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Experimental work for investigating the quenching properties of selected media on 6061 Al alloys

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Abstract

The authors did experimental work for investigating the quenching properties of selected media on 6061 Al alloys. Specimens of 6061 Al alloy were prepared and quenched in water, seanut oil and palm oil at temperature of 400⁰c, 450⁰c and 530⁰c to determine the effect of variation in temperature and quenching media on mechanical properties and microstructure of the alloy. Standard specimens from the rapidly quenched alloys were subject to various tests to determine their ultimate tensile strength, hardness and impact strength. The results showed that the specimen heat-treated to 530⁰c and quenched in water has the highest tensile strength of 109 N/mm² and yield strength of 70.89 N/mm². The specimen heated at 530c and quenched in water gave the highest value of 35.50 in hardness (HRC). The toughness property of the alloy, as indicated by charpy impact values, is better at 530⁰c for specimen quenched in seanut oil and least impact strength is observed in specimen quenched in water at 400⁰c.