

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Poster Session (P)Author: Mr. JinHuang Zheng
China, zjh114@sohu.comRESEARCH ON ANTI-OXIDATION OF C/C COMPOSITES PREPARED BY SILICON CONTAINING
POLYARYLACETYLENES**Abstract**

Silicon containing polyarylacetylenes (abbreviated PSAA) has potential as matrix resin of high performance ablative composites compared with conventional phenolic resins. In this study, the intrinsic performance of PSAA was investigated. The two dimensional C/C-SiC composites with external surface density of 1.6g/cm³ was prepared by precursor impregnation pyrolysis (PIP) with PSAA as matrix precursor. The C/C-SiC composites has good anti-delamination and anti-oxidation performance. The bending strength, the interlaminar shear strength, the mass loss in air at 1773K, the linear ablation rate and mass ablation rate of oxygen-acetylene is 307.8MPa, 213.2MPa, 6%, 0.015mm/s and 0.004g/s respectively. The results show that PSAA is excellent matrix precursor with outstanding anti-oxidation performance at high temperature and the composites derived from PSAA is potential candidates for high temperature protection (TPS) materials for space heat shields.