

In standard metallic sputtering, an inert gas (e.g. Argon) is used as ionizing species for the bombardment of the target surface. As a consequence, there is no chemical reaction between the gas and the target particles, resulting in a coating on the substrate with a composition similar to the target material.

In a reactive sputtering process, however, at least one reactive gas (e.g. Oxygen or Nitrogen) is added. The influence of this gas is not only limited to participation in the effective sputtering process on the target surface, but also extends to chemical reaction with target particles forming a compound layer on the substrate.

The importance of this relatively new thin film deposition technique is growing rapidly. A large number of applications (e.g. electrical insulation, anti reflection, transparent conductors, thermal reflection, optical filters, ...) in important industrial fields (e.g. advanced display, architectural, automotive, optical, microelectronics, ...) increasingly rely on the advanced properties of thin metal oxide and –nitride films. Accurate tuning of stoichiometry, high purity and well-controlled uniformity give reactive sputtering the leading edge for advanced and future thin film applications.

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