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(54) Title: COPPER CMP COMPOSITION CONTAINING IONIC POLYELECTROLYTE AND METHOD

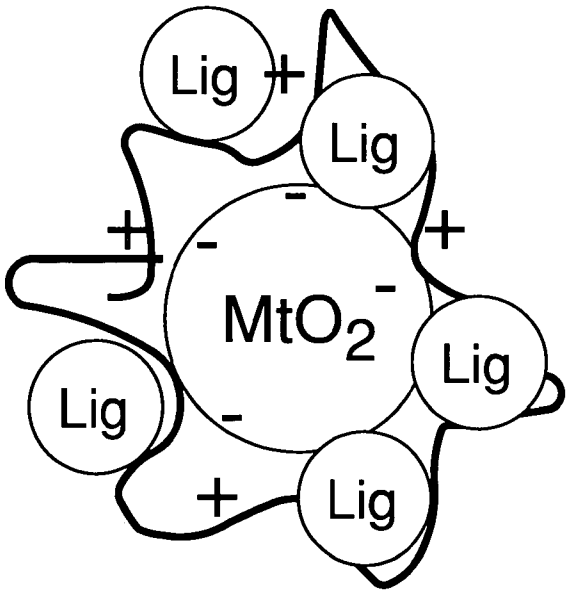

FIG. 2

(57) Abstract: The CMP compositions of the invention comprise not more than 1 percent by weight of a particulate abrasive, a polyelectrolyte, which preferably has a weight average molecular weight of at least 10.000 grams-per-mole (g/mol), a copper-complexing agent, and an aqueous carrier therefor. The polyelectrolyte can be an anionic polymer (e.g., an acrylate polymer or copolymer) or a cationic polymer (e.g., poly(2-[(methacryloyloxy)ethyl] trimethyl-ammonium halide). When an anionic polyelectrolyte is utilized, the copper-complexing agent preferably comprises an amino polycarboxylate compound (e.g., iminodiacetic acid or a salt thereof). When a cationic polyelectrolyte is utilized, the copper-complexing agent preferably comprises an amino acid (e.g., glycine). Preferably, the particulate abrasive comprises metal oxide such as titanium dioxide or silicon dioxide. Methods of polishing copper-containing substrates with the compositions are also disclosed.

WO 2009/032065 A1

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