

CONTINUOUS DISTILLATION UNIT



Experimental capabilities

- Identification of the components of a continuous distillation plant
- Preparation, commissioning and adjustments
- Study of a distillation process
- Material and thermal balances
- Determination of the number of theoretical trays
- Process improvement

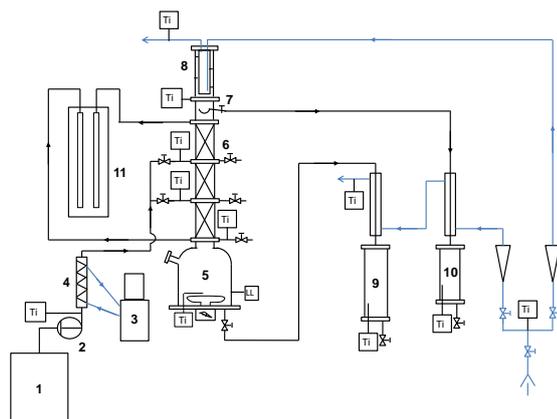
Operating principle

The GPCD40 bench allows the study of continuous distillation. The mixture will be sent to the boiler which is made up of heating elements. The coils will bring the mixture to a boil, thus evaporating and recovering the product that has the lowest boiling temperature.

The rugged design of this equipment makes it perfectly suited for use in a school setting.

Its anodized aluminum structure on wheels gives it a very high robustness as well as great flexibility of integration into your premises. The manufacture of this equipment complies with the European Machine Directive.

Illustrations



The bench is installed on an aluminium profile structure equipped with four braked-directional castors.

The bench has a main power supply box that complies with European electrical standards with standby power disconnecter, white voltage presence light, emergency stop button, ground connection and differential protection. It is equipped with a 7-inch touch screen displaying temperature measurements.

The elements in contact with the reagents are made of Teflon, HDPE, stainless steel and borosilicate glass.

Technical details

1. Polyethylene supply tank, volume 20 liters
2. Manually operated feed pump, flow rate 15L/h
3. Thermostatic bath, power 2kW, volume 5 liters
4. Feed preheater with two valves for feeding to 33% and 66% of the column
5. DN100 borosilicate glass boiler, Electric heating, equipped with minimum level safety and maximum temperature safety, DN25 manual loading port
6. Borosilicate glass column, DN50, in three 330 mm elements with Multiknitt packing with three sample trays with valves and probes Pt100
7. Column head made of borosilicate glass, DN50, with temperature probe, equipped with automatic reflux valve to control the rate
8. stainless steel vertical condenser, borosilicate glass shell and vent
9. Recipe for the residue in borosilicate glass, equipped with a stainless-steel drain valve, useful volume 5 liters
10. Recipe for the distillate in borosilicate glass, equipped with a stainless-steel drain valve, useful volume 2 liters
11. Two polyethylene distillate and residue recovery tank, volume 10 liters
12. Differential pressure sensor on the column
13. Stainless steel refrigerants (distillate and residue)
14. Two water flow meters with control valve

Services required

Documentation

- Electrical supply: 230 V - 50 Hz - 16 A
- Electrical supply type: 1-Phase + Neutral + Earth.
- Water supply: 15 L/min - 3 bars
- Water evacuation: at ground level
- Dimensions: (LxWxH mm): 2000 x 600 x 2800
- weight (Kg): 200
- User's manual
- Technical documentation of the components
- Lab exercises
- Wiring diagram
- Fluidic diagram
- Certificate of conformity CE

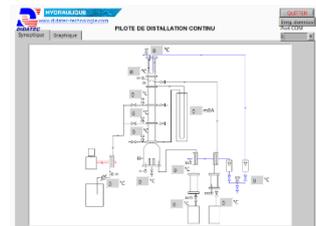
Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

Supervision: Parameterization, Curve drawing, Control

The bench is also equipped as standard with a supervision and configuration software. The connection towards the PC is made via WIFI. The software is divided into three parts:

BLOCK DIAGRAM:

We find in this window the block diagram of the machine with the location of various measures of process and their values.



GRAPHICS:

We find in this graph window, the possibility of drawing the measurement curves as a function of the time by selecting the desired quantities.



CONTROL-PARAMETER :

We find in this window the possibilities to control the reflux ratio and the power adjustment of resistors in the boiler

