

THERMAL/ENVIRONMENTAL BARRIER COATING FOR SILICON-CONTAINING SUBSTRATES

ABSTRACT OF THE DISCLOSURE

A coating composition (24) for a thermal/environmental barrier coating (T/EBC) system (14) particularly suited for protecting silicon-containing substrates (12), such as articles exposed to high temperatures including the hostile thermal environment of a gas turbine engine. The coating composition (24) is an alkaline earth aluminate or an alkaline earth aluminosilicate containing, by molar percent, about 20% to about 40% barium oxide, about 9% to about 20% strontia, about 19% to about 50% alumina, and optionally up to about 40% silica, wherein barium oxide and strontia are present in a combined amount of about 37 to about 50 molar percent of the coating composition (24). The T/EBC system (14) may include one or more intermediate layers (16,20,22) that adhere the coating composition (24) to the silicon-containing surface (12). The T/EBC system (14) may further include an outermost coating (18) of stabilized zirconia or another high-temperature ceramic material.

Figure 1