

DISCONTINUOUS DISTILLATION



Non contractual photo

SERVICE : 230 V / 50 HZ / SINGLE PHASE: 3 KW. COLD WATER 20 ° C / 3BAR: 0 - 6 M3 / H. SEWER.
DIMENSIONS : 1,45 M X 0,65 M X 2,95 M

WEIGHT : 150KG

REFERENCE : MP1020

Distillation allows the separation of a mixture of compounds having different boiling points. The boiling of the mixture, introduced initially into the boiler, makes it possible to obtain vapors of compositions different from the liquid. Re-condensations and multiple re-evaporations progressively enrich the vapor phase to the most volatile product. The packing present in the column multiplies the contact surface and thus the material transfers. The vapors are condensed and then distributed between the distillate and the reflux via a manual flow control valve. The residue is recovered at the end of the operation. The temperatures at the bottom and at the top of the column are measured as well as half of the column in order to establish the temperature profile.

Educational Objectives :

- Study of the hydrodynamics of the column.
- Influence of the operating conditions on the separation of a solution.
- Thermal balance.
- Material balance.
- Determination of the number of theoretical plates (McCABE and THIELE, PONCHON and SAVARIT).
- Determination of the number of transfer units.

Technical specifications :

Equipment

- Boiler made of borosilicate glass, electric heating, equipped with a minimum safety level and maximum temperature safety.
- Refrigerant for differential pressure test.
- Column in borosilicate glass, in two parts with 316L stainless steel lining.
- Two 316L stainless steel recentering trays, each equipped with a sampling and temperature sampling valve.
- Borosilicate glass column head, with temperature measurement, equipped with a timer valve to control the reflux ratio.
- Vertical condenser made of 316L stainless steel.
- 316L stainless steel distillate coolant.
- Two distillate receivers made of borosilicate glass.
- Two cans of receipt of the distillate polyethylene.
- 316L stainless steel connection pipes.
- Support frame in 304L stainless steel tubes and aluminum nuts.

Instrumentation

- Condenser cooling water supply equipped with a float flowmeter with its control valve and a water circulation controller to stop heating due to lack of cooling.
- Column pressure drop measurement using a "U" differential pressure gauge.

- Control and control cabinet, IP55, equipped with emergency stop, operating buttons and the following interfaces:
- Electronic timer controlling the valve of the column head.
- Boiler heating control regulator.
- Two digital temperature indicators of 7 probes type Pt100 ? including a communicant

OPTIONS :

Option: Touch screen to view temperatures. With data storage and data recovery on USB stick in .txt files.