flavor. Fluidized bed dryer is coupled with the system.

Agglomeration:

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

Freeze Drying:

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.

Packing & Filling:

The Instant Coffee Powder is taken to the filling and packing stage. For filling into tins or jars, vacuum operated filling system is used. For filling into sachets, a form fill-sealing machine is used. The filled containers / flexible packings are then packed in the shipping cartons and sent for dispatch to the finished goods warehouse.



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 evaporation, spray drying and fludised bed drying.

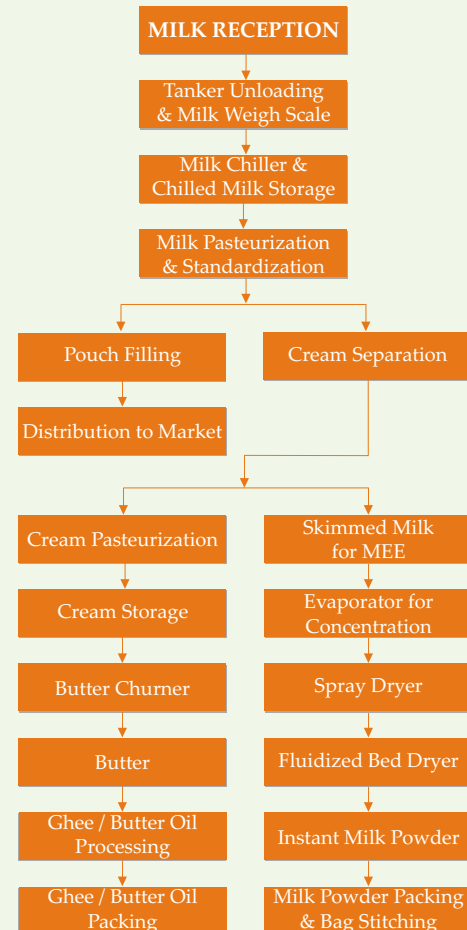
Dairy Projects Available:

- Liquid Milk Processing Plant
- Milk Powder Plant
- Sweetened Condensed Milk Plant
- Evaporated Milk Plant
- Malted Milk Plant
- Casein & Whey Processing Plant

