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ABSTRACT OF THE DISCLOSURE

Low Temperature CVD Chamber Cleaning Using Dilute NF_3

This invention relates to an improvement in *in-situ* cleaning of deposition byproducts in low temperature Plasma Enhanced Chemical Vapor Deposition (PECVD) chambers and hardware therein where process thermal budgets require minimization of the susceptor temperature rise. In the basic *in situ* PECVD process, a cleaning gas is introduced to the chamber for a time and temperature sufficient to remove films of the deposition byproducts and then the cleaning gas containing deposition byproducts removed from said PECVD chamber. The improvement for minimizing the susceptor temperature rise in a low temperature PECVD chamber during cleaning comprises:

employing a cleaning gas consisting essentially of NF_3 for cleaning and diluted with a sufficient amount of helium to carry away the heat developed during cleaning of the Plasma Enhanced Low Temperature Chemical Vapor Deposition chamber. The susceptor is maintained at 150 °C or below.