

Chemical and physical properties

- RAMAN spectroscopy analyser
- Turbidimeter (TSI)
- FTIR spectrometer
- SEM
- Densimeter (powders, foams and bulk solids)
- BET analyser and Hg porosimeter
- DMA analyser
- Rheometer
- TPD/TPR analyzer
- Mass-spectrometer and GCs

Thermal properties

- DSC and TGA devices
- High pressure-TGA (HP-TGA) device
- Mass spectrometers (MS) coupled to TGA devices
- Thermal conductivimeter

Synthesis and Characterization of Carbon Nanomaterial Reinforced Polymer Aerogels and Composites for Industrial Applications

Synthesis and Characterization of Carbon Nanostructures (Graphene, GO, RGO, CNFs and CNSs)

Simulation And Modelling of Industrial Processes

Biomass Valorisation through High Pressure

Thermogravimetric Analyses at Lab and Pilot Plant Scale

Catalysis and Electrocatalysis

Sample preparation

- Extruder and chopper
- Injection moulding device
- Sample cutting press
- Sputter coating (SEM)



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POLYMER AEROGELS

Industrial Applications of Polymer Aerogels



TECHNICAL DEVELOPMENT

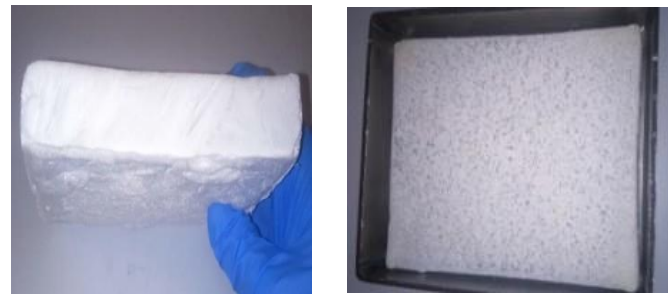
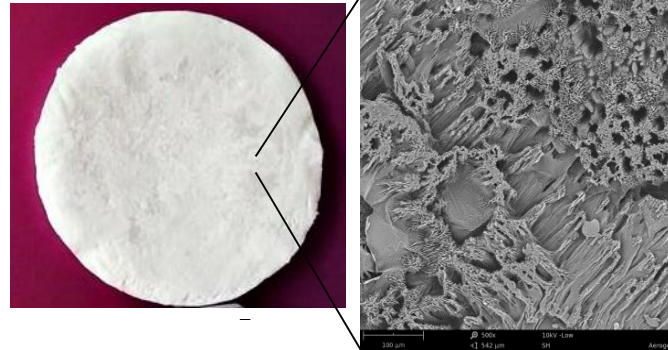
The Pilot Plant can be used:

- To check new recipes.
- To optimize synthesis conditions.
- To develop innovative aerogels.
- To obtain data that allow to model and simulate the process at industrial scale.



COMPETITIVE PRODUCTS

- Ultralight materials
- Great porosity
- These materials have better mechanical properties than inorganic aerogels



SERVICES OFFERED

- Prototyping and development of specific type of innovative raw materials.
- Continuous production costs reduction.
- Support in the scale-up process.
- Market research support.
- Customised sales and post-sales service.
- Support in the industrial start-up process.
- Consulting.
- Support in the discussion of results.

ACTUAL CAPACITIES

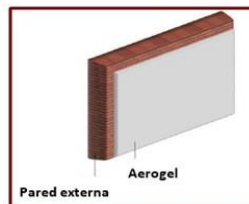
The Pilot Plant can produce up to 2 m² of aerogel sheets per batch. The plates temperature range is -60°C/+80°C and operates under 3 different modes:

1. Manual Mode.
2. Semi-Automatic Mode.
3. Automatic Mode.



PRODUCTS AND PROCESSES

- They are ultralight materials in which the liquid compound has been replaced by a gas. This characteristic makes the aerogel to have a great porosity and a very light density.
- Alternatively, this Pilot Plant could be used for the preparation by freeze-drying process of products from the following industries :
 - Food and Agricultural.
 - Chemical.
 - Materials.



ADDITIONAL CAPACITIES

1. Lyologger software for data supervision, control and data acquisition: to know the status of the entire freeze-drying process along the runs.
2. Pirani and MKS Baratron type 626 devices: to detect the end of the primary drying process.
3. LCA studies development