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Abstract

Novel Surface Polymeric Coatings with Hydrophobic. Divergent approaches in development of anti-ice coatings

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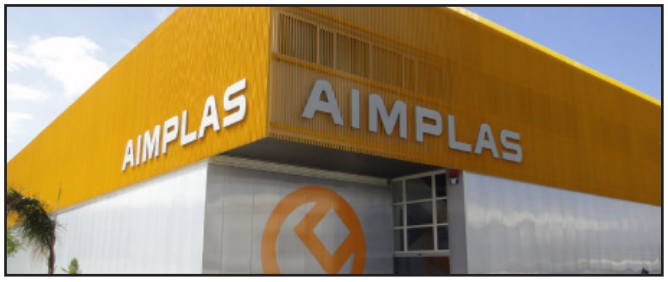
Abstract:

Complex coatings for plastics based on nanomaterials have high potential applications in energy fields. The hydrophobicity of materials has been traditionally used as a first approximation, based on the idea that a non-wetting material could avoid the water-surface contact, and avoid the ice formation. The main strategy is the anti-icing methods (passive methods), which are based on the icephobicy of the surfaces to avoid the accretion, or facilitate the shedding. The de-icing approach (active methods) involves chemical, thermoelectric, or mechanical methods for removing ice that has already accumulated, or when are previously activated, it helps to avoid the ice accretion. In this work, both approaches such as superhydrophobic and self-heating surfaces have been developed. Nanocarbon structures and fluorine based on polymers have constituted the basis for new applications as anti-icing. Ice accumulation is a serious concern in many applications such as aviation, shipping, communications, and power generation and transmission. We present results on development of superhydrophobic coatings based on polymers modified with different types of nanoparticles which increases dramatically the contact angle with water and therefore can be used for several applications.

Biography:

Dr. María José Clemente has completed his PhD from Zaragoza University in 2013. She has experience as researcher in Organic Chemistry with strong focus on Material Science within academic and industrial environments with solid knowledge in synthesis and the use and interpretation of characterization techniques. She has



leading R&D projects and collaborated in project development with international partners.

Publication of speakers:

1. Florez-Sarasa, Igor & Clemente-Moreno, Maria Jose & Cifre, Josep & Capó, Miquel & Llompart, Miquel & Fernie, Alisdair & Bota, Josefina. (2020). Differences in Metabolic and Physiological Responses between Local and Widespread Grapevine Cultivars under Water Deficit Stress. Agronomy. 10. 1052. 10.3390/agronomy10071052.

2. Gago, Jorge & Daloso, Danilo & Carriquí, Marc & Nadal, Miquel & Morales, Melanie & Araújo, Wagner & Nunes-Nesi, Adriano & Perera Castro, Alicia & Clemente-Moreno, Maria Jose & Flexas, Jaume. (2020). The photosynthesis game is in the "inter-play": Mechanisms underlying CO2 diffusion in leaves. Environmental and Experimental Botany. 178. 104174. 10.1016/j.envexpbot.2020.104174.

3. Carriquí, Marc & Nadal, Miquel & Clemente-Moreno, Maria Jose & Gago, Jorge & Miedes, Eva & Flexas, Jaume. (2020). Cell wall composition strongly influences mesophyll conductance in gymnosperms. The Plant Journal. 103. 10.1111/tpj.14806.

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