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PLASMA JOINING OF METAL MATRIX COMPOSITES(U) NSAM INC
SAN MARCOS CA G H REYNOLDS ET AL OCT 87
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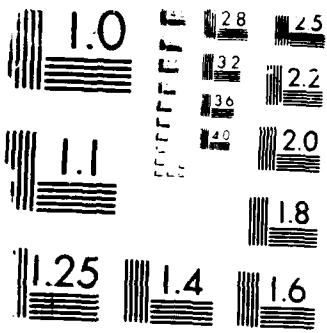
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PLASMA JOINING OF METAL MATRIX COMPOSITES

Submitted to U.S. Army Research Office

Contract No. DAAG29-85-C-0027

Interim Technical Report February-May 1987

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20. ABSTRACT (Continue on reverse side if necessary; and identify by block number) Al-8 Zr-30 SiC (wt.%) and Al - 8 Ti - 30 SiC (wt.%) composite powder filler metals prepared for butt welding of Al/SiC composite base plates to be used for weldment mechanical property studies are described.		

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These composite powder fillers have been used to prepare low pressure, transferred arc plasma process butt welds in 6061-25 wt.% SiC_p base plates using procedures similar to those described previously but with much thicker (ca. 0.125-0.250 in. thick) deposits in the butt joints. The welded composite plates are presently undergoing as-welded mechanical property testing for quantification of bond line mechanical properties.

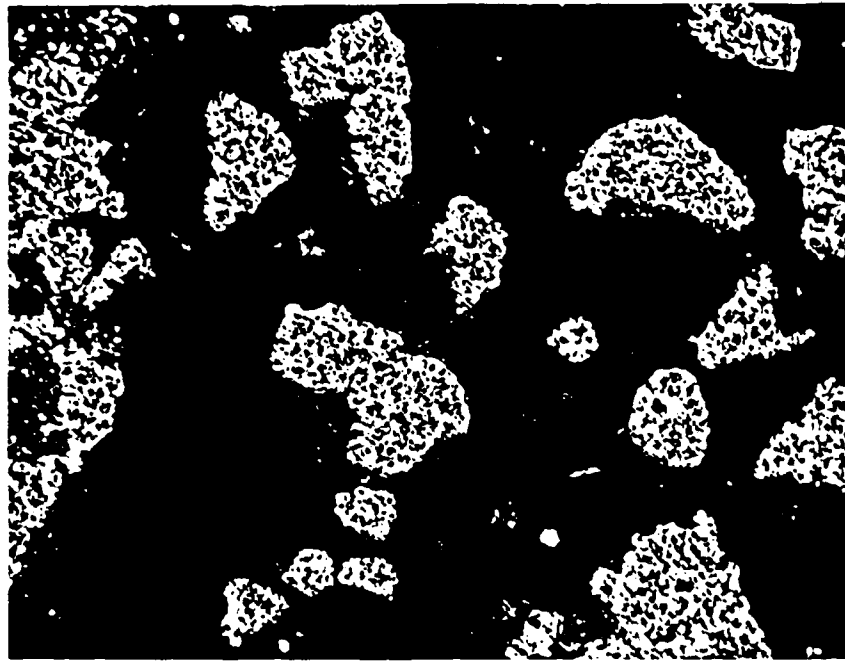


Figure 1. Metallographic cross sections of as-prepared Al - 8 Zr - 30 SiC (wt.%) composite filler metal powder particles. Magnification 500X.