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



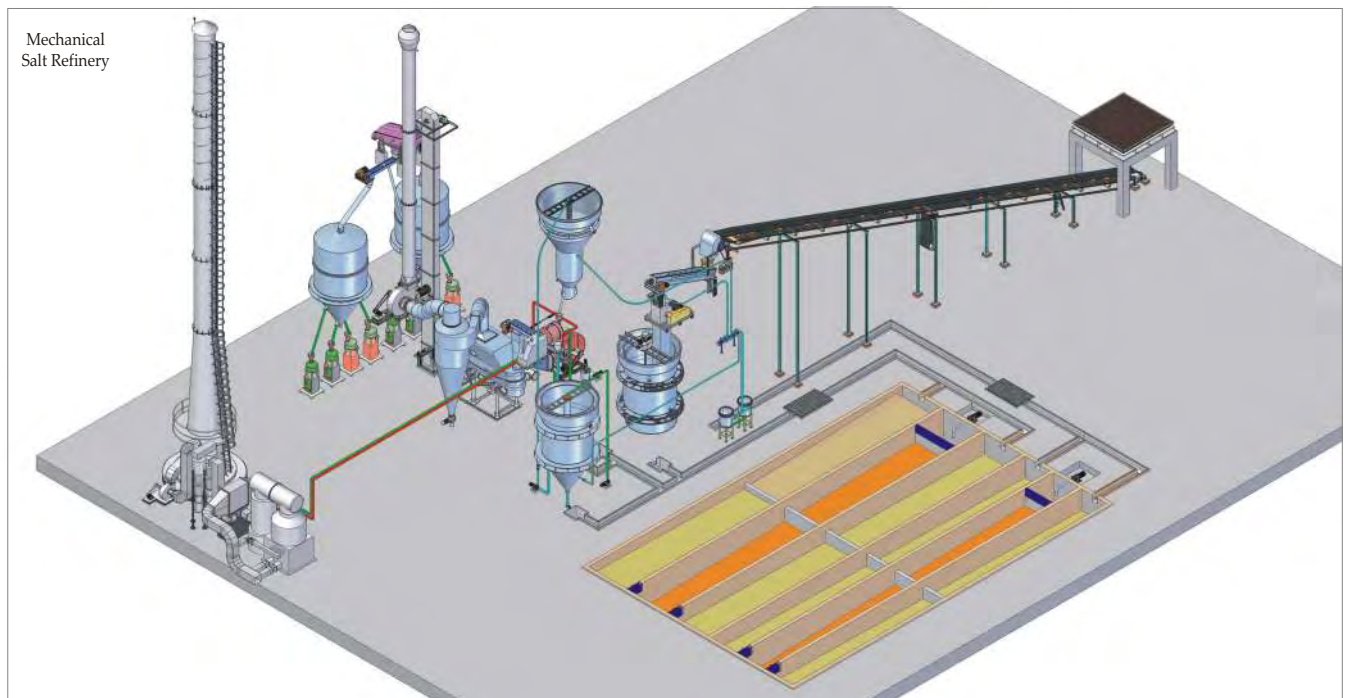
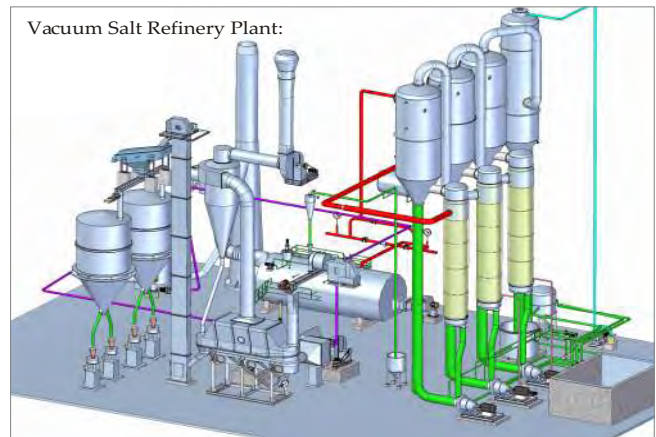
REFINED IODISED SALT PROCESSING PLANT

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 on 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:

- 1) Mechanical Salt Refinery
- 2) Vacuum Crystallisation



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 whereby, the surrounding atmospheric 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:

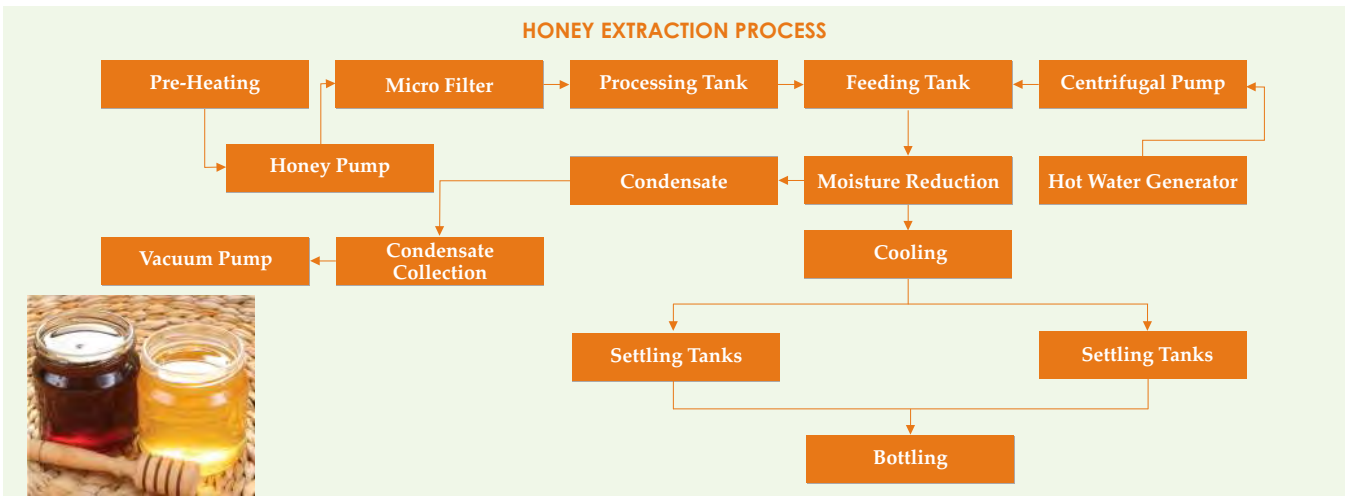
Water (Moisture)	-	20%
Fructose (Levulose)	-	37%
Glucose (Dextrose)	-	34%
Sucrose (Non Reducing Sugar)	-	5.0%
Total Ash (Minerals)	-	0.25%
Organic Acids	-	0.20%
Proteins, Amino Acids, etc.	-	1.50%
Other ingredients including pollen grains	-	1.05%

