ABSTRACT

CHEMICAL MECHANICAL POLISHING FOR
COPPER AND THROUGH SILICA VIA APPLICATIONS

Provided are Chemical Mechanical Planarization (CMP) compositions that offer very high and tunable Cu removal rates for the broad bulk or advanced node copper or Through Silica Via (TSV). The CMP compositions provide high selectivity of Cu film vs. other barrier layers, such as Ta, TaN, Ti, and TiN, and dielectric films, such as TEOS, low-k, and ultra low-k films. The CMP polishing compositions comprise solvent, abrasive, oxidizer, at least two chelators selected from the group consisting of amino acids, amino acid derivatives, organic amine, and combinations therefore; wherein at least one chelator is an amino acid or an amino acid derivative. Organic quaternary ammonium salt, corrosion inhibitor, pH adjustor and biocide can be used in the compositions.

[No figure]