

## Necessary Properties for Matrix TiAl in $CVD$ SiC Fiber Reinforced Composites

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Metal matrix composites have been investigated extensively for many years. Many fabrication methods have been developed such as a powder metallurgy process, a casting process, HIP and Hot press processes. The hot press method has been often selected since controls of fiber direction and an availability of the metal sheet are readiness. SiC fiber reinforced TiAl intermetallic is one of the promising candidate composite for the heat resistant structural materials, because of its excellent high temperature specific strength and elastic modulus. In the case of  $CVD$ SiC fiber reinforced gamma TiAl intermetallic compound, there are several difficulties have to be overcome. Those are a fabrication of thin foil of TiAl, a poor deformability of TiAl at both room and elevated temperatures and a reaction between SiC fiber and TiAl matrix during processing. In this paper, necessary properties for matrix TiAl have been clarified based on the studies of fabrication conditions for SiC/TiAl composite by hot press method. The first difficulty has been solved by means of the diamond multi wire saw rather than the hot rolling process at high temperatures. Although TiAl sheets having a large area cannot be produced, thickness of 0.2mm sheets have been sliced within a reasonable time. The second one has been overcome by a superplastic deformation capability at elevated temperatures. Cr doped TiAl showed that their stress sensitivity factor became more than 0.3 at 1200C. The third one is still unresolved, complex reaction layers have been formed during 10 minutes consolidation process. A specially designed interface between SiC fiber and TiAl matrix will be necessary.