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A RECENT HISTORY OF THERMAL BARRIER COATINGS FOR AERO-PROPULSION APPLICATIONS

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Thermal barrier coatings for aero-propulsion operation have been in use since the 1960s. These thermal barrier coatings are composed of an oxidation resistant metallic base layer and a thermally resistant ceramic top layer. The development and implementation of advances in both the metallic base and the ceramic top layer will be explored. The evolution has included performance and durability improvements, process advances, and understanding and evolution of failure modes. More recent efforts have focus on future challenges for thermal barrier coatings to meet ever increasing operating temperature demands of future applications.