

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Advanced Materials and Structures for High Temperature Applications (4)

Author: Mr. Kunjie Wang
Xi'an Aerospace Composites Research Institute, China, herowkj@163.com

PROPERTIES OF C/C-SiC COMPOSITES USED AS SPACE MATERIALS

Abstract

To decrease anisotropy and collected volatile condensed materials (CVCM) of C/C composites, C/C-SiC composites were prepared by chemical vapor infiltration combined with reactive infiltration of molten silicon. Microstructures, macro-performances and contents of CVCM were investigated. Results indicate that tensile strength and modulus of as-prepared composites with the density of 1.9 g/cm³ are 38.3 MPa and 65.1 GPa, respectively. The linear expansion coefficient of composites in X-Y dimension at 373 K is approximate to that in Z dimension with the value of 27.7 W/(m K) and 22.2 W/(m K), respectively. Contents of CVCM are only 0.001