

THERMAL BARRIER COATING EXPERIENCE IN THE GAS TURBINE ENGINE

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Thermal Barrier Coatings (TBC), provide thermal insulation and oxidation resistance in an environment consisting of hot combustion gases. TBCs consist of a two layer system. The outer ceramic layer provides good thermal insulation due to the low thermal conductivity of the ceramic coatings used, while the inner metallic bond coat layer provides needed oxidation resistance to the underlying superalloy. Pratt & Whitney has over a decade of experience with several generations of TBC systems on turbine airfoils. This paper will focus on the latest TBC field experience along with a proposed durability model.

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