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Uticaj termomehaničke obrade na svojstva EN AW-6060 aluminijumske legure

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Eksperimentalno ispitivanje je izvršeno na aluminijumskoj leguri EN AW-6060. Ispitivanje je uključivalo promene različitih osobina legure pod uticajem termomehaničke obrade (TMO). Ispitivana je tvrdoća, mikrotvrdoća i elektroprovodljivost u funkciji intenziteta deformacije korišćene pre ili posle termičke obrade starenjem. Deformisani uzorci upoređivani su sa onim koji su prošli samo kroz termičku obradu starenjem radi analize samog uticaja primenjene deformacije. Uticaj deformacije, pre i posle starenja, doveo je do porasta vrednosti tvrdoće i mikrotvrdoće, dok su vrednosti elektroprovodljivosti opale. Određen broj uzoraka je izdvojen i detaljnije analiziran uz pomoć, optičke i skenirajuće elektronske mikroskopije. Hemijski sastav precipitata kao i njihova distribucija u mikrostrukturi ispitivana je uz pomoć energetsko disperzivne spektroskopije uz pomoć funkcije mapiranja prisutnih elemenata u mikrostrukturi.

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The influence of thermomechanical treatment on the properties of the EN AW-6060 aluminium alloy

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Aluminum alloy EN AW-6060 was used for experimental study. The experimental study included changes in different properties of alloys under the influence of thermomechanical treatment (TMT). Hardness, micro-hardness and electrical conductivity were investigated as a function of deformation intensity, before and after the aging treatment. In order to pinpoint the influence of deformation only, the samples were compared to those which were subjected to aging treatment exclusively. The deformation, in both cases caused an increase in hardness and micro-hardness values while electrical conductivity decreased. Some representative samples were chosen and further investigated by the means of optical and scanning electron microscopy. Energy dispersive spectroscopy was used to investigate the chemical composition of precipitates and EDS mapping feature for the analysis of distribution of alloying elements in the microstructure of alloys.

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