ALUMINIDE COATING OF GAS TURBINE ENGINE BLADE

ABSTRACT

A method for applying an aluminide coating (76, 78) on a gas turbine engine blade (20, 132) having an external surface (40) and an internal cooling cavity (50) having an internal surface (52) that is connected to the external surface (40) by cooling holes (42). The method is conducted in a vapor coating container (110) having a hollow interior coating chamber (124), and includes the steps of loading the coating chamber (124) with the blade (20, 132) to be coated; providing an aluminide coating gas in the loaded coating chamber (124); maintaining the loaded coating chamber (124) comprising the aluminide coating gas at a specified temperature and time to deposit an aluminide coating (78) on the external surface (40) of the blade (20, 132); and then flowing an inert carrier gas (150) into the loaded coating chamber (124) comprising the aluminide coating gas at a specified gas flow rate and time to move the aluminide coating gas through the cooling holes (42) and internal cooling cavity (50) and deposit an aluminide coating (76) on the internal surface (52) of the blade (20, 132).

Fig. 3