Effects of Grit Blasting on Surface Properties of Adhesive Bonded Adherents

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A mechanical treatment of an adherent before an application of adhesives is one of key factors influencing resultant strength of an adhesive bond. A grit blasting belongs among one of the most often used methods of the surface treatment. A resultant structure of blasted adherent and also parameters of the surface roughness can be changed during the blasting by a suitable choice of many parameters among which a material and a size of abrasive particles, a distance of an air jet and a blasted material, a size of the jet, an air pressure and an angle of abrasive particles impact can be ranked. This experiment describes an injector system of grit blasting using basic abrasives – corundum and glass ballotini. During grit blasting of common steel adherent it came to the change of the impact angle of the abrasive particle in a range from 75° (a perpendicular angle) to 10°. Different impact angle led to different roughness parameters and to various structure of the adherent surface which was evaluated by an electron microscopy. Subsequently, it came to experimental description of the strength of adhesive bonds which were created by adherents whose surface was grit blasted under various impact angles of abrasive particles.

Keywords: Ballotini, corundum, erosive wear, lap-shear strength.

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