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(54) Title: **SPUTTERED THERMALLY CYCLED TEXTURE LAYERS FORMED OF HIGH MELTING POINT MATERIALS**

(57) Abstract

A process for fabricating a magnetic data storage medium includes formation of a controlled texture, either over an annular transducing head contact area or the entire surface of a substrate. The texture layer is formed by vacuum deposition of a texturing material onto a smooth surface of a non-magnetic substrate. The texturing material has a surface energy greater than that of the substrate, and the texturing material and substrate material have different linear coefficients of thermal expansion. Just before deposition of the texture layer, the substrate is heated to a temperature of 200 - 600 °C, then allowed to cool during texture layer deposition. The substrate and texture layer contract at different rates as they cool, inducing mechanical stresses within the texture layer sufficient to plastically deform the texture layer, creating multiple dome-like bumps. Subsequent thin film layers, including an underlayer, a magnetic recording layer and a protective cover layer, have uniform thicknesses and tend to replicate the texture layer topography. The resulting medium performs well under CSS testing at flying heights of less than 1.0 microinch, and exhibits excellent corrosive resistance when the substrate is formed of glass, glass ceramic or quartz. The process can be performed on all conventional types of substrates, including aluminum nickel-phosphorous substrates.

