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(54) Title: METHODS FOR PRODUCING IN-SITU GROOVES IN CHEMICAL MECHANICAL PLANARIZATION (CMP) PADS, AND NOVEL CMP PAD DESIGNS

(57) Abstract: Methods for producing in-situ grooves in CMP pads are provided. In general, the methods for producing in-situ grooves comprise the steps of patterning a silicone lining, placing the silicone lining in, or on, a mold, adding CMP pad material to the silicone lining, and allowing the CMP pad to solidify. CMP pads comprising novel groove designs are also described. For example, described here are CMP pads comprising concentric circular grooves and axially curved grooves, reverse logarithmic grooves, overlapping circular grooves, lassajous grooves, double spiral grooves, and multiply overlapping axially curved grooves. The CMP pads may be made from polyurethane, and the grooves produced therein may be made by a method from the group consisting of silicone lining, laser writing, water jet cutting, 3-D printing, thermoforming, vacuum forming, micro-contact printing, hot stamping, and mixtures thereof.



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