

ABSTRACT

DURABLE REACTIVE THERMAL BARRIER COATINGS

A turbine engine component is provided which has a substrate and a thermal barrier coating applied over the substrate. The thermal barrier coating comprises at least one layer of a first material selected from the group consisting of a zirconate, a hafnate, a titanate, and mixtures thereof, which first material has been mixed with, and contains, from about 25 to 99 wt% of at least one oxide. The at least one oxide comprises at least one oxide of a material selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, scandium, indium, and yttrium. If desired, a metallic bond coat may be present between the substrate and the thermal barrier coating system. A method for forming the thermal barrier coating system of the present invention is described.

(FIGURE 1)