Analysis of Selected Magnetic Properties of Fe-Co Powdered Compacts

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Abstract. We investigated coercivity, dc and ac magnetic losses and complex permeability of sintered Fe–Co powder cores to detect the influence of alloying process on magnetization processes performed in dc and ac magnetic fields. The Fe–Co solid solution alloy powders with 50:50 wt% ratio were prepared by 1 and 20 h alloyed mixture of pure chemical elements in planetary ball mill. The resulting powder was compacted by uniaxial pressure of 800 MPa for 5 min at 600 °C in vacuum oxidation protective atmosphere and then cured at 1000 °C for 1 hour. The sample prepared from 1 h alloyed powder exhibits better dc magnetic properties, while the sample prepared from 20 h alloyed powder exhibit in wider frequency range stable real part of complex permeability.