

Investigation the Effect of Quenching Media on Abrasive Wear in Grade Medium Carbon Steel

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Abstract : In this paper, a general verification of possible heat treatment of steel has been done with the view of conditions of real abrasive wear of rotivater with soil texture. This technique is found promising to improve the quality of agriculture components working with the soil in dry condition. Abrasive wear resistance is very important in many applications and in most cases it is directly correlated with the hardness of materials surface. Responded of heat treatments were carried out in various media (Still air, Cottonseed oil, and Brine water 10 %) and follow by low-temperature tempering (250°C) was applied on steel type (AISI 1030). After heat treatment was applied wear with soil texture by using tillage process to determine the (actual wear rate) of the specimens depending on weight loss method. It was found; the wear resistance Increases with increase hardness with varying quenching media as follows; 30 HRC, 45 HRC, 52 HRC, and 60 HRC for nontreated (as received) cooling media as still air, cottonseed oil, and Brine water 10 %, respectively. Martensitic structure with retained austenite can be obtained depending on the quenching medium. Wear was presented on the worn surfaces of the steels which were used in this work.

Keywords : microstructures, hardness, abrasive wear, heat treatment, soil texture

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