

## ABSTRACT

### ROUNDED SURFACE FOR THE PAD CONDITIONER USING HIGH TEMPERATURE BRAZING

A polishing pad conditioner used in the removal of slurry and semiconductor thin film build-up in the polishing pad in a chemical and mechanical polishing (CMP) process used to planarize a semiconductor wafer surface. The conditioner is pressed against the polishing pad, often while de-ionized water is applied, to remove the material build-up. The conditioner of the present invention has a convex lower surface covered by diamond crystals that are bonded to the underside of the nickel alloy conditioner. Typically, the difference between the center and the edge of the conditioning surface will range from a minimum of about 0.2 mm (very slightly convex) to a maximum of the entire thickness of the conditioning surface (more convex). The convex shape reduces the friction between the pad and conditioner and allows the slurry to reach the center of the conditioner. This more uniformly conditions the pad surface which yields more uniformly polished wafers and also increases pad life. Brazing is used to form a molecular bond between the abrasive diamond crystals and the nickel alloy conditioner. This bond is not attacked by the low pH slurry used in CMP, eliminating the problem where diamond crystals separate from the conditioner causing scratches on the wafer surface.

FIGURE 3 IS SUGGESTED FOR PUBLICATION)