ABSTRACT

Disclosed are silicon and carbon containing film forming compositions comprising a polycarbosilazane polymer or oligomer formulation that consists of silazane-bridged carbosilane monomers, the carbosilane containing at least two –SiH_2– moieties, either as terminal groups (-~~SiH_3~~RSiH_2R) or embedded in a carbosilane cyclic compound, wherein R is H, C_1 to C_6 linear, branched or cyclic alkyl– group, a C_1 to C_6 linear, branched or cyclic alkenyl– group ~~a C_1-C_6 linear, branched, or cyclic alkyl- group, a C_1-C_6 linear, branched, or cyclic alkenyl- group,~~ or combination thereof. Also disclosed are methods of forming a silicon and carbon containing film comprising forming a solution comprising a polycarbosilazane polymer or oligomer formulation and contacting the solution with the substrate via a spin-on coating, spray coating, dip coating, or slit coating technique to form the silicon and carbon containing film.

[Figure 1]