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Novel Self-Healing Eco-Friendly Coatings with Antifouling and Anticorrosion Properties for Maritime Applications

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Abstract : Biofouling represents one of the most crucial problems in the present maritime industries when its control still challenges the researchers all over the world. The present work is referred to the synthesis and characterization CeMo and Cu2O nanocontainers by using a wide range of techniques including scanning electron microscopy (SEM), X-ray diffraction (XRD) and thermogravimetric analysis (TGA) for marine applications. The above nanosystems will be loaded with active monomers and corrosion rendering healing ability to marine paints. The objective of this project is their ability for self-healing, self-polishing and finally for anti-corrosion activity. One of the driving forces for the exploration of CeMo, is the unique anticorrosive behavior, which will be confirmed by the electrochemistry methodology. It has be highlighted that the nanocontainers of Cu2O with the appropriate antibacterial inhibitor will improve the hydrophobicity and the morphology of the coating surfaces reducing the water friction. In summary, both novel nanoc will increase the lifetime of the paints releasing the antifouling agent in a control manner.

Keywords : marinepaints, nanocontainer, antifouling, anticorrosion, copper, electrochemistry, coating, biofouling, inhibitors, copper oxide, coating, SEM
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