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SILVER METALLIZATION AND SELECTIVE METALLIZATION BY SPRAYING ON 3D PRINTED PARTS

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Jet metal technologies developed an innovative, green and cost efficient Ag metallization process by spraying two solutions, one oxidant containing the Ag metal salt, the other the reducing agent, (both water based, solvent & CMR & palladium free and REACH compliant) are sprayed simultaneously by using a painting gun at ambient pressure and temperature. The reducing and oxidizing agent start an oxidation-reduction reaction instantly forming a thin, compact, dense and high adherent Ag metal layer on the substrate. This technology can be applied on many substrate geometries (small/big, easy/complex, 2D/3D shape) and basically all substrate material choices, whether it is an electrically conducting or non-conducting surface. The choice of substrates goes from metals over glass, textiles, ceramics, to a long list of plastics (includes many of the plastics used in 3D printing) and composites. The booming use of 3D printed parts in the industry in order to reduce weight & manufacturing costs and shorten lead times, introduces a major challenge in the industry. As the plastic materials used to 3D print components are non-

standard mixtures, basically unique mixes linked to each 3D printer manufacturer, traditional metallization technologies are complex to use. For each 3D printed material, a process needs to be developed to be able to metallize it. By using the jet metal Ag metallization technology to cover completely the 3D printed surface or deposit a 250-300 nm as intermediate conductive Ag layer before plating, this technology offers an easy industrial solution.

Biography

Koen Staelens is a Chemical Engineer graduated from KIRO (Ghent, Belgium) and has been working for the past 15 years in thin film technology (DLC, thermal sprayed coatings, large area sputtering). He has held several positions as Product Manager, Director of Sales, Business Development Manager in different companies (Bekaert Dymonics, Bekaert Advanced Coatings, Soleras Advanced Coatings). His research interests include: metallization, composites and 3D printing.

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