

Experimental Analysis on Metallic Foams-A Response Surface Methodology Approach

This study aimed to fabricate metallic porous materials using powder metallurgy (PM) space-holder technique. In the PM route, Al powder was mixed with different ratios (7%, 10%, and 20%) and sizes (500 and 1000 μm) of sodium chloride granules as space-holder agent. The mixture was then compacted at different compacting pressures (150, 200, and 250 MPa) and then heated to 280 $^{\circ}\text{C}$ for sintering. Subsequently, sodium chloride granules were removed by dissolving in water to obtain the porous structure. Tests were performed on all porous Al specimens, and characteristics such as density and porosity were measured. A statistical approach was used to optimize processing parameters. ANOVA statistical tool was used to obtain the final evaluation of the most significant features, namely, relative density and porosity fraction.