

UV AND REDUCING TREATMENT FOR K RECOVERY AND SURFACE CLEAN IN SEMICONDUCTOR PROCESSING

ABSTRACT OF THE DISCLOSURE

[00078] Treatment of carbon-containing low-k dielectric with UV radiation and a reducing agent enables process-induced damage repair. Also, treatment with a reducing agent and UV radiation is effective to clean a processed wafer surface by removal of metal oxide (e.g., copper oxide) and/or organic residue of CMP slurry from the planarized surface of a processed wafer with or without low-k dielectric. The methods of the invention are particularly applicable in the context of damascene processing to recover lost low-k property of a dielectric damaged during processing, either pre-metalization, post-planarization, or both, and/or provide effective post-planarization surface cleaning to improve adhesion of subsequently applied dielectric barrier and/or other layers.

Fig. 1

