

## عنوان مقاله:

Influence of Welding Parameters on Strength of Friction Stir Spot Welded Polyethylene Sheets Using Two-Stage Refilling Process

## محل انتشار:

پانزدهمین کنفرانس ملی و چهارمین کنفرانس بین المللی مهندسی ساخت و تولید (سال: 1397)

تعداد صفحات اصل مقاله: 4

## نویسندگان:

Farshad Akbari - MSc. Student, Mechanical engineering department, University of Birjand, Birjand, Iran

Moosa Sajed - PhD Student, Mechanical engineering department, University of Birjand, Birjand, Iran

Amir Ashrafi - Assistant Prof., Mechanical Engineering Dept., University of Birjand, Birjand, Iran

S. M. Hossein Seyedkashi - Associate Prof., Mechanical Engineering Dept., University of Birjand, Birjand, Iran

## خلاصه مقاله:

There are different joining processes for thermoplastic composites. Friction stir spot welding by using two-stage refilling process has been introduced recently. In this paper, the feasibility of performing this process on polyethylene sheets is studied. Also, the effects of the main welding parameters including the tool rotational speed and the refilling time on the welding strength were investigated using the response surface method (RSM). The results confirm that this process is applicable on polymer sheets. It is concluded that the tool rotational speed is the most influential parameter, then followed by refilling time. The results also indicate that the increase of the tool rotational speed results in the reduction of the joint strength, and the decrease of the refilling time increases the welding strength. The best obtained strength proposed by the response surface optimizer was 798 MPa, which was obtained with tool rotational speed of 1200 rpm and refilling time of 19.82 s.

## کلمات کلیدی:

Friction stir spot welding- Polyethylene sheet- Two-stage refilling – Welding strength

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/837815>