Brief Process Description

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

SSP's Unique Design Ensures

- High product quality
- Compact design & flexibility
- Easy operation & automatic control
- Gentle heat treatment using low temperature hot water
- Minimum manpower requirement
- Centralised heating system using oil fired hot water boiler
- Easy cleaning due to absence of fouling & hygienic construction
- Low operation cost



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 finds 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. Defatted desiccated coconut is also in demand for various food preparations.

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

Spray dried coconut milk powder has advantages of long shelf life, less storage space requirement, and high cost effectiveness in terms of bulk packing.

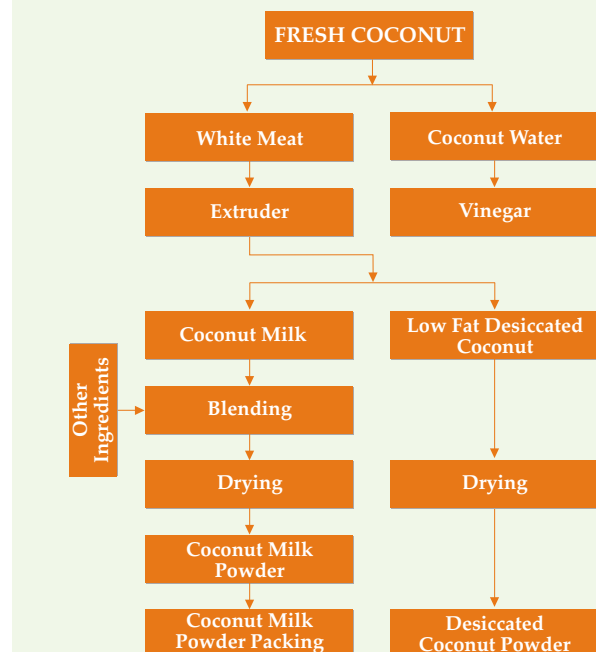
Instant Coconut Milk Powder, Desiccated Coconut Powder along with Vinegar from coconut water is a highly feasible project.



SSP's Unique Design ensures:

- High Product Quality
- Compact design
- Easy operation & automatic control
- Minimum manpower required
- Low operation cost
- Low fat & High fat powder

COCONUT MILK & COCONUT MILK POWDER PROCESSING



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, 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 sq m 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 for production of 200 l/h, 500 l/h, 1000 l/h & 2000 l/h 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 and 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.

