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# Identification of Fe-Al intermetallic phases in aluminide coatings on mild steel

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**Abstract :** Mild steel were coated by hot-dipping in molten aluminum bath at 800°C and 1000°C for 90 minutes. Phase identification of the Fe-Al intermetallic compounds in the hot-dipped aluminide mild steel was carried out by using a combination of scanning electron microscope (SEM), energy dispersive X-ray spectroscopy (EDS), and electron backscatter diffraction (EBSD). The results showed that the intermetallic layer growing toward the steel substrate possessed a tongue-like morphology. The intermetallic layer of the hot dipped was composed of minor monoclinic FeAl<sub>3</sub> and major orthorhombic Fe<sub>2</sub>Al at the temperature of 800°C and 1000°C. But at the interface intermetallic/steel, the intermetallics compounds formed in this level are FeAl cubic and Fe<sub>35</sub>Al at the temperatures of 1000°C and 800°C respectively. These intermetallics compounds which appear in very thin layer, at the interface, are tangent toward the steel.

**Keywords :** Mild steel, Hot-dipping, intermetallic Compounds, Aluminide layer, EBSD.