Effect of Surface Treatment of Adhesive Bonded Sheet of Aluminium Alloy EN AW 2024 T3 on Adhesive Bond Strength Created by Means of Structural Two-Component Adhesive

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When constructing traffic means, agricultural machines etc. it is necessary to create a bond, namely from thin semi-products, i.e. sheets of metal. Namely light and strong materials such as e.g. aluminium alloys EN AW 2024 T3 (AlCu4Mgl) are used in the constructions. A research namely on the adhesive bonded surface treatment is necessary at a rise of the quality adhesive bond. The aim of the research is an evaluation of the adhesive bonded surface treatment of the aluminium alloy EN AW 2024 T3 (AlCu4Mg1) by means of mechanical tests and a surface analysis by means of SEM. A cyclic degradation loading of the adhesive bond after exposing the adhesive bonds to increased and decreased temperatures, i.e. in the interval -40 to 70 °C in a programmable climatic chamber MKF240 and connected adhesive bonded surface treatments were evaluated within the research. The adhesive bonded surface treatment was of the positive influence on the strength and the elongation of the adhesive bond and it increased the resistance to the cyclic acting of the degradation environment at the same time.

Keywords: adhesive bond strength, chemical treatment, mechanical treatment, SEM, surface roughness

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