

Kinetic study of Zinc Oxide sintered by Cold Sintering Process (CSP)

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The emergence of low-temperature sintering techniques (e.g., Cold Sintering Process (CSP), Hydrothermal Sintering (HS), Cold SPS (C-SPS), or ultra-fast SPS (Flash SPS)) allows the production of technical ceramics by activating mechanisms different from those involved in conventional sintering, to stabilize and densify metastable materials and/or to control microstructures (composition and thickness of grain boundaries). This has paved the way for the development of new materials and/or materials with enhanced properties. While their effectiveness has been demonstrated, their development is still limited by a lack of fundamental understanding of the mechanisms involved. The use of kinetic models developed to describe sintering under load allows us to define parameters associated with these mechanisms (activation energy) and thus control densification and microstructure during CSP. Adapting these models to CSP sintering conditions (presence of a transient liquid phase) makes it possible to predict the sintering behavior of the studied material. Ultimately, it could be possible to develop materials suitable for a wide range of applications, such as energy, transportation, or structural materials.

Professional Status of the Speaker

Doctoral or Master Student

Interest in submitting a paper in a special issue of

No interest

Invitation letter for visa

No

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