



Oxidative Attack of  
Carbon/Carbon Substrates  
through Coating Pinholes

NASA Technical Reports Server  
(NTRS), et al., Nathan S. Jacobson



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## Oxidative Attack of Carbon/Carbon Substrates Through Coating Pinholes (Paperback)

By Nathan S Jacobson

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.A critical issue with oxidation protected carbon/carbon composites used for spacecraft thermal protection is the formation of coating pinholes. In laboratory experiments, artificial pinholes were drilled through SiC-coatings on a carbon/carbon material and the material was oxidized at 600, 1000, and 1400 C at reduced pressures of air. The attack of the carbon/carbon was quantified by both weight loss and a novel cross-sectioning technique. A two-zone, one dimensional diffusion control model was adapted to analyze this problem. Agreement of the model with experiment was reasonable at 1000 and 1400 C; however results at lower temperatures show clear deviations from the theory suggesting that surface reaction control plays a role.



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