

ABSTRACT

- The objective was to find effective solutions to bond alumina ceramics to various composite materials
- Some of the materials examined were S2 3TEX 50oz ZZ w/FCS2, Phenolic Kevlar, Phenolic S-glass, and Kevlar Polypropylene
- The bonding between the two is the key for the separate elements to work as a single unit. Poor adhesion leads to the ceramic and composite materials not working together as a system
- Different surface preps were examined for their effects on peel strength



BONDING BETWEEN CERAMICS AND COMPOSITES

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APPROACH				
Material	Adhesive	Surface Prep	Cure Temp& Pressure	
S2 w/FCS2	Polysulfide	None	70°F, vacuum	
Phenolic Kevlar	Polysulfide	None	70°F, vacuum	
Phenolic S-glass	Polysulfide	None	70°F, vacuum	
Kevlar PP	Polysulfide	None	70°F, vacuum	
S2 w/FCS2	Polysulfide	sandblasted	70°F, vacuum	
Phenolic Kevlar	Polysulfide	sandblasted	70°F, vacuum	
Phenolic S-glass	Polysulfide	sandblasted	70°F, vacuum	
Kevlar PP	0.02" surlyn	None	350°F, 100psi	

The baseline adhesion study is in the white cells and the modifications are in the shaded cells shown above

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PEEL TEST



← Peel test Constant head speed 6 in/min

S2 3TEX ------ZZ 50 oz. 3D v/FCS2 bonded to ceramic with polysulfide



ACKNOWLEDGEMENTS

This research was sponsored by the Department of the Navy, Office of Naval Research and was accomplished under Grant Number N00014-06-1-1000. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Office of Naval Research.