

Investigation of Mechanical Properties and Wear Behavior of Hot Roller Grades

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Abstract : In this study, microstructure, macro, and microhardness of phases for three grades of cast iron rolls with modified chemical composition using a light microscope (OM) and electron microscopy (SEM) were investigated. The grades were chosen from Chodan Sazan Manufacturing Co. (CSROLL) productions for finishing stands of hot strip mills. The percentage of residual austenite was determined with a ferrite scope magnetic device. Thermal susceptibility testing was also measured. The results show the best oxidation resistance at high temperatures is graphitic high chromium white cast iron alloy. In order to evaluate the final properties of these grades in rolling lines, the results of the Pin on Disk abrasion test showed the superiority of the abrasive behavior of the white chromium graphite cast iron alloy grade sample at the same hardness compared to conventional alloy grades and the enhanced grades.

Keywords : hot roller, wear, behavior, microstructure

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