Resultant surface roughness of 5% and 10% Al7075SiC MMC by using Friction Stir Processing

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Abstract. The study of friction stir processing has been presently used in industry and academic research. Friction stir processing(FSP) is used as surface modification technique, 5% and 10% Al7075SiC metal matrix composites were tested for surface finish using Talysurf at varying speeds of minimum, medium and maximum. This document provides the outcomes of 5% surface roughness (Ra), 5% skewness (Rsk), 5% kurtosis (Rku) and 10% metal matrix composites Al7075SiC. Experiments were conducted according to Taguchi's method L_8 $(3)^3$ at various speeds.

Keywords. FSP; Surface Roughness (R_a,); Skewness (R_{sk}); Kurtosis (R_{ku}).

1. Introduction

The potential utilization of friction stir processing (FSP) has been growing due to the demands of different manufacturing sectors and academic research quickly in these years. Friction Stir Processing is widely found in making various parts of aerospace, automobile, medical equipment and agriculture. Using experimental techniques and statistical models, parameters for the growth of output characterization are systematically considered. Therefore, correct configurations of friction stir handling parameters are essential before the method occurs in order to achieve better surface roughness. The objective of the paper organization is therefore to optimize process parameters for minimum surface roughness composites of different percentages in FSP for Al7075SiC metal matrix composites.

2. Literature survey

Consequently the Taguchi method which a powerful tool for improving productivity during research and development so that high quality products can be produced quickly and at low cost [1,2][5]. The surface finishing is therefore one of the most important variables in the manufacturing system ; several scientists have carried out numerous studies to improve the surface finish of the FSP system. [3,4][6]. The surface finishing in friction stir processing