

FLUID-LIQUID EXTRACTION

REFERENCE : MP1030



Non contractual photo

**SERVICE : 230 V / 50 HZ / SINGLE PHASE: 1
KW. EVACUATION OF SOLVENT VAPORS
DIMENSIONS : 1,7 M X 0,85 M X 3,16 M**

WEIGHT : 120KG

Principle and operation

Liquid-liquid extraction is used to transfer a solute (dissolved in a diluent and forming the solution) into a solvent with which it has more affinity; the diluent and the solvent are immiscible.

The light phase is introduced at the bottom of the column and then goes back to the upper decanter of the column. The heavy phase introduced at the top of the column goes down to the settling zone located at the bottom. A stirring assembly (consisting of a succession of turbines and settling trays distributed along the column) allows a mixture of the two phases circulating against the current and causes the transfer of the solute to be extracted in the solvent. Decanters are used for the separation of immiscible phases; the solute enriched extract phase and the solute depleted raffinate phase are continuously withdrawn from these settlers.

Educational Objectives :

- Influence of solution and solvent flow rates
- Influence of agitation.
- Material balance.
- Number of theoretical plates (McCABE and THIELE, ternary diagrams).
- Number of transfer units.
- Coefficients of exchange of matter.

Technical specifications :

Equipment

- Two cans of solution storage and polyethylene feed solvent.
- Dosing pump feeding the solution,
- Solvent supply metering pump,
- Lower borosilicate glass settling tank with light phase introduction, heavy phase output and sampling valve.
- Upper borosilicate glass settling tank with heavy phase introduction, light phase outflow by overflow and sampling valve.
- Borosilicate glass column,
- 316L stainless steel turbine stirring unit driven by a variable speed electric motor.
- Four guiding and sampling trays in 316L stainless steel.
- Recipe of borosilicate glass extract phase
- Recipe for the borosilicate glass raffinate phase
- 316L stainless steel connection pipes.
- Support frame in 304L stainless steel tubes and aluminum nuts.

Instrumentation

- Control and control cabinet, IP55, equipped with emergency stop, operating buttons and the following interfaces:
- Variator of the stirring speed.
- Digital indicator of stirring speed.

OPTIONS :

Option: Digital temperature indicator of two probes type Pt100 & # 937.