

DOCUMENTO DI AGGIORNAMENTO SITO
31.12.2021

Progetto ID	Projekt ID	ITAT1085
Acronimo	Akronym	FasTher
Titolo IT	Titel IT	Sistemi vernicianti ecocompatibili multifunzionali
Titolo DE	Titel DE	Multifunktionale umweltfreundliche Lackiersysteme

	Area - Gebiet	Denominazione IT – Bezeichnung IT
LP	FVG	UNIUD - DPIA
PP1	KAR	PLT GmbH
PP2	FVG	ELECTROLUX PROFESSIONAL S.P.A.

PROSSIMA PUBBLICAZIONE

Le attività del progetto di maggiore rilievo scientifico e tecnologico verranno presentate in occasione della prossima edizione del convegno internazionale “Application of Electrochemical Techniques to Organic Coatings” che si terrà a Cavalese (TN) dal 29 marzo al 1 aprile 2022 e che vedrà la partecipazione dei massimi esperti nel settore dello studio dei rivestimenti organici mediante tecniche elettrochimiche.

Segue l’abstract inviato per la presentazione del lavoro che è già stato accettato come presentazione orale e che vede la partecipazione attiva di due partner del progetto (UNIUD e PLT):

Corrosion, thermal and electrical behaviour of graphene modified organic powder coatings

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Keywords: *Aluminium Alloy, Copper, Graphene, Corrosion behaviour, Conductivity*

In this work, the effect of a graphene based additive introduced in a polyester based powder coating, electrostatically deposited on a AA6060 aluminium alloy, was studied. Different amounts of the additive were added to verify its effect on various functional properties such as thermal and electrical conductivity as well as on the corrosion behaviour of the innovative organic coatings. The microstructure and composition of the coatings were studied by scanning electron microscopy, FT-IR and Raman analyses. The electrochemical behaviour of the coatings was evaluated by electrochemical impedance measurements in a 0.1M NaCl solution. The coatings proved to be uniform and well adhered to the substrate independently on the different amount of additive introduced in the coating. By means of FE-SEM, the presence of homogeneously distributed particles with sub-micrometer size and composition compatible with that of the additive was revealed and its presence in the coating has been further confirmed by FT-IR and Raman analysis.

Electrochemical tests have shown high barrier properties both for coatings without and with the additive, for immersion times up to 35 days. Although the corrosion protective properties of the organic coating remain very high, the introduction of the maximum amount of additive into the coating results in a significant change in its electrical characteristics compared to those without additive. In particular, a significant increase in the capacity

as well as a marked reduction in the electrical resistance of the organic coating was observed due to the introduction of the additive. The organic coating water absorption showed to be more pronounced in the sample with maximum amount of additive.