

Powder and feedstock processing technologies

Shaping technologies need raw materials finely tuned to powders, granulates, pastes or slurries. CTTC owns the means and expertise to perform this essential step in the ceramic process. Moreover, equipments of the platform allow to up-scale processes (from few grams to tens of kilograms) whereas some of them are also adapted to metallic powders.

OUR SERVICES

- Feedstock formulation including organic phases (solvent, dispersant, binder, plastisizer...)
- Preparation and characterization
- Optimization of the process parameters to reach functional requirements
- R&D
- Prototype batches and pre-series
- Up-scaling
- Industrial cost prediction (CAPEX and OPEX)

SOME EXAMPLES

- Preparation of dispersed and stable slurries for casting processes
- Ready-to-press atomized alumina powders
- Preparation of extrusion or injection feedstocks

OUR MEANS

- Continuous attrition mill (12 L-100 L, final granulometry <1µm)
- Lab attrition mill (0.5 L final granulometry <1µm)
- Planetary mill (250 to 500 ml, final granulometry <2 µm)
- Rotary mills (1L -13 L, final granulometry <5 µm)
- Ball mills (30 L, final granulometry <5 µm)
- Mortar grinder (3 L, final granulometry <1 mm)
- Blade mixer (60 L)
- Turbula mixer (2 L)
- Z blade mixer extruder for plastic paste (6 L)
- Three roll mill for plastic paste (>0.5 L)
- Sieves and sieve shaker for powders and slurries (25 µm from to 3.15 mm)
- Powder classifier (5 µm from to 100 µm)
- Pilot-scale spray dryer (co-current geometry with pneumatic spray nozzle, evaporation capability: 17 kg/h, final granulometry 50-200 µm)
- Lab atomizer (co-current system with pneumatic spray nozzle, useful for organic solvent, capacity: 1 kg/day, final granulometry 30-40 µm)
- Automatic pelletizing mixer (capacity: 1 kg/day, Final granulometry: 200 µm-2 mm)
- Pelletizing drum (capacity: 2 kg/day, Final granulometry: 200 µm-2 mm)
- Freeze granulator (also used with freeze dryer, capacity: 0.5 kg/day, Final granulométrie: 50-500 µm)

1. Pilot-scale spray-dryer
2. Attrition mill
3. CIP-mold filling with a spray-dried powder
4. Planetary mill

