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PECVD SiO 550 nm

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Summary:
This document describes how to deposit a silicon oxide film of 550 nm thickness on silicon wafer.

Table of content

1 Associated Documents & References

MSDS if chemicals or gas involved.
pecvd Standard operating procedure
Rules and procedures of cleanroom

2 Equipment Used

Oxford Instrument (www.oxinst.com) "Plasmalab System 100 " plasma enhanced chemical vapor deposition (peCVD) system in Room 7175.

 This equipment has to be reserved through the online resource scheduler. If you need training by the technician, check availability with him before reserving the equipment. Users have to go through regular training before using this equipment alone.

3   Verifications Prior to Processing

pecvd processing chamber has been gas plasma cleaned by previous user. Check with technician if the chamber needs to be opened for a physical clean scrubbing.

4   Recipe description

Start and warm up Oxford PECVD according to PECVD Standard Operating Procedure.

Set PECVD chuck temperature at 300 C.

Run Clean recipe CF4/O2   on empty chamber.
Load sample into chamber.
Pumpdown 10 minutes.
Preheat with N_2 gas, 1500 mTorr, 1000 sccm, 5 min
Plasma clean with N_2 1500 mTorr , 1000 sccm, 100 watts, 30 sec.
Load sample into chamber.
 Deposit at 1000 mTorr with silane 5% in nitrogen   170 sccm, N_2O at 710 sccm
  RF at 30 watt
Run time 10 minute.

Pump out chamber for 1 minute.
Unload sample from chamber.
Wait for sample to cool before attempting to pick it up.

Resulting film is 550 nm

5   Technical Data

DATA CONCERNING PROCESS EXCEPT PROCESS MAIN PARAMETERS.

6   Measurements & Statistical Process Control

7   Record of Revisions

Rev. 0   First Edition