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Effect of ageing on microstructure and mechanical properties of Mg-10%Sn alloys

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Abstract—*The objective of this study is to correlate between microstructure and mechanical properties of Mg-10%Sn alloy subjected to ageing for different times. The alloy was subjected to ageing at 200^{o}C for 100h and 500h. Even after ageing, the intermetallic phase of Mg_2Sn remained at grain boundary as it was present in as cast alloy; however the area fraction increases. Microstructural Characterization was conducted to relate the variation of mechanical properties of an alloy to the alteration of its microstructure. The hardness of the alloy was increased by ageing due to increase the amount of Mg_2Sn intermetallic phase. During ageing, the ultimate tensile strength and ductility first increases and then decreases.*

Keywords*: Mg-alloys, Ageing, Intermetallic, Hardness, Tensile Strength*