Sputtering Technologies for the Deposition of Transparent Conductive Oxides on Large Areas

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For the deposition of transparent conductive materials (TCOs), different properties are required depending on the application. A low absorption combined with sufficient electrical conductivity is crucial. Other important properties may include temperature stability as well as humidity and heat stability.

This presentation will demonstrate the production of TCOs using magnetron sputtering, as this technology is widely used in the industry and can be scaled up for large areas. A significant advantage of sputtering technology is that different generator types (DC, MF, RF, HIPIMS) can significantly influence the plasma and energy distribution at the substrate, which in turn has a major impact on film formation and its properties.

Furthermore, additional parameters such pressure and substrate temperature, as well as the composition of the target during production, affect the later film properties. Examples of developments in various TCO materials and their applications in products will be presented.