

Oxidation-Assisted SF₆ Remote Plasma Etching for Surface Roughness Reduction of TiN

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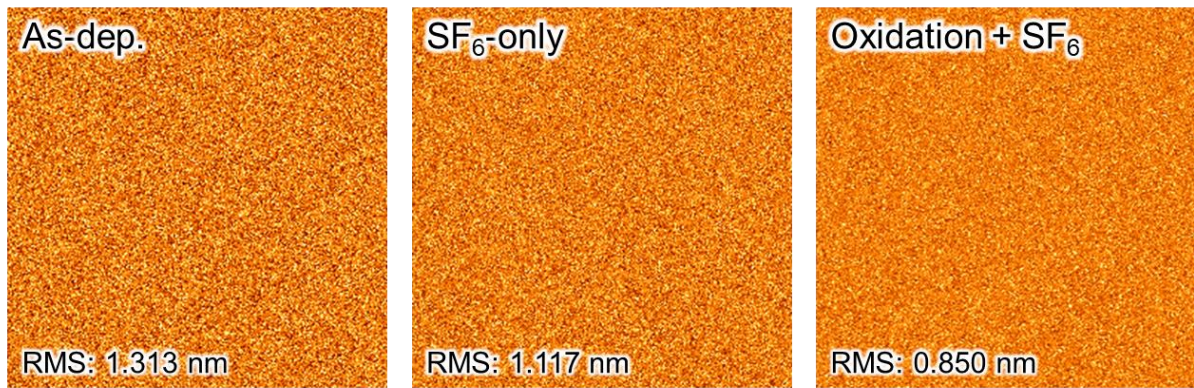


Figure 1. AFM images showing the surface morphology evolution of TiN films after SF₆ remote plasma-based etching. The as-deposited TiN exhibited an RMS roughness of 1.313 nm, which decreased to 1.117 nm after SF₆-only exposure. In contrast, oxidation-assisted SF₆ radical etching further reduced the RMS roughness to 0.850 nm, corresponding to an approximately 35% reduction compared with the as-deposited surface. These results indicate that pre-oxidation promotes a more pronounced surface-smoothing behavior during subsequent SF₆ radical exposure.

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