

## **An Overview of Molten Salts Used in the Synthesis of High Performance Ceramics**

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The scientific literature is rich with applications of molten salts in the preparation of ceramic materials. This has been driven, in large part, by the advent of high performance ceramics (HPCs) that involve complex compositions with exacting morphology and texture requirements. Traditional solid-state ceramic processing techniques depend on diffusion phenomena at high temperatures and result in a lack of homogeneity in the composition, low purity, and lack of control of the microstructure/morphology. However, the introduction of soft chemistry - specifically, molten salts- into the ceramic processing community enables the synthesis of homogeneous, pure and reproducible phases. In addition, because of the inherent flexibility afforded by molten salt processing, morphology and microstructure can be controlled and tuned to yield HPCs with desirable properties. This presentation will provide an overview of some of the past, current and future uses of molten salts in the preparation of ceramic materials.