

EFFECT OF AVERAGE PARTICLE SIZE DIFFERENCE AND BINDER ON THE COMPACTION BEHAVIOUR OF BI-MODAL IRON POWDERS

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In this study atomised Fe powder was selected as starting material and sieved in order to obtain different particle size fractions. Finer fraction added to other fractions to obtain bimodal mixtures. As binder zinc stearate was used in powder form. Compaction behaviour of bi-modal powder mixtures having different amount of finer fraction was studied both in the absence and presence of binder. During compaction single action press and hardened steel die set was used and cylindrical shaped compacts were pressed via upper punch progress at room temperature. During characterization calculated green densities and compaction profiles were analyzed for the comparison.

Keywords: Powder Metallurgy, Compactability, Atomized Fe Powders, Bimodal powders

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+150-200 + % 0	+150-200 + % 10 – 44 mic	+150-200 + % 20 – 44 mic	+150-200 + % 30 – 44 mic
+100-150 + % 0	+100-150 + % 10 – 44 mic	+100-150 + % 20 – 44 mic	+100-150 + % 30 – 44 mic
+71-100 + % 0	+71-100 + % 10 – 44 mic	+71-100 + % 20 – 44 mic	+71-100 + % 30 – 44 mic
+44—71 + % 0	+44—71 + % 10 – 44 mic	+71-100 + % 20 – 44 mic	+71-100 + % 30 – 44 mic

+150-200 + % 0 + % 1,5 ZS	+150-200 + % 10 – 44 mic + % 1,5 ZS	+150-200 + % 20 – 44 mic + % 1,5 ZS	+150-200 + % 30 – 44 mic + % 1,5 ZS
+100-150 + % 0 + % 1,5 ZS	+100-150 + % 10 – 44 mic + % 1,5 ZS	+100-150 + % 20 – 44 mic + % 1,5 ZS	+100-150 + % 30 – 44 mic + % 1,5 ZS
+71-100 + % 0 + % 1,5 ZS	+71-100 + % 10 – 44 mic + % 1,5 ZS	+71-100 + % 20 – 44 mic + % 1,5 ZS	+71-100 + % 30 – 44 mic + % 1,5 ZS
+44—71 + % 0 + % 1,5 ZS	+44—71 + % 10 – 44 mic + % 1,5 ZS	+71-100 + % 20 – 44 mic + % 1,5 ZS	+71-100 + % 30 – 44 mic + % 1,5 ZS