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Radiographic Flaw Detection of a Friction Stir Welded Ti-6Al-4V plate

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Abstract

A Friction Stir Welded Ti-6Al-4V alloy plate is non-destructively evaluated for flaws using the radiographic technique. Friction Stir Welding (FSW) of Aluminium alloys has been extensively studied over the past decade; the inspections thereof, using a variety of non-destructive testing techniques is well documented. The choice of the radiographic testing technique for this study is primarily because of its ability to easily distinguish between the different types of flaws. The technique also allows for variation of the testing parameters so as to optimise the density, contrast, definition and geometric un-sharpness of the radiograph. Heat input and other factors involved during FSW of the plates are believed to introduce certain types of flaws. The initial results of this study indicate that FSW of this high strength-high temperature 5 mm thick titanium alloy plate generates no observable flaws.

Keywords: Radiographic testing, Friction Stir Welding, titanium alloy.

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