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Strength of ductile adhesive butt joint bonded with dissimilar adherents: effect of surface roughness

Abstract

The purpose of this project is to study the influence of the macroscopic state of surface roughness of the dissimilar adherent on the strength of adhesive joint. In this project, several types of sandpaper were used to produce different surface roughness of stainless steel and aluminium alloy adherents. All bonding surfaces were polished with different types of sandpaper. Butt joints of dissimilar adherent specimen were produced using a ductile adhesive (i.e. Araldite® Standard) with same bond thickness. The specimens were tested under static loading condition using universal testing machine (UTM) to investigate the relationship of the surface roughness and bond strength.

Keywords — Surface roughness, bonding strength, bond thickness, butt joint.