

**Abstract**

The effect of heat treatment process on hardness and microstructure of AISI 4130 was computationally and experimentally investigated. AISI 4130 low alloy steel which contains chromium and molybdenum has a combination properties between strength and toughness. Quenching and tempering conditions were varied in order to improve hardness of AISI 4130 to design value. For time and cost saving reason, heat treatment process simulation was carried out with ForgeNXT1.0 and then, performed heat treatment operation in order to validate and compare with computational results. Eventually, the good agreement with small error between simulation and experiment results were concluded.

*Keyword* - AISI4130, Heat Treatment, Forge NxT1.0, Mechanical Properties, Microstructure