

SOLID / LIQUID DISCONTINUOUS EXTRACTION (SOXHLET) AND

REFERENCE : MP1035



Non contractual photo

SERVICE : 230 V / 50 HZ / SINGLE PHASE: 3 KW. COLD WATER 20 ° C / 3 BAR: 0 - 6 M3 / H. SEWER.

DIMENSIONS : 1,80 M X 0,85 M X 2,96 M

WEIGHT : 180KG

Principle of operation

The solid-liquid extraction is a semi-continuous process, coupling distillation with a soxhlet type cartridge containing the solid product impregnated with an active ingredient (solute) to be extracted by dissolution in a hot solvent. The distillation column generates solvent vapors which are condensed; this pure hot solvent feeds the cartridge containing the inert solid and the solute. When the cartridge is full, the solution obtained (solvent and solute) empties automatically by siphoning (leaching) and then returns to the boiler where the solvent is again brought to the boil. The leaching can also be carried out by continuous passage of the solvent or by successive manual draining. The solvent can also be fed in a single "pass" for infusion and the resulting extract is manually withdrawn.

Educational Objectives :

- Influence of the type of solvent.
- Influence of the residence time.
- Influence of the Principle of operation.
- Study of the hydrodynamics of the column.
- Study of the separation of a binary or complex solution.
- Material balance.
- Calculation of the exchange coefficients of matter.
- Thermal balances.
- Determination of the number of theoretical plates (Mc CABE 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; useful volume 6 liters.
- 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 316L stainless steel,
- 316L stainless steel distillate coolant.
- Two distillate recipes made of borosilicate glass.
- "Soxhlet" extraction cartridge made of borosilicate glass with quick opening and pocket mounted on a 316L stainless steel support.
- 316L stainless steel connection pipes for the process and reinforced PVC for the cooling fluid.
- 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 ?.