

عنوان مقاله:

A review on development and application of self-healing thermal barrier composite coatings

محل انتشار:

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نویسندگان:

Aliasghar Abuchenari - *Materials Engineering, Shahid Bahonar University, Kerman, Iran*

Hadi Ghazanfari - *Department of Mining, Metallurgical and Materials Engineering, Université Laval, Québec G1V 0A6, QC, Canada*

Mostafa Siavashi - *Faculty of Engineering, Christian-Albrechts-University Kiel, Germany*

Maryam Sabetzadeh - *Chemical Engineering Department, Polymer Group, Isfahan University of Technology, Isfahan, Iran*

Sajad Talebi - *Department of Materials and Metallurgy, Faculty of Engineering, University of Arak, Arak, Iran*

Zahra Karami Chemeh - *Department of textile Engineering, Amirkabir University of Technology, Tehran, Iran*

خلاصه مقاله:

To improve the hot section metallic parts durability in advanced gas-turbine operating in power generation and aircraft, thermal barrier coating (TBCs) are extensively utilized to increase their lifetime. The reason for applying coatings on these components is the improvement of their physical properties, mechanical properties, and outer look. The self-repairing ability of materials is very promising due to expanding the service time of materials and it is also beneficial in terms of human safety and financial aspects. In this review article, structure, properties, limitations, and the modification approaches of TBCs were studied. In addition, self-healing agents for TBCs including SiC, MoSi₂, TiC were introduced, which release their oxide by reaction with air and O₂ that are able to heal the pores/cracks in the coatings. In this regard, their coating methods, mechanism, and applications in TBCs were reviewed.

کلمات کلیدی:

Thermal barrier coating (TBC), TBC lifetime, TBC modification, Self-healing composite

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