

Evaluation of Drilling-Induced Delamination of Flax/Epoxy Composites by Non-Destructive Testing Methods

Authors : Hadi Rezghimaleki, Masatoshi Kubouchi, Yoshihiko Arao

Abstract : The use of natural fiber composites (NFCs) is growing at a fast rate regarding industrial applications and principle researches due to their eco-friendly, renewable nature, and low density/costs. Drilling is one of the most important machining operations that are carried out on natural fiber composites. Delamination is a major concern in the drilling process of NFCs that affects the structural integrity and long-term reliability of the machined components. Flax fiber reinforced epoxy composite laminates were prepared by hot press technique. In this research, we evaluated drilling-induced delamination of flax/epoxy composites by X-ray computed tomography (CT), ultrasonic testing (UT), and optical methods and compared the results.

Keywords : natural fiber composites, flax/epoxy, X-ray CT, ultrasonic testing

Conference Title : ICCM 2016 : International Conference on Composite Materials

Conference Location : Amsterdam, Netherlands

Conference Dates : August 04-05, 2016