

## Case Study

### Spray Drying of Ceramic materials



**Customer:** CNR (National Research Council), ISTECH (Institute of Science and Technology for Ceramics), Italy

The research activities are addressed towards material and processing innovations, aiming to satisfy the requests from the industrial sectors and from the national scientific and cultural community for various application fields. The center focuses on the development of competency and expertise in: the basic science of ceramics, the characterization of raw materials and finished products, the development of innovative powder synthesis procedures, as well as forming and sintering processes.

#### **Application:** Nano-micro oxides

Researchers in the ceramic synthesis and processing lab are developing materials that display improved performance, reliability and functionality. The lab has produced ceramics for a variety of applications including luminescent materials for high-efficiency lighting, ceramic superconductor wires for next generation MRIs, new chemistry for hybrid batteries, scintillators for CT machines and magnetocaloric materials for refrigeration.

#### **Equipment:** Mini Spray Dryer B-290 and Inert Loop B-295

The entire equipment is installed beside a fume hood. The customer had been working with a Lab Plant unit for many years, but now appreciates our improved technology with Inert Loop B-295 for organic solvents.

#### **Benefit / Conclusion:** No more freeze drying

The main benefit of the customer is the possibility to granulate organic suspensions, the speed of drying compared to the traditional freeze drying technology. Also the fine dimension, the spherical shape and the soft nature of the granules is a winning point for the processing of advanced ceramic materials. The pressing technique that is used to shape the ceramic is consistently eased by the morphology of the powders obtained with the Mini Spray Dryer B-290.

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*"Thanks also to the improvements obtained with the Mini Spray Dryer B-290, the research group has been mentioned as one of the best Italian startup entities in 2010."*

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