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Amperit® Powder Solutions for EBC's Coating Systems

Abstract:
Environmental Barrier Coatings (EBCs) are essential for protecting silicon-based ceramic matrix composites (CMC) components in next generation gas turbines, preventing surface recession caused by exposure to high temperature, water-vapor-rich environments. Current EBC systems for SiC/SiC CMCs typically consists of a rare earth silicate topcoat applied over a silicon bond coat. Because coating performance is strongly influenced by the quality and consistency of the feedstock material, the development of reliable and well engineered powders is critical for ensuring EBCs performance.

This work presents Höganäs' approach to designing Amperit® powders for EBCs, focusing on meeting the application requirements in terms of chemistry, phase purity, and tailored physical properties. The challenges associated with achieving the process know-how and production flexibility to satisfy both coating process demands and application- specific performance targets are also discussed.

Biography:
Barbara Maroli has worked at Höganäs AB for over 30 years, starting with the development of low alloy iron powders and later focusing on metal and ceramic powders for overlay welding and thermal spray applications. Her work has focused on powder development, material characterization, and application development.