CHEMICAL MECHANICAL POLISHING AGENT CEPSEL-86 FOR PLANARIZING THE SILICON CARBIDE SURFACE

Silicon carbide possesses unique electrical and physical properties that make it suitable for high power, high frequency and high temperature electronic devices including ICs. Such properties have fueled an intense research effort in the recent decades that has prompted the need to develop larger area defect/damage-free silicon carbide wafers. The preparation of silicon carbide wafers is require multiple polishing steps including a mechanical polishing step in which particles which are typically harder than silicon carbide are used to achieve reasonable silicon carbide polishing rates. The very hard particles used for the mechanical polishing usually results high degree of damage by generating scratches and dislocations on surface and sub-surface of the silicon carbide wafer. Typically the abrasives that are harder than silicon carbide provide reasonably high polishing rates, but cause significant Surface and Sub-Surface damage. However, the abrasive particles which are softer than silicon carbide typically provide low polishing rates, and significantly less damage. Since the CMP particles used are still significantly abrasive, new damage is generated during the CMP process. Therefore, there is a need to develop new CMP slurries and/or methods for polishing silicon carbide comprising materials which minimize the degree of damage and increase the polishing rate.

DMSRDE, Kanpur has developed a chemical mechanical polishing agent CEPSEL-86 for planerizing Silicon Carbide wafer usinga non-hazardous and non-corrosive slurry for removal of SiC layer from silicon carbide substrates to planerize surface in large area for electronic applications.