

2018

Characterizations of joints HDPE welded by FSW

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Abstract : The aim of this work is the characterization of high density polyethylene (HDPE) joints welded by the Friction Stir Welding (FSW) technique. The characterization is done by destructive testing (mechanical tensile tests) for welded joints. To do this work, a series of experimental tests were made by taking in account of several parameters: - the geometry of the welding tool (pin), the axial force F_z applied to the tool along its axis of rotation, to compensate for the pressure formed in the weld zone, the speed of rotation of the tool, the speed of advance of the tool, in this work, we only take in account of the last two parameters. The results obtained were satisfactory and show the influence of these parameters on the quality of the joint.

Keywords : FSW, HDPE, polymers, welding