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(54) Title: CHEMICAL MECHANICAL PLANARIZATION (CMP) FOR COPPER AND THROUGH-SILICON VIA (TSV)

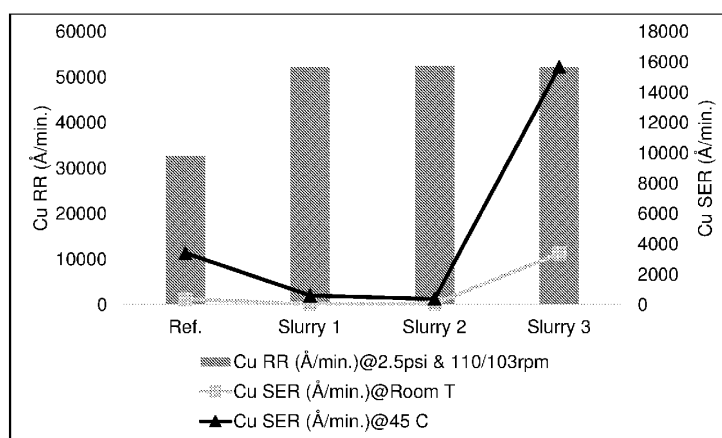


Figure 1

(57) Abstract: Provided are Chemical Mechanical Planarization (CMP) compositions that offer high and tunable Cu removal rates and low Cu static etching rates for polishing the broad bulk or advanced node copper or Through Silica Via (TSV). The CMP compositions also provide high selectivity of Cu film vs. other barrier layers, such as Ta, TaN, Ti, TiN, and SiN; and dielectric films, such as TEOS, low-k, and ultra-low-k films. The CMP polishing compositions comprise abrasive, oxidizer, at least two chelators selected from the group consisting of amino acids, amino acid derivatives, and combinations therefore; the Cu static etching reducing agents include, but not limited to, organic alkyl sulfonic acids with straight or branched alkyl chains, and salts of organic alkyl sulfonic acids.

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