

ABSTRACT

SILACYCLIC COMPOUNDS AND METHODS FOR DEPOSITING SILICON-CONTAINING FILMS USING SAME

5 A method and composition for producing a porous low k dielectric film via chemical vapor deposition includes the steps of: providing a substrate within a reaction chamber; introducing into the reaction chamber gaseous reagents including at least one structure-forming precursor comprising an silacyclic compound, and with or without a porogen; applying energy to the gaseous reagents in the reaction chamber to induce reaction of the gaseous reagents to deposit a preliminary film on the substrate, wherein the preliminary film
10 contains the porogen, and the preliminary film is deposited; and removing from the preliminary film at least a portion of the porogen contained therein and provide the film with pores and a dielectric constant of 3.0 or less. In certain embodiments, the structure-forming precursor further comprises a hardening additive.