



- Technological platforms -

POLYMER MATERIAL PROCESSING

Shared tools and expertise



SERVICES OFFERING

Processing and shaping of biosourced and speciality polymers and composites:

- Processing by twin-screw extrusion at different scales: Micro (10 g - 100 g), Lab (100 g - 10 kg), Pilot (10 kg - 100 kg)
- Shaping by injection molding at the equivalent scales
- Composite materials preparation and consolidation
- New approaches: 3D printing

Coating on flexible substrate:

- Providing new surface properties obtained by reactive systems on flexible substrates as plastic films, paper, glass fiber or textile
- Green technology allowing to operate without solvent with a UV dryer (optionally combined with a thermal oven)

EXPERTISE

Our main partners (CNRS, CLEXTAL, ELKEM SILICONES, SETUP PERFORMANCE, SOLVAY) have developed a strong expertise in processing and shaping of thermoplastic materials, thermoplastic composites and on silicone based coating on flexible substrates and textile.

The platform on polymer material processing is operated by dedicated Axel'One staff with potential support services from CLEXTAL and SETUP PERFORMANCE for twin screw extrusion.

EQUIPMENT

Polymer material processing and shaping

Shaping of thermoplastic polymer materials:

- Minipress, 120 kN and 1000 kN injection molding press
- Thermo-compression plate press (high temperature)
- Compression Resin Transfer Molding (C-RTM)

Extrusion / Compounding:

- Microcompounder
- Co-rotative twin screw extruders: diameter of 11, 18 and 32 mm

Flexible coater

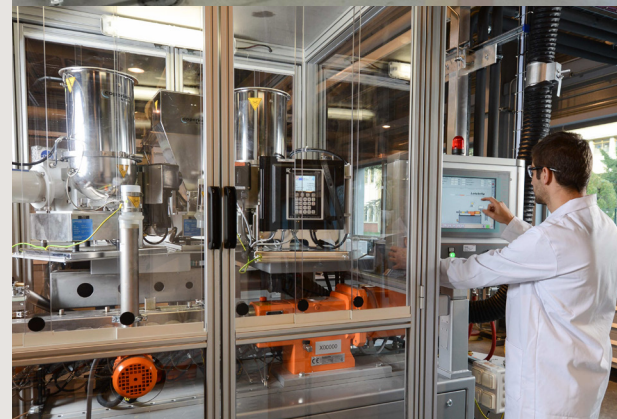
- Coating tool (Rotomec) from 10 to 200 m/min, Mayer bar or 3-5 cylinders head, in-line Corona treatment adjustable, curing with N₂ inerted UV unit (60-200W/cm) or thermal dryer (temperature up to 250°C)

Other tools

- Solids: mixing, pelletizing, gravimetric dosing systems
- Viscous liquids, instrument mixer
- Pyrolysis oven for thermal treatment / tool cleaning
- Karl Fischer water titration
- Automatic Charly Robot for cutting specimens

3D printing (partnership with 3d.FAB)

- Extrusion: FDM printers, 6-axis robot, by depositing a molten filament; high temperature (HT) printer for advanced or composite materials
- Photopolymerization: SLA, 2-photon, DLP, PolyJet printers



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