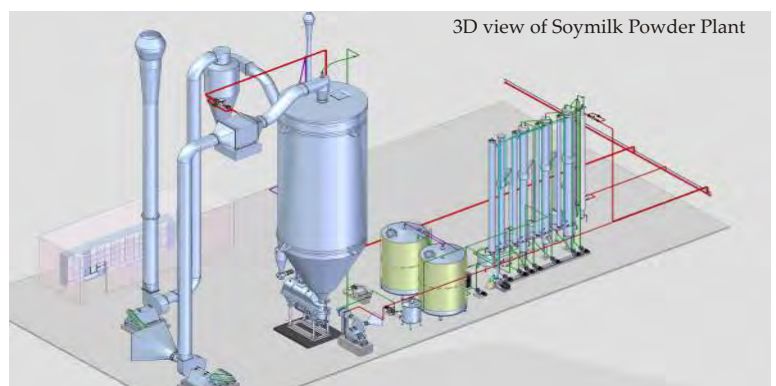
Flavoured Soy Milk

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 up to 22% followed by Spray Dryer for manufacture of Soy milk powder.

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



EGG PROCESSING PLANT

Eggs contain 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 a 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 should 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 inactivated.

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 and 200°C. Final powder has a moisture content of 2 to 4% and bulk density of 0.3- 0.35 g/cm³. The powder is then packed suitably after subsequent cooling.



FLOW DIAGRAM FOR EGG PROCESSING PLANT



FRUIT JUICE, PULP & CONCENTRATION PLANTS

Fruit processing industry has been declared as “Thrust Industry” for its potential and vast utilization of fruits and vegetables.

The study, design & manufacturing of these processing lines 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 desirable in taste and color, and are best to be consumed fresh. In order to preserve them and ensure their quality, various techniques are to be adopted. This includes various process and preservation methods. These fruits can be processed for production of juices/ pulps/ concentrates (see box).

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

- Selection and Preparation of fruits.
- Extraction of juices.
- Straining, Filtration and Clarification.
- Blending Pasteurisation.
- Filling, Sealing and Sterlization.
- 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 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.

- Apple, Pineapple
- Tomato
- Guava
- Grapes
- Lemon
- Mango
- Papaya
- Berrys
- Oranges

SSP offers multiple fruit processing plants for production of juices/ pulps.



TOMATO PROCESSING PLANT

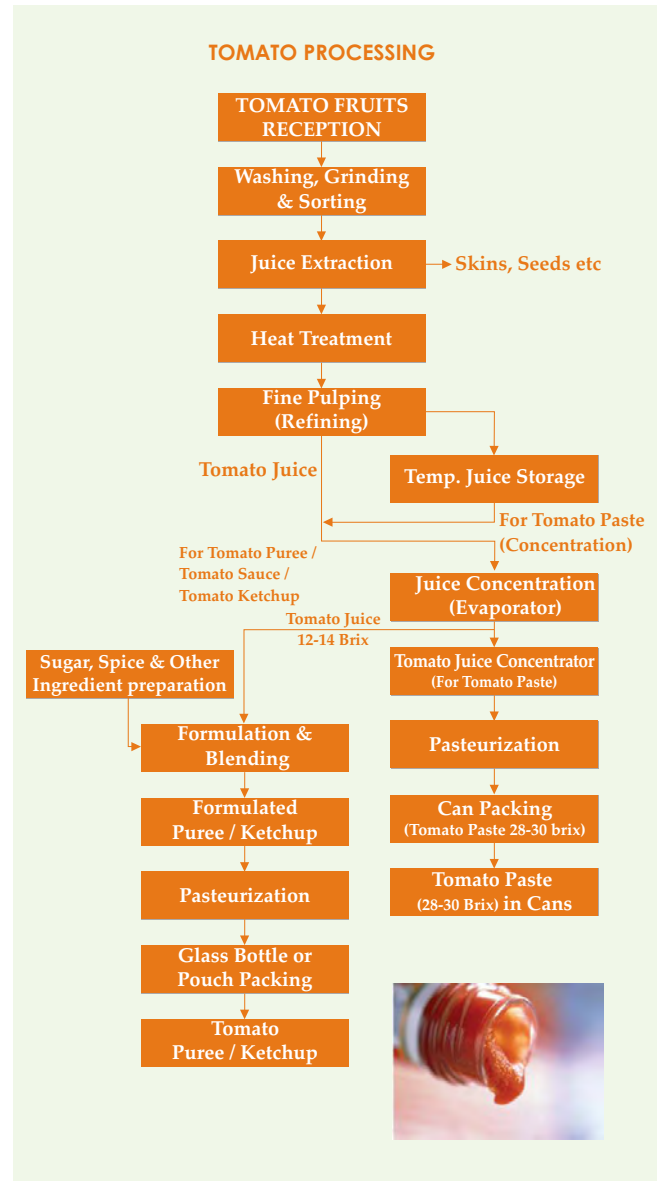
SSP offers complete process line on turnkey basis to produce the following end products from tomatoes.