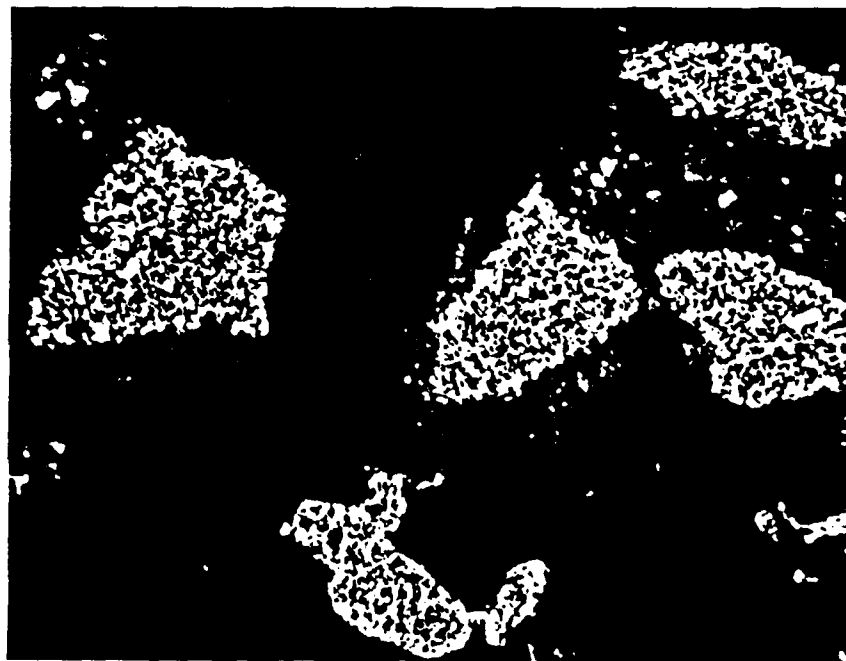
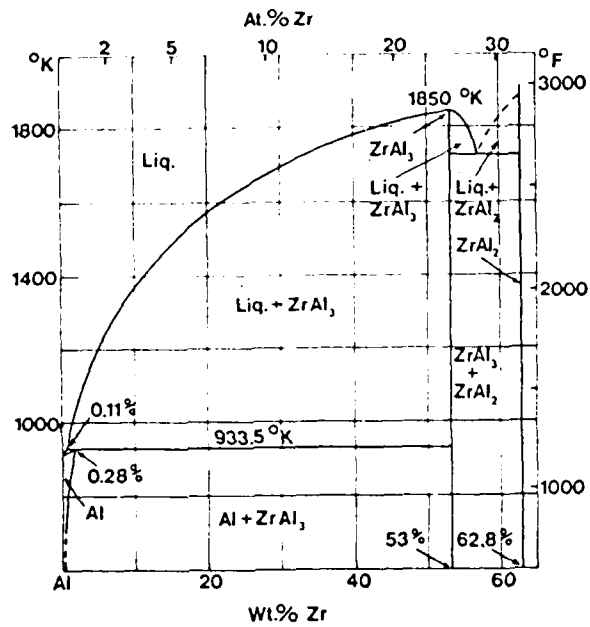
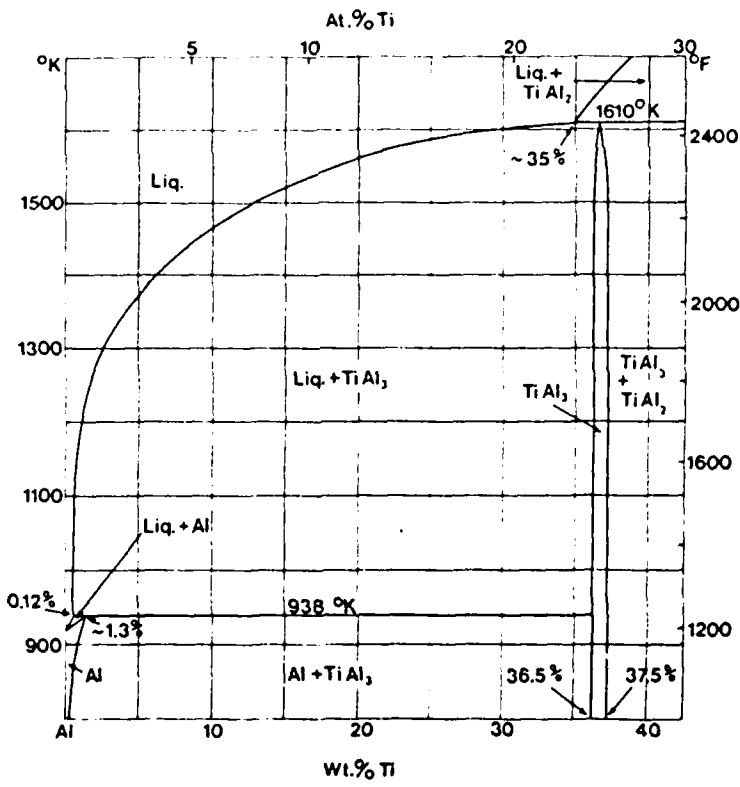


Figure 2. Metallographic cross sections of as-prepared Al - 8 Ti- 30 SiC (wt.%) composite filler metal powder particles. Magnification 500X.



The aluminum end of the aluminum-zirconium equilibrium diagram



The aluminum end of the aluminum-titanium equilibrium diagram

Figure 3. Al-Zr and Al-Ti phase diagrams.

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