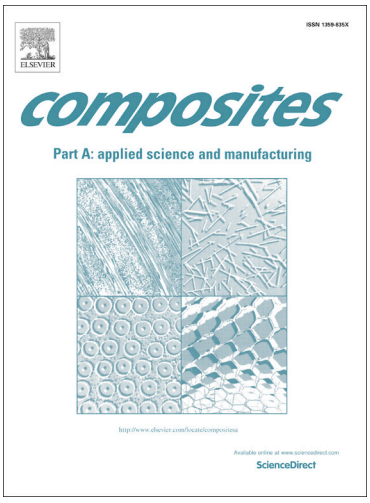

Review

Friction stir welding/processing of polymers and polymer matrix composites

Yongxian Huang, Xiangchen Meng, Yuming Xie, Long Wan, Zongliang Lv, Jian Cao, Jicai Feng

PII: S1359-835X(17)30439-6
DOI: https://doi.org/10.1016/j.compositesa.2017.12.005
Reference: JCOMA 4854

To appear in: *Composites: Part A*

Received Date: 12 September 2017
Revised Date: 22 November 2017
Accepted Date: 4 December 2017

Please cite this article as: Huang, Y., Meng, X., Xie, Y., Wan, L., Lv, Z., Cao, J., Feng, J., Friction stir welding/processing of polymers and polymer matrix composites, *Composites: Part A* (2017), doi: https://doi.org/10.1016/j.compositesa.2017.12.005

Friction stir welding/processing of polymers and polymer matrix composites

Yongxian Huang*, Xiangchen Meng, Yuming Xie, Long Wan, Zongliang Lv, Jian Cao, Jicai Feng

State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology, Harbin 150001, China

*Corresponding author: Email: yxhuang@hit.edu.cn (Tel. +86-451-86413951; Fax +86-451-86416186)

Abstract: Friction stir welding/processing (FSW/P) involving temperature, mechanics, metallurgy and interaction, is a complex solid state joining and processing technology. FSW has been widely applied to join aluminum alloy, titanium alloy and other materials which are difficult to weld by fusion welding. The last scientific study states that FSW has potential to join thermoplastic polymers and polymer matrix composites. In this review, current understanding and development about FSW of thermoplastic polymers and polymer matrix composites, multifunctional composites fabrication as well as dissimilar FSW of metal and polymer are reviewed. Future scientific research and engineering development related to FSW/P of thermoplastic polymers and polymer matrix composites are identified.

Keywords: Polymers/polymer matrix composites; Friction stir welding/processing; Mechanical property; Thermo-mechanical behavior.