

COMPOSITION FOR TITANIUM NITRIDE HARD MASK
AND ETCH RESIDUE REMOVAL

ABSTRACT

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Aqueous compositions for stripping titanium nitride(TiN or TiN_xO_y) hard mask and removing etch residue are low pH aqueous composition comprising solvent, a weakly coordinating anion, amine, and at least two non-oxidizing trace metal ions . The aqueous compositions contain no non-ambient oxidizer, and are exposed to air.

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Bifluoride, or metal corrosion inhibitor may be added to the aqueous composition. Systems and processes use the aqueous compositions for stripping titanium nitride(TiN or TiN_xO_y) hard mask and removing titanium nitride(TiN or TiN_xO_y) etch residue.