

Effect of heating time on hardness properties of laser clad gray cast iron surface

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ABSTRACT

This paper presents effect of heating time on cladDED gray cast iron. In this study, the effect of heating time on cladDED gray cast iron and melted gray cast iron were analysed. The gray cast iron sample were added with mixed Mo-Cr powder using laser cladding technique. The mixed Mo and Cr powder was pre-placed on gray cast iron surface. Modified layer were sectioned using diamond blade cutter and polish using SiC abrasive paper before heated. Sample was heated in furnace for 15, 30 and 45 minutes at 650 °C and cool down in room temperature. Metallographic study was conduct using inverted microscope while surface hardness properties were tested using Wilson hardness test with Vickers scale. Results for metallographic study showed graphite flakes within matrix of pearlite. The surface hardness for modified layer decreased when increased heating time process. These findings are significant to structure stability of laser cladDED gray cast iron with different heating times.

KEYWORDS:

Binary alloys; Chromium alloys; Hardness; Heating; Metallography