

ABSTRACT

GFRP laminates are gaining its importance in many of the manufacturing industries. Therefore, precise machining process needs to perform in order to ensure dimensional stability and to obtain better productivity. Drilling is a machining process, generally a part of many components. Hence, in this regards the study was conducted on GFRP laminates in order to analyze the delamination that occur during drilling of the composite and to study the chip characteristics. The different parameters evaluated for the test was speed, feed rate and the %SiC. A series of holes were drilled on three different specimens by varying the parameters. The measured results of delamination was analyzed using the statistical software MINITAB 14. The combination of the parameters was analyzed or obtained using the Taguchi L-9 array. From the analysis it is evident that the %SiC is the most influencing parameter followed by the speed and feed rate respectively. The delamination was observed to decrease with the increase in the SiC percentage. Also on optimizing the three results of speed and the feed rate it was concluded that by the usage of minimum speed of 500rpm and feed rate of 15mm/rev followed by 10%SiC content the delamination could be reduced drastically.

Keywords: GFRP, Composite, Drilling, Delamination, Optimisation