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(54) Title: CHEMICAL MECHANICAL PLANARIZATION USING AMINO-POLYORGANOSILOXANE-COATED ABRASIVES

Zeta potential (mV)

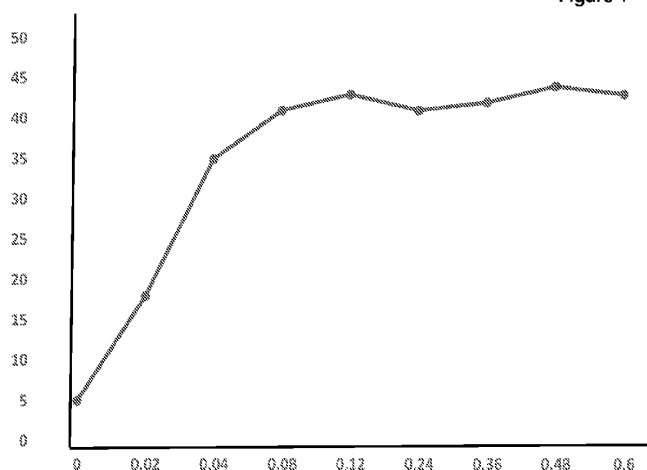


Figure 1

Aminosilane charge carriers (mmol/g silica)

(57) Abstract: Chemical mechanical planarization (CMP) polishing compositions, methods and systems using a stable colloidal abrasive particle dispersion are provided. The abrasive particles in the dispersion are amino-polyorganosiloxane-coated abrasive particles. The amino-polyorganosiloxane-coated abrasive particles have an amino functional polyorganosiloxane shell having a thickness of 0.1 nm to 10 nm, or 0.5 to 5 nm. The amino-polyorganosiloxane-coated abrasive particles have low silanol density and positive charge at acidic low pH range.

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