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DEPO / Plasma - deposited coatings for optical, electronical and other functionalities

Dual-functionality multilayer coating compatible with IML for automobile applications using reactive DC magnetron sputtering

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Abstract content

Nowadays, there is a great interest on the part of the automotive industry in the development of new coatings that can transform a car's interior, increasing the appeal, comfortability, and safety while also, minimizing the manufacturing cost and increasing the quality of the car-user interface, becoming more suitable for every driver. One way to achieve this goal has been to utilize polymeric materials, so, in this context, the future of lightweight automotive parts relies on the use of plastic components, such as ABS, Polypropylene, Polycarbonate, among others. Therefore, a necessity for higher performance materials assured by improved coatings, providing not only good chemical resistance, UV resistance, anti-fingerprint ability among others is the desired features[1, 2,3]. In this context, the present study aims to the development of a multi-layer coating with anti-reflective and other properties on a polymeric substrate label. Using Reactive DC Magnetron Sputtering technology, it is attained that the use of materials such as TiO₂ and Al₂O₃ to build a multi-layer, as well as other materials such as SiO₂ and ZnO can be used to improve the optical performance of the base polymer materials. Finally, it is intended that this label with anti-reflective coating is compatible and easily integrated with IML (In-Mould Labelling) technology. To guarantee the quality and specificities of the coating, morphological tests such as Atomic Force Microscopy (AFM) and Scanning Electron Microscopy (SEM) will be carried out, as well as, optical tests throughout the analysis of spectrophotometry.

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References

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