

## STUDY PILOT OF THE LYOPHIMIZATION



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### Experimental capabilities

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- Heat and mass balance
- Food products lyophilization
- Performance and effectiveness

## Operating principle

The GPAL10 bench allows the study of lyophilization or freeze drying.

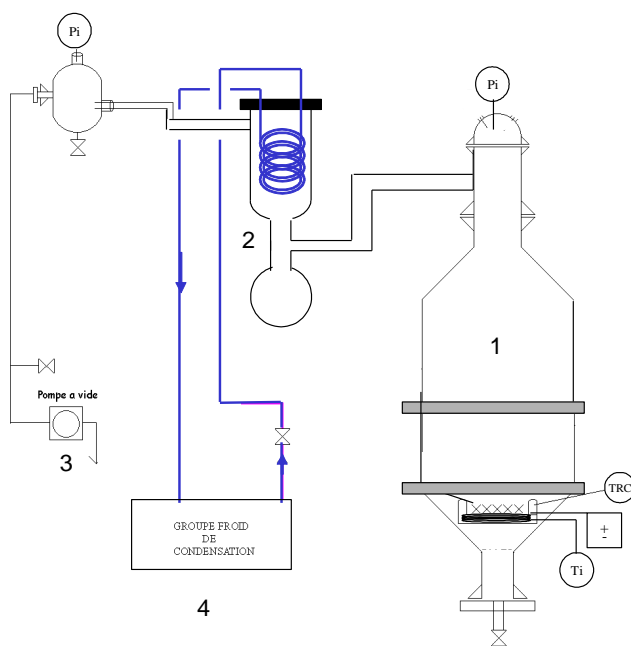
A frozen product is deposited at the bottom of the lyophilization chamber. This product is heated and the vacuum is drawn within the enclosure therefore the frozen water will evaporate and went from a solid to a gaseous state directly. The water that evaporates will be recondensed into the vacuum trap and recovered in the flask below the coil.

The robust design of this device makes it suitable for use in schools.

The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises.

The manufacture of this equipment complies with the European standard for machinery manufacturing.

## Illustrations



## Technical details

- 1. Lyophilization enclosure**
  - Material: Stainless steel
  - An electrical heating system
  - 1 temperature probe Pt 100 for the enclosure
  - 1 head pressure outlet
- 2. Vacuum traps**
  - Temperature probe Pt 100 in the reactor with stainless steel coil
- 3. Vacuum pump**
  - Maximum vacuum: 10<sup>-4</sup> bars
- 4. Condensation group**

## Services required

- Electrical supply : 230 VAC – 50 Hz – 16 A
- Electrical network : 1 phase + Neutral + Earth.
- Dimensions: (L x W x H mm): 1600 x 700 x 1800
- weight (Kg): 120

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

## Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE