Effect of Different Modifiers and Heat Treatment on Structure, Hardness and Microhardness of AlSi7Mg0.3 Alloy

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Aluminium and silicon alloys are widely used in practice currently, e.g. in car industry, aircraft industry or in civil engineering. Hence there is increasingly more emphasis placed on research and development of silumins. The aim of this paper is to analyse aluminium alloy, namely the alloy AlSi7Mg0.3. This paper is focused on the effect of particular modifiers and heat treatment on the selected properties of the alloy, especially on structural transformations caused by various modifiers, hardness measurement (Brinell method) and microhardness testing (Vickers method). Four variants of castings (unmodified alloy and alloy modified by chemical elements - strontium, calcium and antimony) were tested. All alloys were compared to the cast of pure aluminium (Al 99.8%). There were moulded four castings from each variant and two castings of pure aluminium. It was casted using a gravity-die casting into a metal mold with a thermal insulation - except of pure aluminium (without thermal insulation).

Keywords: Al-Si alloys, modifiers, heat treatment, structure, hardness

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