

STUDY AND INVESTIGATION OF ALLOY (AA6082) USING FRICTION STIR PROCESSING SURFACE MODIFIED ALUMINIUM

Mr.M.SIVANESH PRABHU, Miss. A .V.VANISRI, Dr. A.ELAYAPERUMAL

Engineering design division, Department of mechanical engineering ,Anna university, Chennai-600025, Tamil nadu,India.

The aluminum and its alloy have been used in enormous applications such as structural, automobile, aerospace, marine and industries. The purpose of selecting aluminum alloy preferably is because of its light weight and high strength to weight ratio. The strength of the material is limited by its poor mechanical and wear behavior. To overcome these issues many experiments were conducted on fabricating aluminum based composites reinforcing ceramic particles to improve mechanical behavior. Wear resistance is one of the major concerns of material surface property, which can be improved by proper surface composites. By this concern many researchers suggested a novel technique named Friction Stir Processing(FSP). FSP is an energy efficient and solid state technique which is used to produce surface composites and surface modification. The friction between the tool and the work piece undergoes intense plastic deformation and therefore produces dynamic recrystallization at elevated temperature. Due to dynamic re-crystallization, a homogeneous dispersion of ceramic particles is produced in the processed nugget zone and also formation of fine grains can be achieved. In this investigation of AA6082 effect of tool travelling speed are carried out. Wear test is carried out by pin-on-disc apparatus. Micro hardness is carried out by Vickers, s micro hardness.