(Supplemental)

Plasma Enhanced Atomic Layer Deposition of Carbon Incorporated Silicon Oxynitride (SiON) Thin Films Using Novel Organochlorodisiloxane Precursors

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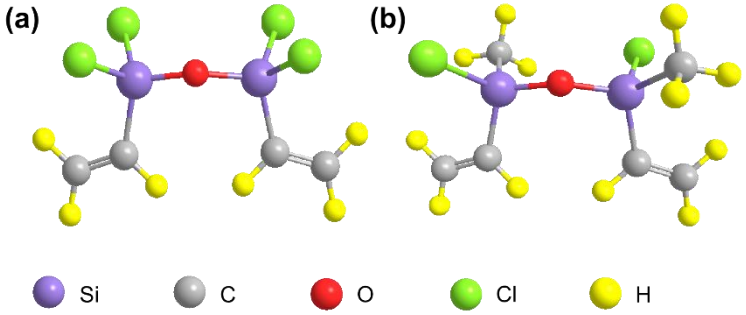

Fig. 1 The molecule structures of (a) 1,1,3,3-tetrachloro-1,3-divinyldisiloxane (CVDSO) and (b) 1,3-dichloro-1,3-dimethyl-1,3-divinyldisiloxane (CMVDSO) precursors.

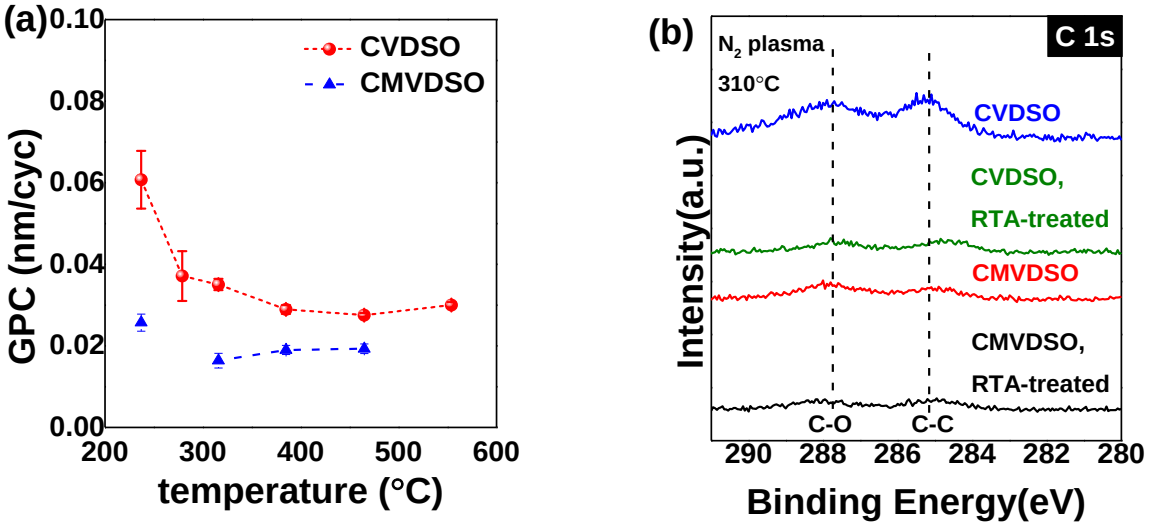

Fig. 2 (a) The GPC of NH_3/N_2 plasma PEALD SiON thin film using CVDSO and CMVDSO precursor as a function of temperature. (b) The XPS C 1s region results of as-grown and RTA-treated N_2 plasma PEALD SiON thin film grown at substrate temperature 310°C, using CVDSO and CMVDSO precursor. Both samples were analyzed after 30 s gas cluster ion beam sputtering. After the RTA process, there is still a certain amount (~5%) of carbon remaining in the films. This result suggests carbon incorporation in SiON and the incorporated carbon may be thermally stable.

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