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Production of Al-20% Al alloy and its microstructural analysis

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Abstract

The authors worked on production of Al-20% Al alloy and microstructural analysis of the same. Microstructural analysis of Al alloys became important as a result of their physical and mechanical properties. The authors have considered 16 sample of cast Al 20 alloy and heat treated the same at 450⁰c for one hour, and then annealed and quenched in water and oil. The tensile strength and fatigue strengths were measured and hardness test were conducted on the samples. The microstructure analysis was done using metallurgical microscope with a magnification of 400. The samples were characterized by hardness of 59.8, 60.5, 69.1 and 79.6 BHN for as cast, annealed, used engine oil quenched and water quenched respectively. Their results indicated that the hardness level increased with increasing quenched severity. The microstructure indicated the presence of coarse Mg grains indicating the fact that Al and Mg generate pores during casting.