

Instant Tea production line

DESCRIPTION

XIANDAO 's Instant Tea Production Line (Instant black tea production line) has high quality performance .

The extractor with three or four extraction tanks in series will give outlet solution with solid contents of around 6-12%. This solution contains some fiber inside. Then the disc separator will separate the fiber.

If cold water soluble instant tea is required, the disc separator will also separate most tea oil. Depend on the customer's requirements; it could be one disc separator for dual application (two phases and three phases separation) or two disc separators separately.

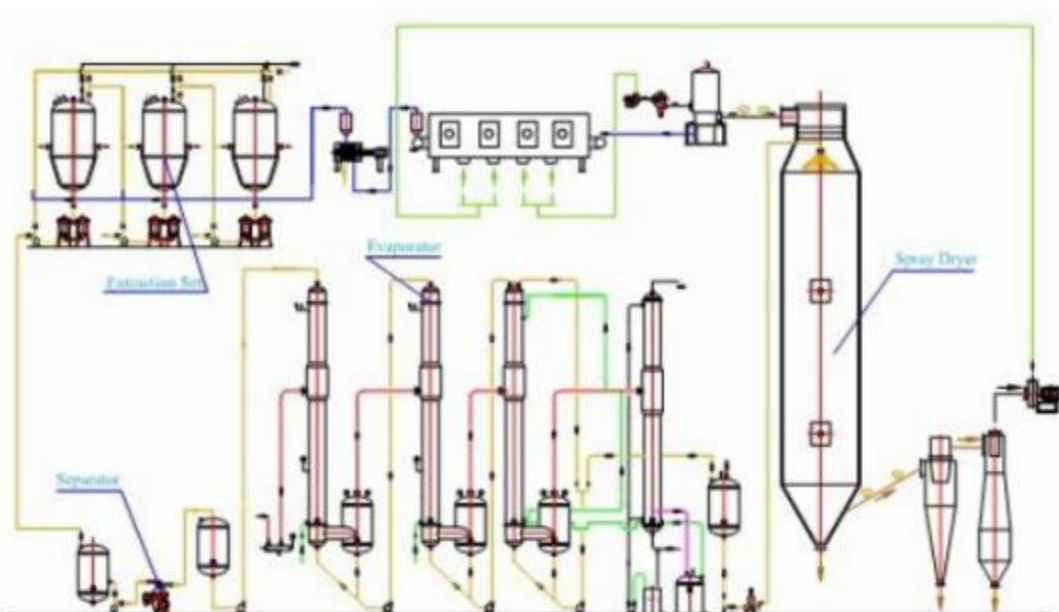
The separated solution will then be concentrated by the evaporator. The solid contents after evaporator is normally around 30-45% (depends on the type of tea).

The concentrated tea will then be dried into tea powder with the spray dryer. Pressure spray dryer will give bigger particle, and instant soluble tea.

If the required product size is bigger, such as 1 or 2 mm, a fluid bed granulator is provided on request.

Description Of The Plant

Overall flow chart:



i . Extraction tank

Our extraction tank are widely applicable for pharmaceutical , healthy food, instant drinks,

and chemical industries. Our special design provides high working efficiency, and convenient operation. WIP (washing in place) section is available on request.

With multi-units of extraction tanks in series, we could have the extraction process semi-continuous, and extract most of the ingredients from the raw material.

Some special tea requires special design to retain the aroma. We have the design to extract the aroma and separate it for further process.





ii. Disc Separator (dual applications)



Disc Separator is a kind of purification equipment used in the biotechnology, pharmaceutical, pigment, foodstuff, oil, petrochemical, and dairy industries to separate the mixture of “liquid -- liquid and solid – liquid” in different proportion.

There're very low percentage fibers or ash in the extract. To make sure the final product could be 100% solved, we suggest disc separator to take out the impurities.

To make cold water soluble tea, we should also separate the tea oil. It could be one separator to separate the oil and insoluble impurities, or two separators separately. Some customer also requires further separator to refine the tea oil.

iii. Concentrator



Multi-stage Vacuum concentrator

We normally suggest multi-effects falling film evaporator to concentrate the extract before spray dryer. It saves energy by utilizing the steam repeatedly. The condensing heat can also be recovered, if the vapor from the front effect is compressed to higher pressure. The saturated steam temperature corresponding to the pressure is also higher and the vapor can be reused for heating. Steam jet vapor compressor is used under this principle.

The jet compressor is operated at a very high velocity and has no movable parts. The structure is simple and the operation reliable.

Every effect of falling-film evaporator has an upper distribution system. The liquid flows downwards in each tube uniformly, forming a cylindrical hollow thin liquid layer, the vapors flow axially downwards.

The concentrated product is separated from the vapors in two steps, firstly to the lower end by gravity, and secondly by a high efficient cyclone separator. The clean vapors are then used to heat the next effect, or condensed (last effect).

There also freezing concentrators. But the powder consumption is very high, so the application is not wide.

iv. Spray Dryer

To have good solubility, we normally suggest pressure spray dryer for this application.

The concentrated solution should be fed into the drying tower by high pressure homogenizing pump, and then sprayed into fine beads. Filtered and heated air flows into the drying tower through hot air distributors, and will dry the liquid fine beads very fast. The dry product will be collected at the bottom of the spray dryer, and fines to be collected in the cyclones.

Our special design will guarantee the quality of the product and reduce the energy consumption.



But if you want to get instant granule tea product, then we would recommend strongly the PFSD Series Multi-stage Precision Fluidized Bed Spray Dryer (Continuous Production).



PFSD-760 Series Multi-stage Precision Fluidized Bed Spray Dryer (Continuous Production).

Also the following FL Series Fluid Bed Granulator (**Small Size Batch Production**) is for

users' choice.



Fluid bed granulator:

When bigger product particle size is required, we suggest fluid bed granulator which could produce particles of around 1 to 2 mm.

In the granulator, fine instant tea powder is loaded in a product container, and fluidized by heated and filtered air. Liquid tea extract or any other flavor are sprayed onto the fluidized powder to make granules.

v . **Heat recovery system**

The brew tea leaves might be used as the fuel of the system. But the original brew tea leaves are wet, not easy to be combusted. So we press the tea leaves first, and then utilize the hot air from the drying tower and the heat of flue gas to dry the tea leaves before feed them to hot air furnace or boiler.

vi. Other parts

To have the plant run smoothly, we also configure some sedimentation tanks, buffer tanks, and other storage tanks for the system.

WIP (Washing In Place) system is provided on request.