Drying Technologies for Technical Ceramics

Frank Appel

The vast field of Technical Ceramics makes it necessary to investigate each case in terms of its optimal manufacturing process. Well-known standard technologies are mostly not suitable; instead each single production step has to be tailored towards the specific requirements.

As Technical Ceramics unit costs are mostly high and production lots rather small, very high attention should be paid to the drying process, which is rather time-consuming compared to other production steps. As a matter of principle one strives to achieve the maximum drying speed at which the product can be dried without being damaged. The limits for this technically feasible drying time are regularly set by the geometry and the raw material's sensitivity of the ceramics which have to be dried.

Moreover, the selected drying technology shall fulfil also the demands regarding investment and production cost. It is perceptible that the design of a viable industrial dryer for Technical ceramics poses a complex problem, and its solution demands the application of modern engineering methodologies.

By means of several selected examples this presentation demonstrates the approach for the successful design of dryers for Technical Ceramics. A short introduction is given into the fundamentals of drying, followed by a description of the necessary assessments of the raw materials. Several technological solutions can be selected to solve different tasks of drying.

Examples of executed solutions for drying of ceramic filters, tubes and membranes round off this practical-oriented presentation.

Iranian Ceramic Society
Iran University of Science and Technology
Dept. of Materials Engineering Narmak,
Tehran, iran
P.O. Box: 16845-111