Research the Causes of Surface Stains after Eloxal Coating for the Profile from the AlMgSi Alloy Using Substructural Analysis

Stefan Michna[1], Natasa Naprstkova[1], Dorota Klimecka-Tatar[2]
[1]Faculty of Production Technology and Management, J. E. Purkyne University in Usti nad Labem. Pasteurova 1, 400 96 Usti nad Labem. Czech Republic. E-mail: michna@fvtm.ujep.cz, naprstkova@fvtm.ujep.cz
2Faculty of Management of Czestochowa University of Technology, ul. Armii Krajowej 19 B, 42-200 Czestochowa, Poland. E-mail: klimt@wip.pcz.pl

The aim of the research was to analyze the delivered profile samples, where appeared the darker spots with an irregular circular shape on the surface of light colored profiles after process of natural anodizing without colouration. Profiles are manufactured with alloy EN AW 6060 (AlMgSi) according to EN 573-3, which was carried out by heat treatment hardening. For material were performed measurements of Brinell and Vickers hardness, Vickers microhardness and substructural analysis in occurrence area of the dark spots and outside of these spots (light area of profile). Based on these analyzes it revealed significant difference of mechanical properties in these individual areas and different substructure of the solid solution α there. Based on knowledge of heat treatment technology is this substructure heterogeneity and diversity of mechanical properties (hardness and micro-hardness) of the given alloy caused by uneven localized cooling after solvent annealing in the hardening process. The occurrence of inhomogeneities is then right to express to different color profile to the surface after the anodizing process.

Keywords: alloy AlMgSi, substructural analysis, heat treatment, Brinell hardness, Vickers microhardness, solid solution α

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