



Freeze Concentration Plant - 17000lbs/Hr

Capacity: 17000 lbs/hour (4250 lbs/hr per line)

Products: Freeze concentrated food grade liquid

Major Equipment

1. Feed Tank - TK65400
2. Crystallizer Stage 1 - EX65200.
3. Wash column - ME65300
4. Crystallizer Stage 2 - EX65100
5. Ice Transfer Pump - PU65124
6. Product Slurry Pump - PU65451
7. Production Vessel - PV65450
8. Product Output Pump - PU65457
9. Melter - HT65302
10. Washwater Circulation Pump - PU65301
11. Product Heater - HT65303
12. Heater Cooling - HT65152
13. Temper pump stage 1&2 - PU6515065250
14. Main Temper Pump PU65001_65002

Brief Plant Description

Unused 17000 lbs/hour (7748 kg/h) freeze concentration plant. Designed and engineered by GEA Messo PT. Freeze concentration is one of the methods for liquid food concentration. This GEA plant is designed as four identical freeze concentration units to process the supplied amount of liquid beverage solution by using crystallizers. By means of crystallization the extracted beverage solution of 6.5 - 7.5 wt% will be concentrated 4-5 fold by removing pure water. Each line produces 4250 lbs/hr (427 kg/hr) of concentrated liquid solution and 3330 lbs/hr (1510 kg/hr) of pure water. Concentration process consists of three main parts: 1. Crystallization part: the system has (4) identical lines, and each line has (2) crystallization stages with a 3000 gallon Stainless Steel Double Wall crystallizer on each stage. The crystal production is obtained by introducing a cooling liquid (dynaline) via the jacket on the crystallizer wall. 2. Separation part: The ice crystals produced in the crystallizers need to be separated from the beverage liquid in the wash column. The slurry is separated in the wash column in a pure water stream and a liquid stream. The pure water stream leaves the plant and the liquid stream is returned to crystallizer. Part of this liquid stream is used as a feed for the first stage crystallizer, to compensate for the ice production to the second stage and the final production of concentrated beverage liquid. 3. Final product: The latter stream is produced via production vessel. From crystallizer, a slurry flow is circulated over the production vessel via product slurry pump. This GEA plant can be used in the pharmaceutical and food and beverage applications such as Fruit & vegetable juices, Coffee & tea extracts, Herbal extracts, Beer, Wine, Cider and Vinegar

**For more
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