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

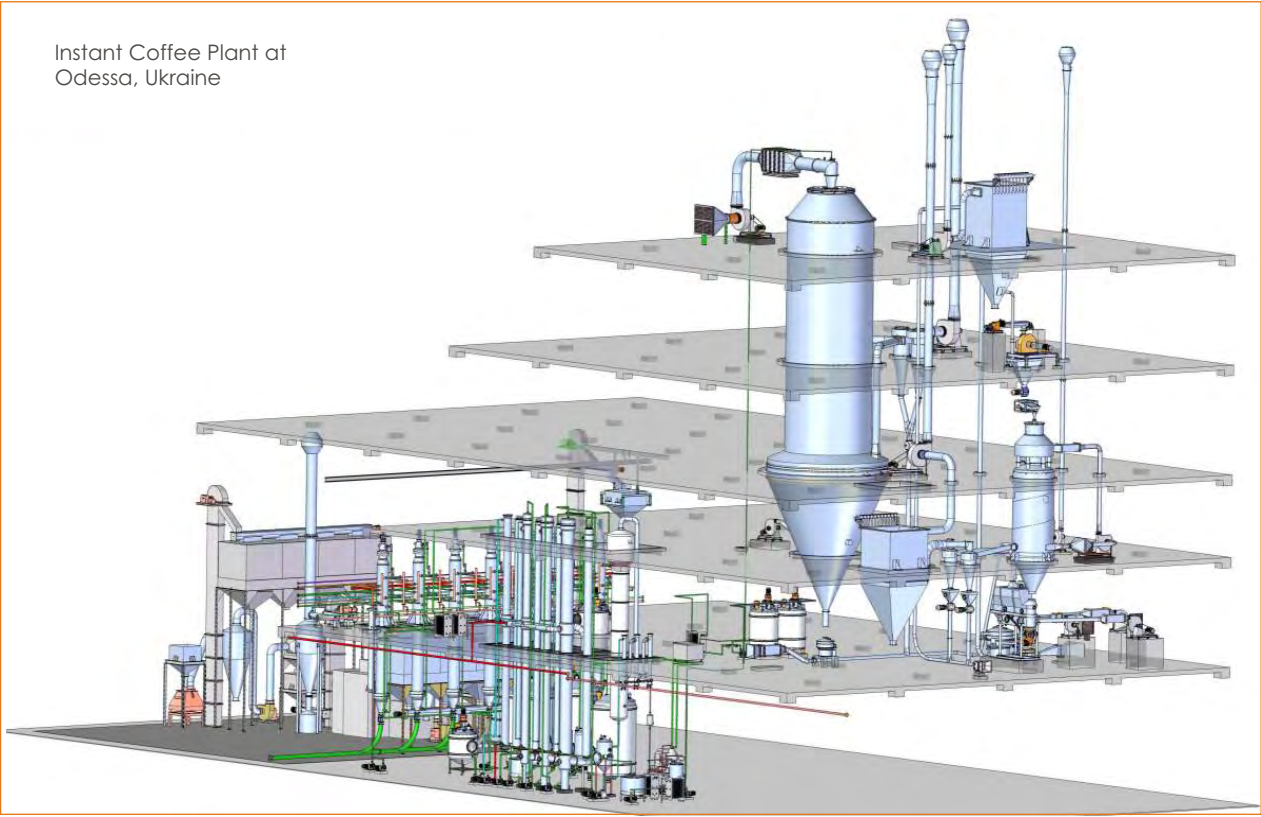
Packing lines can be offered depending upon the requirement like product in glass bottles, cans, drums, etc. Manufacturing process involves most modern technology of vacuum evaporation using forced circulation evaporators / scrapped surface evaporators. Evaporation plants are versatile enough to concentrate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

