ABSTRACT OF THE DISCLOSURE

A METHOD TO AVOID DISHING IN FORMING TRENCHES FOR SHALLOW TRENCH ISOLATION

A method is described for filling trenches with dielectric for shallow trench isolation which completely fills the trench and avoids problems due to dishing at the top of the trench. A trench is formed in a substrate having a second dielectric material formed thereon. The trench is lined with a third dielectric material. Sub atmospheric chemical vapor deposition, SACVD, of tetra-ethyl-ortho-silicate and ozone is used to grow a fourth dielectric on the surface of the second dielectric material and in the trench lined with the third dielectric material. The growth rate of fourth dielectric on the third dielectric is greater than the growth rate of the fourth dielectric on the second dielectric using SACVD of tetra-ethyl-ortho-silicate and ozone. The difference in growth rate assures that the trench is completely filled with fourth dielectric even for relatively thin layers of fourth dielectric grown on the second dielectric. This provides good planarity for a planarized substrate and avoids the problem of dishing at the top of the trench.

(FIGURE 2 IS SUGGESTED FOR PUBLICATION)