

## Stripping of photoresist residue on post metal etched wafer using supercritical carbon dioxide

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Photoresist removal is one of the most important techniques in the fabrication of semiconductor devices. Traditionally, wet-chemical cleaning methods have been employed to remove the photoresist on the metal patterned wafer. However, it is very difficult to control particle contamination during the wafer treatment with liquid chemicals and rinse/dry cycles. Supercritical CO<sub>2</sub> (SCCO<sub>2</sub>) based processes are expected to reduce these problems significantly. However, due to the unfavorable property such as low density and low solubility of resist substances at supercritical process conditions, it is not yet practically implemented. One key factor is the addition of co-solvents to enhance the solubility of SCCO<sub>2</sub>. In this work, a combination of SCCO<sub>2</sub> with co-solvent (amine, alcohol and hydrogen peroxide) stripping was found to be effective for the removal of photoresist. The effects of temperature, pressure, processes time and amount of additive on the stripping performance of metal patterned wafer were investigated. The microstructures of sample wafers after stripping were characterized by scanning electron microscopy.