ABSTRACT

METHOD OF DIELECTRIC FILM TREATMENT

A method and system for cleaning a surface of a substrate after an etching operation includes determining a plurality of process parameters associated with the surface of the substrate. The process parameters define characteristics related to the surface of the substrate such as characteristics of the substrate surface to be cleaned, contaminants to be removed, features formed on the substrate and chemicals used in the fabrication operations. A plurality of application chemistries are identified based on the process parameters. The plurality of application chemistries includes a first application chemistry as an emulsion having a first immiscible liquid combined with a second immiscible liquid and solid particles distributed within the first immiscible liquid. The plurality of application chemistries including the first application chemistry are applied to the surface of the substrate such that the combined chemistries enhance the cleaning process by substantially removing the particulate and polymer residue contaminants from the surface of the substrate while preserving the characteristics of the features and of the low-k dielectric material through which the features are formed.

Figure 4