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**plasma enhanced diffusion of Al-Si alloys on the surface of Ti-45Al-2Nb-2Mn-1B titanium aluminide**

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Ti-45Al-2Nb-2Mn-1B intermetallic alloy was coated by pastes of Al-Si alloy powders and heated by a hot glow discharge. The plasma diffusion treatment was carried out at 800 C for 30 min with alloys of aluminum and 5%, 10% and 20% Silicon. Coating layers up to 500 micron were developed on the surface of Ti-45Al-2Nb-2Mn-11B titanium aluminide. The thick layers composed of TiAl<sub>3</sub> and Ti<sub>5</sub>Si<sub>3</sub> particles in Si-rich aluminum matrices. Plasma paste aluminizing with Al-20%Si alloy formed coating layers with blocky and blade type TiAl<sub>3</sub> particles in a Si-rich Al matrix. Oxidation of this sample varied the structure of the coating to fine particles of Ti<sub>5</sub>Si<sub>3</sub> in a TiAl<sub>3</sub> matrix. While the hardness of the coating with Al-20%Si alloy was as high as 800 HV<sub>0.5</sub> much higher than that of the substrate(350 HV<sub>0.5</sub>), the hard Ti<sub>5</sub>Si<sub>3</sub> particles were highly matched with TiAl<sub>3</sub> matrix and no cracking was observed in this coating layer. In addition to the thick non- oxidized section of this coating, a thin oxidized layer formed on the outermost surface of the coating. It was composed of a mixture of Al<sub>2</sub>O<sub>3</sub> crystals in TiAl<sub>3</sub> and Ti<sub>5</sub>Si<sub>3</sub> grains rather than distinguished layers.

**Keywords**TiAl<sub>3</sub>Ti<sub>5</sub>Si<sub>3</sub>

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