



IMPROVED DIFFUSION ALUMINIDE BOND COAT FOR A THERMAL BARRIER COATING SYSTEM AND METHOD THEREFOR

ABSTRACT OF THE DISCLOSURE

A thermal barrier coating system (20) and a method for forming the coating system (20) on a component (22) designed for use in a hostile thermal environment, such as superalloy turbine, combustor and augmentor components of a gas turbine engine. The method is particularly directed to a thermal barrier coating system (20) that includes a thermal insulating ceramic layer (26) and a diffusion aluminide bond coat (24) on which an aluminum oxide scale is grown to protect the underlying surface of the component (22) and to chemically bond the ceramic layer (26). The bond coat (24) is formed to contain an additive metal of platinum, palladium, rhodium, chromium and/or silicon, and an additive element of yttrium, and/or zirconium, with possible additions of hafnium. The bond coat (24) may be formed by codepositing aluminum with the active element, or by depositing the additive metal and active element on the surface of the component (22), and then aluminizing to form the diffusion aluminide bond coat (24).

FIGURE 2