

## ABSTRACT

The effect of thermal aging on microstructure and microhardness of cast Al-12Si-4Mg alloys has been studied. Al-12Si-4Mg alloys with 1 to 5 wt.% cerium addition were prepared using casting technique. Cast alloy was undergo age hardening treatment having sequence of solutionizing, quenching and artificial aging. All the alloys were solutionized at 540 °C for 4 h followed by water quenching and age hardening at 130 °C, 150 °C, 170 °C, 190 °C and 210 °C for 4, 3, 2 and 1 h. Detailed analysis of the microstructures was carried out using Axiotech 1000HD optical microscope. Hardness was measured using Shimadzu Microhardness Tester (HVM-2000). Optical microstructure study of alloys showed the cast dendritic structure is destroyed and the spheroidization of eutectic silicon after the heat treatment. The hardness was the highest after aging at 130 °C and 150 °C for 3 h, at 170 °C and 190 °C for 2 h and 210 °C for 1 h.

**Keywords:** thermal aging; microhardness; dendritic; spheroidization; heat treatment