

# Magnetic properties of bulk and thin films after $\text{Nd}_2\text{Fe}_{14}\text{B}$ corrosion action

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The corrosion action on the bulk  $\text{Nd}_2\text{Fe}_{14}\text{B}$  and based on it thin films magnets in different corrosion media was studied. The thin Nd-Fe-B layers of  $100 \text{ nm} \leq d \leq 1000 \text{ nm}$  were obtained on glass substrate by "flash" method. The structure and microstructure of the thin Nd-Fe-B films and bulk was studied by X-ray diffraction analysis (XRD), scanning electron microscopy (SEM) and X-ray photoelectron spectroscopy (XPS). In such films the long-range structural order is destroyed. The temperature specific magnetization study before and after corrosion action in the  $80 \leq T \leq 800$  K temperature range are carried out by ponderomotive method. It is shown that the magnetization of the layer of  $d \geq 1000 \text{ nm}$  thickness is comparable to those for powder samples. From the hysteresis loops the values of the coercive force and magnetic saturation field are determined.