



ENVIRONMENTALLY FRIENDLY PLASMA PROCESS FOR COATINGS

KEYWORDS

- Atmospheric plasma
- Nanoparticules
- Coating
- Surface treatment
- Atmospheric plasmatreatment
- Material sciences
- Nano layers, barrierlayers, photocatalyticlayers
- Surface treatmentand/or-functionalisation

Collaboration type

Research collaboration
License agreement

IP Status

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Inventors

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STATE OF THE ART

The Université libre de Bruxelles (ULB) is seeking companies interested in commercializing a breakthrough atmospheric plasma process capable of coating all kinds of substrates such as steel, polymers, glass and nanostructured materials. The coating results in a thin film of nanoparticles of metallic nature: metal oxides, metals, alloys and mixtures of them. In this technological field, the plasma processes usually require the cumbersome technique of ultra high vacuum and the homogeneity of the coatings is often a key-issue. Researchers at the ULB have developed an atmospheric plasma process capable of depositing nanoparticle layers and displaying a high degree of homogeneity.

APPLICATIONS

Coatings in the sectors of Electronics, Automotive, Packaging, Textile, Paints; Medical Devices etc

KEY ADVANTAGES OF THE TECHNOLOGY

- Low-cost coating process
- No need for the cumbersome technique of Ultra High Vacuum
- High degree of homogeneity for the resulting nanoparticle layer
- Very Rapid process (12 minutes)

TEAM

The research activities of this team cover various aspects of surface and interfacial chemistry since they focus on the modification, characterization and reactivity of surfaces. These studies carried out at the solid-liquid interface and solid-gas interface deal with the modification of surfaces (metals, metal electrodes and polymers) by chemical or electrochemical reactions, by self-assembling as well as by plasma techniques.

Expertise in electrochemistry, colloid chemistry and surface analysis.

Know-how in synthesis of colloids, preparation and characterization of monocrystals and thin films.

THE INVENTOR(S)

Professor François Reniers was born in Brussels in 1965. He defended a PhD in Chemistry at the Université Libre de Bruxelles in 1991 and was a post-doctoral fellow at the University of California at Berkeley. He was an invited professor at the Chinese University of Hong Kong in 2000

Currently Dean of the Faculty of Sciences, he is a former vice-rector of both Academic Policy (2006-2008) and Research & Development (2008-2010). He has been nominated recently as an officer of the International Union for Vacuum Science, Technique and Applications board.

Initially, his research activities are basic surface physico-chemistry, which he studied by Auger electron and photoelectrons X spectrometries. Since 1999, he oriented his team towards the development of atmospheric plasmas for interfaces, in order to modify or deposit new layers. François Reniers has published 4 book chapters, around 50 articles and is the inventor of 7 patents.