

ABSTRACT

METHOD FOR DEPOSITING A CHLORINE-FREE CONFORMAL SiN FILM

Described are methods of making silicon nitride (SiN) materials on substrates. Improved SiN films made by the methods are also included. One aspect relates to depositing chlorine (Cl)-free conformal SiN films. In some embodiments, the SiN films are Cl-free and carbon (C)-free. Another aspect relates to methods of tuning the stress and/or wet etch rate of conformal SiN films. Another aspect relates to low-temperature methods of depositing high quality conformal SiN films. In some embodiments, the methods involve using trisilylamine (TSA) as a silicon-containing precursor.

Fig. 4



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