ADVANCED TECHNOLOGY FOR THE CERAMICS INDUSTRY
ABOUT US

ALPHA CERAMICS supplies high-grade materials and kiln furniture for the ceramics industry world-wide. We can also offer high-performance R&D facilities and provide fast delivery of small production series.

• PRODUCT DEVELOPMENT
• PRODUCTS TESTS FIRING
• PROCESS ENGINEERING
• RESEARCH & DEVELOPMENT
• DRYING PROCESS KILN
• MATERIALS SHAPING
• PROCESS OPTIMIZATION
• VACUUM ENVIRONMENT
• SPRAYING SCALE-UP
From its state-of-the-art technical facility located in Aachen, **ALPHA CERAMICS** is able to provide a wide range of services to the ceramic industry and related sectors, going all the way from trials and process development to toll manufacturing of certain kinds of products. **ALPHA CERAMICS** also develops and markets proprietary products, in particular a range of various kinds of kiln furniture. We can also manufacture products for our customers on a small scale. A further activity for **ALPHA CERAMICS** is the development, production and marketing of special niche products. Close partnership with the Technology University of Aachen enables us to apply cutting edge analytical technologies and also ensures that we remain at the cutting edge of upcoming ideas and developments.

Our state-of-the-art machine park, ranging from lab to industrial scale for all stages of ceramic production, provides an optimum platform for R&D, testing, process optimization and production.
Recent years have seen a great and ongoing increase in the demands placed on kiln furniture for high temperature loads, driven by a progressive optimization of the application processes. More especially in the expanding segment of kiln furniture for advanced ceramics, the requirements for application temperature, cycle time, number of firing cycles, energy consumption and general quality standards have been greatly stepped up. Specific adaptations of materials and products are thus in high demand.

The development and optimization of both high-end kiln furniture and materials/products for other industrial applications is a central pillar of our activities. ALPHA CERAMICS manufactures and markets the products. We can also supply the starting materials for a customer’s own production.
The team at ALPHA CERAMICS includes individuals who are highly qualified in the field of ceramic engineering. Supporting co-workers are able to provide a high level of experience from working in the industry, together with solid expertise gained from many successfully conducted product developments. This know-how and experience are key to the successful completion of product and process development and optimization tasks. Typically, products are chiefly developed and optimized in direct cooperation with customers, but we also often manage our own developments. The main fields of application are refractories, kiln furniture, advanced ceramics and other branches of ceramics.

At the same time, ALPHA CERAMICS is also successfully active in related industrial sectors, such as the glass and building material sectors, and more especially those connected with environmental technology.

Activities in relation to process technology (development and optimization) include vacuum-pressing technologies, preparation of ready-to-press powders (including at nanoscale), and high-efficiency firing technologies. These activities are managed in close cooperation either with the suppliers of the relevant plant or their customers, the end-users of the plant.
The machinery for material preparation, shaping and thermal treatment at ALPHA CERAMICS is available also for a direct toll production for our customers. This provides the possibility to supply products for a limited time, e.g. for testing the market acceptance or to bridge the time until an own production plant can be put in operation. Products which are permanently required only in small lots and for which a separate production plant would not be economically, can be supplied recurrently on call order.
The spray drying process converts powders into free-flowing granulate. The enhancement of granulate compressibility and the green strength of the product is achieved by preparing a slurry containing a number of different organic additives. The finished spray granulate provides excellent flow properties, ensuring that press moulds are uniformly filled. **ALPHA CERAMICS** is able to spray dry materials, such as alumina, zirconia, AlTiO5, and raw material for sputtering targets and others.

To this end, our machine park includes an industrial spray dryer providing an evaporation capacity of 180 l/h. For preparation of the material, a range of crushing and grinding machines, including wet ball mills, a pearl mill and intensive mixers of various sizes, stand ready.

Within the ceramic industry, uniaxial hydraulic pressing of powder, granulates and bodies is the most widely-applied shaping technology. **ALPHA CERAMICS** is able to identify the optimum pressing parameters for all kinds of product and their function. Product pressing is achieved using a range of different laboratory presses and also **LAEIS** presses (Alpha 800, Alpha 1500/120 and HPF 630).

Thermal treatment is an essential part of ceramic product manufacture, and, depending on the system, consists of drying, debindering and firing (or a combination of these operations) in single or multi-step processes. Alongside production of shaped green bodies, **ALPHA CERAMICS** can also take care of the thermal treatment of silicate ceramic and oxide ceramic products. A range of equipment is available for this purpose: a range of laboratory dryers and kilns, a climate-regulated large-volume chamber dryer, various chamber kilns and a combined roller dryer/roller kiln. Firing temperatures of up to approx. 1700 °C present no problem.