



**“Paint-it” project: eco-friendly anti-fouling marine paints.**

The “Paint-it” project, founded in the context of the “Life” European call, led in the last months to the first tangible results towards the achievement of an effective eco-friendly alternative to traditional antifouling marine paints based on noxious biocides.

These alternative products arise by the operating principle of amphiphilic surfaces obtained exploiting the chemistry of polyurethanes and/or polysiloxane.

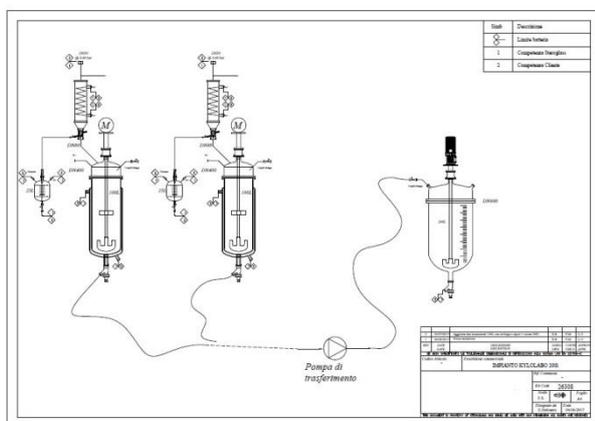
Amphiphilic surfaces are able to disorientate the capability of the gluing proteins, secreted by the marine organisms found in bio-fouling, to adapt their 3D configuration exposing hydrophilic or hydrophobic functional groups, depending on the nature of the surface they are in contact with.

The development of formulations achieved yet a pre-industrialization level. The characteristics of the several implemented paints, namely viscosity, VOC content and additives were adapted to professional applications on small-medium vessels by spray technique in vertical position. The curing process does not require any specific precautions and it can be achieved within few hours at room temperature in the open air. The optimized content of catalyst and additives allowed the proper balancing between a fast curing time and an excellent visual appearance.



**Fig. 1** Application of experimental paints on a professional fishing boat

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**Fig. 2** Draft of the pilot plant

The characteristics of the newly developed coating were then ready to be tested in offshore sailing. In this regard, the paints were applied on a devoted area of the hull of a professional fishing boat (Fig.1) resulting in a good aesthetical and functional finishing.

The treated vessel was then regularly used all along the fishing season (May to October). The effective anti-fouling properties under real conditions will be revealed only when the boat will be beached for the seasonal maintenance. Yet, a first visual examination of the hull overboard evidenced a clean area in correspondence of the treated area.



**Fig. 3** Fifth International Symposium Frontiers in Polymer Science

The pre-industrialization activities were also carried out evaluating manufacturing aspects. In particular the definitive draft of the pilot plant for the production of batches of 150 Kg was made available on the project web-site [www.progettopaint.it](http://www.progettopaint.it) by the project beneficiary “Ce.Ri.Col.” (Fig.2).

The project results were exposed to the public awareness during the Fifth International Symposium Frontiers in Polymer Science, held in Seville, Spain on the 17<sup>th</sup>-19<sup>th</sup> May 2017 in association with the journal “Polymer”, where the scientific staff of the University of Rome “Tor Vergata” attended.