

Atmospheric Pressure
Deposition of SiO_x Thin
Films by Oxidation of Liquid
HMDSO in Remote Plasma -
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Plasma enhanced chemical
vapor oxidation of
hexamethyldisiloxane
(HMDSO) is applied at
atmospheric pressure as
powders are easily
synthesized in conventional
PECVD processes. This new
way to deposit thin films on
plates at atmospheric pressure

consists in oxidizing the liquid HMDSO deposited onto the substrate by an Ar-O_2 atmospheric post-discharge. The increase of the temperature between 300 K and 800 K of the oxidizing gas on the film composition make the liquid HMDSO evaporate despite a pretreatment at low temperature where a solid thin film is synthesized at the droplet surface. The growth mechanism is investigated by means of XPS analyses. Below 150°C, it is mainly controlled by the outward diffusion of the carbon from the liquid bulk.