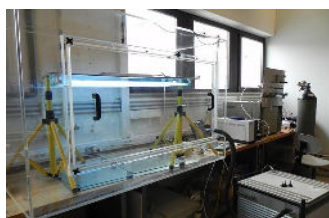


AIR QUALITY PLATFORM



- Sampling
 - Direct monitoring on stack or remote from a mobile laboratory
 - Lung-principle sampler for bags sampling
 - Isolation flux chamber
 - Specific filters and adsorbents
 - On-line measurements
- Analysis
 - Mobile laboratory and online measurement: O₂, CO_x, NO_x, SO₂, TVOC, CH₄, NMVOC, sulfur compounds, ozone, temperature, humidity
 - Chemical analysis: TD-GC-MS, GC-DFPD, GC-FID, GC-PID, μGC-MS, HPLC-UV-MS, GC×GC-HRTOFMS/FID, IMR-MS
 - Odour analysis (detectability, intensity, quality and hedonic character): dynamic olfactometry, different panels (representative of the population, calibrated, trained expert panels), 2 sensory rooms, GC-MS/Olfactometry
 - Nanoparticles and dust analysis (nanoparticles counter, size distribution, evaluation of dust deposit)
 - Noise measurement: sound level meter and dosimeter
 - IAQ comfort parameters: PMV-PPD and CO₂
 - Airborne and/or deposited bacteria and fungi sampling and analysis
 - Laboratory gas generator (controlled atmosphere, efficiency testing of safety filter cartridges)
- Pilot devices
 - VOCs catalytic oxydation
 - Efficiency testing of materials and devices developed for air purifying
 - Photocatalysis
 - VOCs wet scrubber

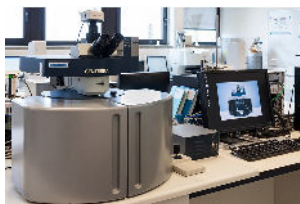


ANALYTICAL & TECHNOLOGICAL PLATFORM

○ MATERIALS PLATFORM

- Materials and surfaces characterisation

- Spectroscopy: FTIR, FT-μIR, NIR, Raman, UV/Vis, NMR (access), Direct Injection Probe-MS
- Chromatography: preparative GPC/HPLC, HPLC-PDA-MS-ELSD, GPC-UV-DRI-Visco-LS, GPC High Temperature and triple detection-ELSD, GPC-MS, TREF- Temperature Rising Elution Fractionation, GEF - Gradient Elution Fractionation, GC-PID, GC-MS, TD-GC-MS, TD-pyrolysis-GC-MS, GC-DFPD
- Impurities, contaminants, NIAS, trace levels, complex mixture analysis: GC×GC-HRTOFMS/FID, Liq/MHE-GC-HES-MS/FID
- Rheological analysis: rotational and capillary rheometer, viscometers, MFI
- Mechanical and thermomechanical analysis: bending, compression and tensile test, modulus of elasticity, abrasion and scratch test, hardness, creep test, Charpy and Izod impact test, HDT/VICAT, DMA
- Thermal analysis: TGA/DSC, muffle furnace, DSC, moisture analysis
- Structural and surface characterisation: particle size, porosimetry BET, XRD, roughness (optical and mechanical profilometer), permeability, surface wettability (contact angle, zeta potential), optical microscopy, FEG-SEM-EDX, EFTEM, cryo-ultramicrotomy, wear resistance (scratch, abrasimeter)
- Characterisation of barrier properties to odours and VOCs
- Emissions and VOCs from materials: emission cells and emission chambers from 44 cm³ to 1 m³
- Odour characterization: sensory room, dynamic olfactometry at detection threshold with human assessors, expert panel, GC-(TOF)MS/Olfactometry
- Ageing simulation in climatic chambers: UV, temperature, humidity, air renewal rate





ANALYTICAL & TECHNOLOGICAL PLATFORM



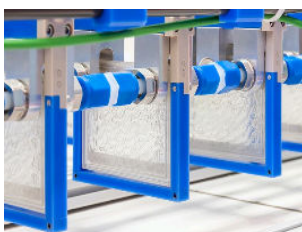
- Polymer processes
 - Pre-treatment
 - Air dryers
 - Compactor for producing pellets
 - Grinder
 - Mixing and compounding (thermoplastics)
 - Single-screw and twin screw extrusion
 - Shaping (thermoplastics)
 - Cast film extrusion
 - Blown film extrusion
 - Foam extrusion (single and twinscrew with static mixer)
 - Filament extrusion, calibrated for 3D printing (FFF = fused filament fabrication)
 - Thermoforming
 - Compression molding
 - Injection molding
 - Fiber impregnation
 - Micro twin screw extruder and microinjection molding (5 g)
 - Composites processing
 - Liquid resin infusion (LRI)
 - 2 component resin transfer moulding (2K RTM)
- Coating deposition
 - Spin-dip-roller coating
 - Spray booth

CHEMISTRY AND INDUSTRIAL PROCESSES



- Lab and pilot-scale reactor systems

- Semi-continuous custom reactor (5 or 20 L) with solids addition (1 kg/h) and distillation units for pyrolysis, catalytic cracking, waste treatments, biomass conversion, powder drying, etc.
- Commercial meso/microreactors for continuous flow chemistry
- Custom reactors for continuous flow chemistry: heterogeneous catalysis (e.g., VOC oxidation), biomass conversion, organic and inorganic chemistry
- Custom flow reactors for continuous treatment of slurries (design and engineering according to project needs)
- Membrane separator for continuous liquid-liquid and liquid-gas separation



- High pressure reactors and equipment for chemical synthesis

- Stainless steel autoclaves 316L or Hastelloy®C276 (75 to 1000mL) for high-pressures and high temperatures treatments (up to 500 °C and 600 bar) for application in catalysis, hydrothermal synthesis, waste treatments (solvolysis), etc.
- Microwave reactor (0.5 to 20 mL vessels) (up to 250°C and 20 bar)
- Spray Dryer (drying, synthesis, encapsulation)



ANALYTICAL & TECHNOLOGICAL PLATFORM



- Purification

- Preparative chromatography

- Characterisation

- NMR (access), GC-FID, GC-MS, GC-TCD, HPLC, IR, Raman, UV, XRD, BET, laser diffraction, DLS, TGA / DSC, μ GC-MS, zeta potential analyzer
- Complex mixtures identification and quantification by GC \times GC-HRTOFMS/FID