Effects of Aluminium Microparticles and Surface Treatment of AlCu4Mg on Mechanical Properties of Adhesive Bond Strength

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The aim of the research was to evaluate the lapping length, the adhesive bonded surface treatment and the influence of the filler in the form of the aluminium microparticles on the adhesive bond strength. The alloy AlCu4Mg was the adhesive bonded material bonded by means of a two-component epoxy adhesive used in construction of machines. The filler in a form of aluminium microparticles was added into the adhesive. Laboratory experiments were performed on normalized testing samples of alloy AlCu4Mg prepared under standard ČSN EN 1465. Within the research three various treatments of the adhesive bonded surface were evaluated, i.e. without the surface treatment (WT), mechanical treatment of the surface (MT) and mechanical and chemical treatment of the surface (MCHT). The adhesive bonds without the adhesive bonded surface treatment (marked as WT) reach the smallest adhesive bond strength. When adding the filler in the form of aluminium microparticles (10 vol. %) the adhesive bond strength was increased of about 12%.

Keywords: adhesive bonding technology, aluminium alloy, lapping length, surface treatment, microparticles aluminium

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