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Microstructure and Mechanical Properties of the AlSi13Mg1CuNi Alloy With Ecological Modifier

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A homogenous modifier obtained by the rapid solidification at a cooling rate equal to v=200 K/s was applied to the modification of the AlSi13Mg1CuNi alloy. The different modifiers were obtained by means of the Al-Si alloys containing 0, 7 and 12 at. % Si, respectively. The components Al, Al-7Si, Al-12Si were put into crucible containing the liquid AlSi13Mg1CuNi alloy. Both, effect of cooling rate applied to obtain modifier and weight in weight modifier concentration in the melt on microstructure, tensile strength and hardness of AlSi13Mg1CuNi alloy are determined. A structural, physical and mechanical properties resulting from the AlSi13Mg1CuNi alloy treatment by modifiers are studied in details.

Key words: Al-Si alloy, silumin, mechanical properties, ecological modification, homogenous modificator

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