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P.S.B.43.

COROSION STUDIES OF NiMnGa SHAPE MEMORY ALLOYS IN VARIOUS COROSIVE ENVIRONMENTS

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Corrosion processes in metals substantially deteriorate their physico-chemical properties. The corrosive behaviour was studied in magnetic shape memory NiMnGa alloys. The process was investigated using voltamperometric method. Pure nickel was used as reference material. The measurements of open circuit potential (OCP) were applied for recording the dependence of current density I (A/cm^2) on the potential E (V), in the range of applied potential -150 mV to 1500 mV, at the potential velocity change of 1 mV/s. The measurements were carried out at room temperature, using solutions of NaCl, NaOH and H₂SO₄, respectively. It was found that the corrosion behaviour of NiMnGa alloys depends on the pH of the solution applied. The NiMnGa are more susceptible for corrosion than the pure nickel.

P.S.B.44.

MECHANOCHEMICAL SYNTHESIS OF Ba_{0.8}Sr_{0.2}TiO₃

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Ba_{0.8}Sr_{0.2}TiO₃ was prepared from the starting materials BaCO₃, SrCO₃ and TiO₂ through solid state reaction. Mixtures of these oxides were mechanically activated using a high-energy ball mill at different time intervals from 0 to 120 minutes. X-ray diffraction was employed in order to determine the crystal structure and gave information about composition of phase variation. It was observed that after 40 minutes early synthesis of Ba_{0.8}Sr_{0.2}TiO₃ phase occurred. Particle size distribution along with scanning electron microscopy gave very useful information about powder morphology.