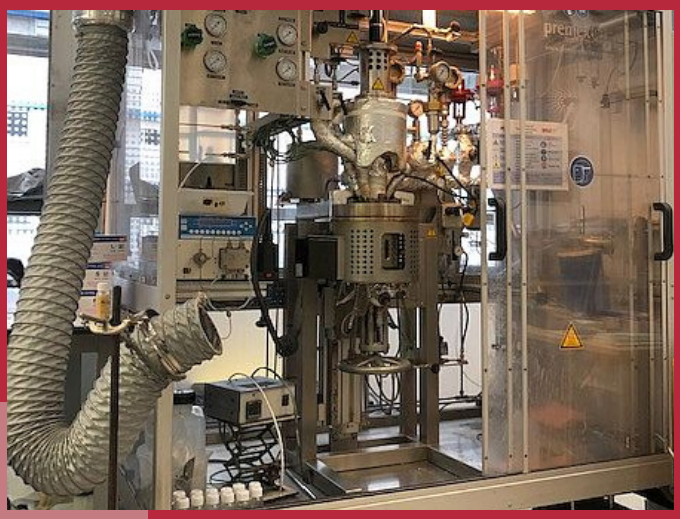
CHEMISTRY & FORMULATION OF POLYMER MATERIALS

Shared tools and expertise



SERVICES OFFERING

Synthesis by bulk polycondensation and solid post-condensation:

- Polyester and copolyester
- Polyamide and copolyamide
- Polyester amide
- Possibility of using liquid or solid mononers, biosourced or derived from petrochemistry

Reactive extrusion:

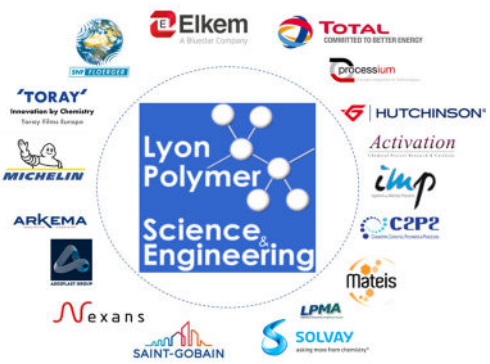
- Formulation, blends
- Chemical modification of polymers

NMR characterization:

- Analysis of polymers in solution
- Multi-nuclear analysis (13C, 29Si, 19F...)
- Dosy experiments
- High temperature and HR-MAS analysis

EXPERTISE

The tools are based on the expertise of IMP laboratory (UMR CNRS 5223, Polymer Materials Engineering). The activities are based in particular on the various collaborations with industry and academic laboratories, in the frame of the Lyon Polymer Science and Engineering (LPSE):



EQUIPMENT

Polycondensation reactors

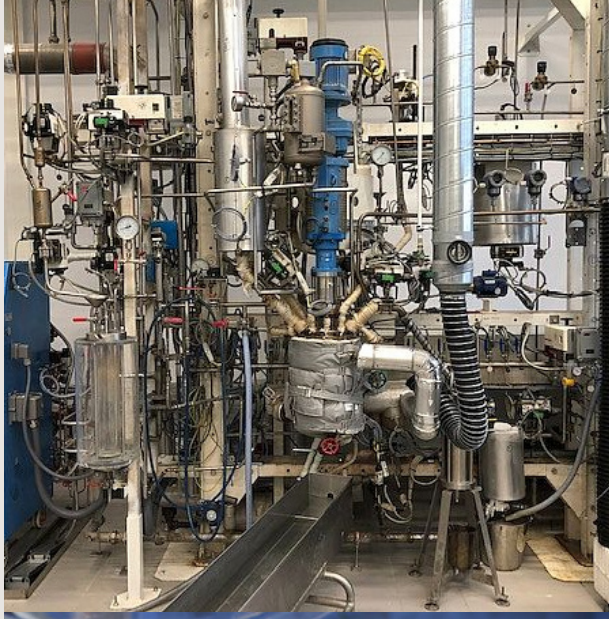
- Polyester reactor 7,5L / 2,2kg / Tmax=295°C / Pmax=1MPa
- Polyamide reactor 1L / 300g / Tmax=350°C / Pmax=5MPa
- Post polycondensation in the solid state: 300g à 10kg
- Parallel reactors

Reactive extrusion

- Leistritz co-rotative twin screw extruder: diameter 18 mm L/D = 68
- Corrosion protected and high temperature resistance screws and barrel
- Feeders for liquids, powders and granules

Characterization: NMR and SEC chromatography

- Spectrometer from Bruker: Avance II & III 400 MHz
- 5 mm wide band and 10 mm selective probes (13C et 29Si)
- Size exclusion chromatography of polyesters in HFIP



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