عنوان مقاله:

Friction Stir Welding of Dissimilar Poly Methyl Methacrylate and Polycarbonate Sheets

محل انتشار:

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خلاصه مقاله:

The widespread application of thermoplastic polymers in different aspects of industries has motivated researchers and companies to improve and upgrade their forming, joining and assembling processes to overcome their limitations. One of the newest joining methods of thermoplastics is friction stir welding which is based on frictional heat generated through contact between a rotating tool and the workpiece.The aim of this study is to investigate the weldability of dissimilarpoly methyl methacrylate and polycarbonatesheets via friction stir welding approach.The effects of process parameters such as rotational and traverse speeds and the heater temperature on the mechanical properties of the joints were studied comprehensively. Rotational and traverse speeds and heater temperature of 2100 rpm, 8 mm/min and 120 °C, offered the optimized mechanical properties of the joint. In the optimum joining condition, welded joint with strength equal to 98% of polycarbonate and with higher hardness than the polycarbonate was obtained.

کلمات کلیدی:

Thermoplastic Polymer, Poly Methyl Methacrylate, Polycarbonate, Heat Assisted Friction Stir Welding