

PHYSICAL VAPOR DEPOSITION APPARATUS AND PROCESS

ABSTRACT

A PVD process and apparatus (120) for depositing a coating (132) from multiple sources (110,111,136) of different materials (110,111). The process and apparatus (120) are particularly intended to deposit a beta-nickel aluminide coating (132) containing zirconium, hafnium, yttrium and/or cerium, whose vapor pressures are sufficiently lower than NiAl to require a different evaporation rate in order to achieve higher deposition rates and better control of the coating chemistry. The PVD process and apparatus (120) entail feeding at least two materials (110,111,136) into a coating chamber (122) and melting the materials (110,111,136) at different rates to form separate molten pools (114,115) thereof. Articles (130) to be coated are suspended within the coating chamber (122) and transported with a support apparatus (118) relative to the two molten pools (114,115) so as to deposit a coating (132) with a controlled composition that is a mixture of the first and second materials (110,111,136).

Fig. 2



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