EVAPORATORS

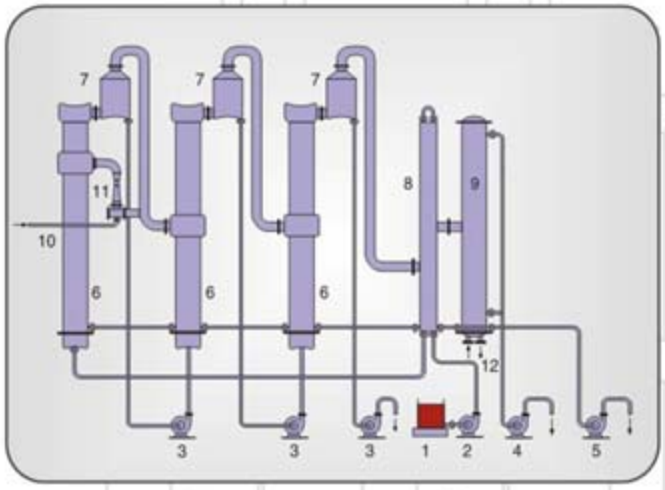
Evaporation is the process which involves thermally removing a liquid from a solution, suspension or emulsion. The starting and the end products are in the liquid phase and the end product obtained is in it's concentrated form.

Depending on the liquid characteristics to be concentrated, its temperature sensitivity, thermal degradation properties, etc., Different types of evaporators have been designed and are used for variety of applications in different industries. Single stage systems are energy intensive and hence multistage systems are employed, where the vapour energy of one stage is used as the heating media for the next stage. Further efficiency increase is obtained by using Thermal Vapour Recompression system or Mechanical Vapour Recompression system.

Given below are diagrams describing various types of Evaporators :

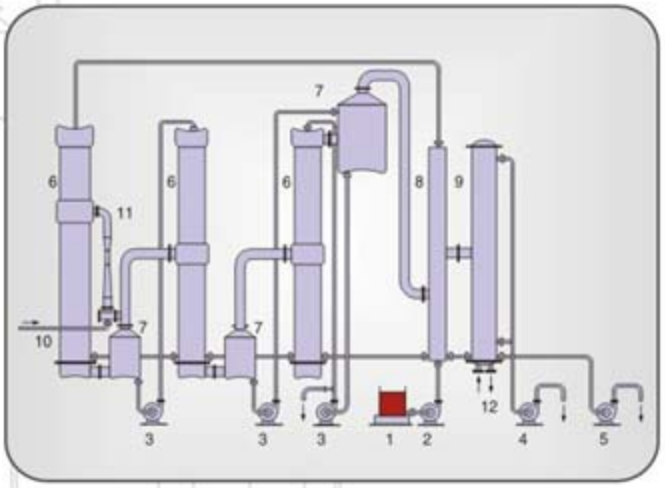
MULTIPLE EFFECT VACUUM EVAPORATOR

FORCED CIRCULATION EVAPORATOR



1. Feed Tank 2. Feed Pump 3. Concentrate Pump 4. Vacuum Pump
5. Condensate Pump 6. Calendrias 7. Vapour Separator 8. Pre Heater
9. Surface Condensor 10. Steam Inlet 11. Thermo Compressor
12. Cooling Water

HYBRID EVAPORATOR



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EVAPORATOR APPLICATIONS

- Milk concentration from 8 - 10% up to 45%
- Effluent concentration before incineration
- Weak Liquor - low temperature concentration
- Dilute caustic lye solution concentration
- Herbal extract concentration
- Fruit juice concentration