

Poster-Session

Rapid Curing of Polysilazane Coatings via Low-Temperature Atmospheric Plasma Treatment

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Polysilazanes (PSZs), which have a Si-N-Si backbone as a polymeric unit in their structure, are excellent materials for coatings and are applicable by simple coating techniques on a wide range of substrates. These coatings can be applied for different applications, such as anti-graffiti, anti-adherent, etc. Although these coatings are self-crosslinking in ambient conditions for up to 7 days, many researchers studied their crosslinking at high temperatures ($> 150\text{ }^{\circ}\text{C}$), which is unsuitable for thermosensitive materials.

This research investigates the crosslinking process of PSZ coating using low-temperature atmospheric plasma generated by Multi-Hollow Surface Dielectric Barrier Discharge (MSDBD), containing the active species for fast “remote” treatment in the order of tens of seconds. FTIR and XPS investigated the crosslinking, and the water contact angle analyzed the hydrophobicity and coatings adhesion. Also, the ease-to-clean property of the coating was studied by a simple marker test.