# ABSTRACT

Polytetrafluoroethylene (PTFE) is a widely used material in various industries due to its exceptional resistance to extreme temperatures and chemical exposure. However, machining PTFE presents unique challenges, particularly related to surface damage caused by cutting temperature. Trochoidal milling is a machining strategy characterized by a trochoidal toolpath that enables intermittent cutting and low contact angles, thereby reducing cutting temperatures. This study aims to investigate the influence of trochoidal milling parameters namely feed rate, spindle speed, and stepover on the surface roughness of PTFE. The experiments were conducted using a full factorial Design of Experiment (DoE) approach. The results shows that trochoidal milling successfully reduce tool temperature by average of 27%. Surface roughness shows no significant difference when using both machining method. Spindle speed is the most contributing factor in terms of tool temperature. While stepover is the most significant factor in determining the surface finish.



Keywords: Trochoidal Milling, Surface Roughness, Feed Rate, Spindle Speed, Stepover.