Salient Features are: -

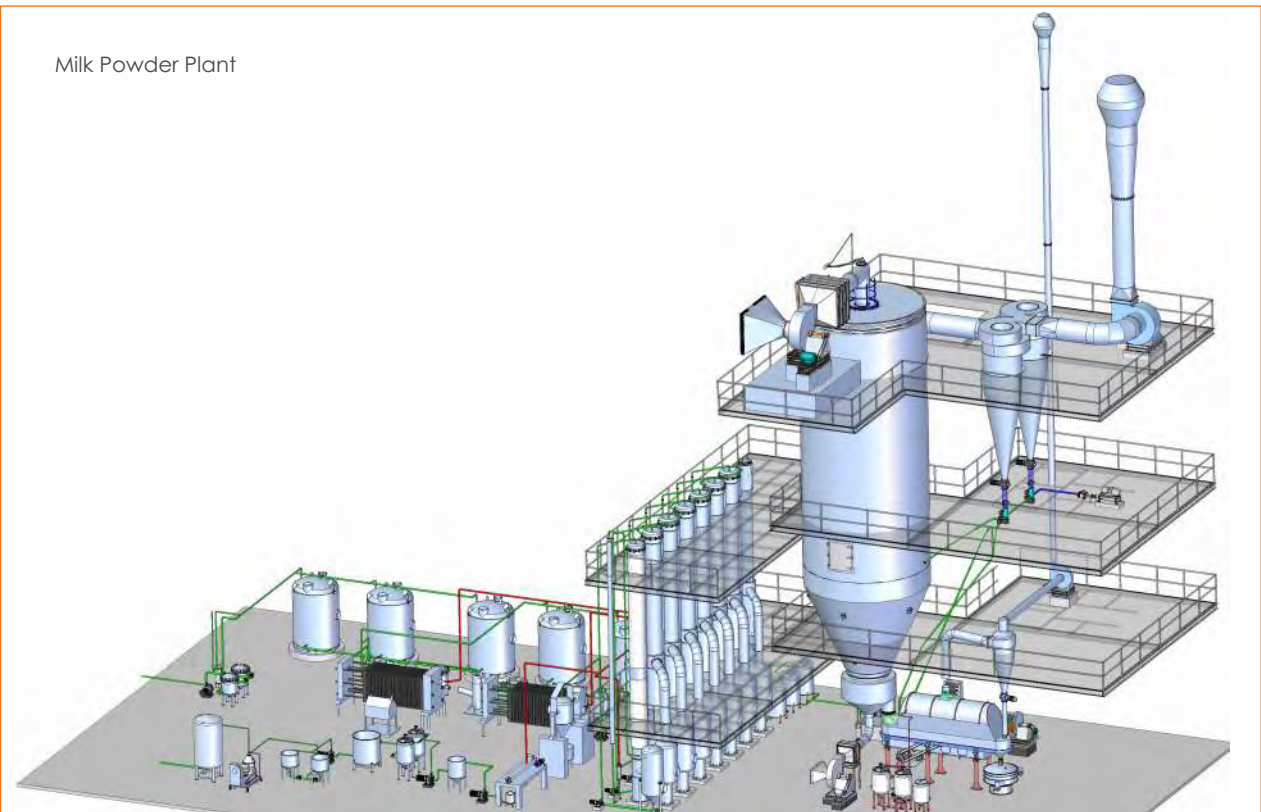
- High yield upto 90% of juice
- Low energy cost
- Low temperature evaporation resulting improved quality of products
- User friendly
- Semi automatic as well as fully automatic system available
- Both hot break and cold break systems available



Instant Coffee Plant at
Odessa, Ukraine



Milk Powder Plant



SSP:MKD:CTG:02/REV002:01/2012