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METHODS AND APPARATUS FOR CLEANING SEMICONDUCTOR SUBSTRATES AFTER POLISHING OF COPPER FILM

ABSTRACT OF THE DISCLOSURE

A cleaning solution, method, and apparatus for cleaning semiconductor substrates after chemical mechanical polishing of copper films is described. The present invention includes a cleaning solution which combines deionized water, an organic compound, and a fluoride compound in an acidic pH environment for cleaning the surface of a semiconductor substrate after polishing a copper layer. Such methods of cleaning semiconductor substrates after copper CMP alleviate the problems associated with brush loading and surface and subsurface contamination.