Microstructure and Magnetic Properties of Rapidly Quenched Fe-Sn-B Based Alloys

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Abstract. Samples of nominal chemical composition $Fe_{81}Sn_7B_{12}$ were prepared by planar flow casting in the form of ribbons approximately 20 μm thick and 6 mm wide. Crystallization process was followed by differential scanning calorimetry. Alloy exhibits two stages of crystallization. Kissinger equation was used to determine activation energies of both first and second stages of crystallization. Samples were isothermally annealed for 30 min at selected temperatures and annealed in linear heating regime with heating rate of 20 K/min from room temperature up to selected temperatures. Changes in microstructure and magnetic properties were studied by x-ray diffraction and vibrating sample magnetometer.