# ANALYSIS OF MICRO CRACKS AND MICRO HARDNESS IN WHITE LAYER FORMATION on machined surfaces in EDM process

**Abstract**

In spite of significant progress in Die-sinking EDM process and marked improvement in surface integrity after machining, but this phenomenon is unavoidable and some technical issues stay unsolved in the area of surface integrity while machining of metals. Micro crack formation in the white layer zone in EDM leads to damage the quality of machined surface. This paper presents a quantitative analysis of micro-crack formation, in terms of crack width and orientation of micro cracks formed in white layer zone. The impact of processing conditions like peak current (Ip) and pulse on-duration (Ton)on crack formation is examined utilizing the perceptions under scanning electron microscope (SEM). In this work Micro-hardness is measured at different zones that is deposited later, heat effected zone (HAZ) and base metal. The hardness value of the recast layer (9.175Gpa) is substantially higher than that of the base metal (3.115Gpa) of M2 die steel.

***Keywords*:** peak current (Ip), pulse on-duration (Ton), Micro cracks and hardness, White layer formation.