

5th International Conference and Expo on

Ceramics and Composite Materials

June 03-04, 2019 | London, UK

The research on anti-oxidation and mechanical property of SiC-ZrO₂-MoSi₂/Ni coated CF reinforced phenolic resin composites

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Carbon fibers (CF) reinforced composites have been widely used in various fields due to the excellent properties. However, the oxidation resistance ability of such composites is not good enough in high temperature environment with oxygen. The paper proposes a method to deposit SiC-ZrO₂-MoSi₂/Ni coating at the surface of carbon fibers by composite electroplating. Then, the coated CF are used to make composites with boron modified phenolic resin. The antioxidation performance and mechanical property have been tested. The results show that the oxidation resistance ability composites with the coating are improved. After 1200°C oxidation treatment for 10 min, the residual weight of composites is over 65.16%, while the bending strength only decreases 40%.

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