He release rates of all samples showed the same dose dependence regardless of the marked surface erosion differences between samples. This implies that He release is not directly related to surface erosion.

COERCIVITY AND SQUARENESS RATIO IN Co-W THIN FILMS

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Thin magnetic films of Co-W can be electrodeposited in a variety of non-equilibrium structures. One can obtain either an hcp, an fcc or an amorphous phase, as well as mixtures of these phases. Since magnetic properties are determined primarily by the microstructure, it is interesting to make the appropriate correlation in Co-W films.

Co-W films, 200-500Å thick, were electrodeposited under a variety of plating conditions, and their magnetic properties measured by a vibrating sample magnetometer. The films, which exhibit a crystalline structure, have a medium to high coercivity in the 100-600 Oe range. Amorphous Co-W films show much lower coercivities, of the order of 20-30 Oe. H_c is low for films containing a high proportion of the fcc phase and increases with increasing content of the hcp phase. H_c decreases with increasing degree of perfection of texture of the hcp phase ([00.2] perpendicular to the film phase).

The squareness ratio R, I_r/I_s, is highest for the fcc and the amorphous films. Values as high as 0.9 were measured. R decreases with increasing fraction of the hcp phase and its perfection.

The behavior of the coercivity and squareness ratio was explained in terms of the microstructure.

IRREVERSIBLE MAGNETIZATION IN CO-W THIN FILMS

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The irreversible magnetization process in ferromagnetic materials can occur either by wall displacements, accompanied by Barkhausen jumps, or by coherent rotation. The latter mechanism

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requires higher fields, and is by 2÷4 orders of magnitude faster than the former. Determining the character of the reversal mechanism is of prime importance for any magnetic memory device application.

In ferromagnetic thin films, the nature of the irreversible magnetization process can be determined by measuring the dependence of the critical field, H_0, required to induce the process, on the angle θ between the field direction and the plane of the film. Regardless of the exact details of the mechanisms, it can be shown[1] that H_0 is proportional to $1/\cos\theta$ whenever the irreversible magnetization process occurs by wall displacements. On the other hand, when coherent rotation is the dominant mechanism, H_0 is texture dependent and varies with θ between a minimal value and twice this value.

We studied Co-W thin films, electrodeposited at various bath compositions, temperatures and pH values. They showed a variety of phase compositions and textures which are reflected in their coercivity and remanence. By using a vibrating sample magnetometer and measuring the angular dependence of H_0, a $1/\cos\theta$ behavior was established. Thus it was concluded that in Co-W thin film wall displacement is the dominant mechanism responsible for the irreversible magnetization process.

REFERENCE:

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THE STRUCTURE OF $R_{(1-x)}Ga_{2(1+x)}$ $(0 \leq x \leq 0.33)$ AND ITS RELATION TO RGa_6 AND Ga

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X-ray diffraction studies were used to investigate the wide solubility range of Ga in RGa_2 type compounds (R = rare earth element) observed in several systems of light rare-earth metals with Ga. A model was suggested based on pairwise substitution of R atoms by Ga atoms to explain the observed wide range of solubility. The model explains the change in lattice parameters

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