

## عنوان مقاله:

Investigation on Composition and Microstructural Morphology of the Fe-B-C Hardfacing Layers

## محل انتشار:

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## خلاصه مقاله:

The application of hardfacing materials for producing wear-resistant coatings on components working in wear conditions is one of the important advices in environmental protection and increasing the service life of engineering equipment. In this study, the microstructure of the hardfaced layers made by two cored wires containing Fe-B and Fe-B-C powder-based were investigated. ST37 plain carbon steel was used as the substrate and the deposition of the hardfaced layers was conducted by the flux cored arc welding (FCAW) process under single-, two-, and three-pass conditions. The microstructural and phase analyses were carried out by field emission scanning electron microscopy (FE-SEM) and X-ray diffraction (XRD), respectively. The results showed that the characteristic microstructures of the Fe-B hardfacing alloy layers comprised a matrix containing elliptical dendritic ferrite and the eutectic of ( $\alpha$ -Fe<sub>2</sub>B). But, the Fe-B-C hardfacing alloy layers included columnar-like Fe<sub>2</sub>B, skeletal-like Fe<sub>2</sub>B, daisy like Fe<sub>3</sub>(C, B) and the eutectic of (P-Fe<sub>2</sub>B).

## کلمات کلیدی:

Hardfacing, Microstructure, Fe-B, Fe-B-C, FCAW

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