

## Press release

### IK4-TEKNIKER designs a system to optimise ship gliding in the water

- ▶▶ *An assessment can be made of anti-fouling coatings with lower friction coefficients when in contact with seawater*
- ▶▶ *It will help to develop new, more durable, efficient and environmentally friendly coatings*
- ▶▶ *The system can work in different kinds of fluids and simulate an extensive range of vessel sailing speeds*

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(Eibar, Basque Country. 30 May, 2017).- Materials used as coatings for hulls are constantly exposed to extremely severe conditions and deteriorate rapidly. A significant presence of salts and bacteria in seawater produces a number of microorganisms (mainly algae and tiny invertebrates) that adhere to a surface and substantially modify roughness. If surface roughness increases, the degree of friction in the water will also rise and result in more fuel consumption and higher emissions of pollutant gas (CO<sub>2</sub>).

Antifouling coating paint prevents marine organisms from adhering to the body of a vessel (a phenomenon called fouling) and reduces friction levels between its hull and the water.

It is along these lines of improvement that IK4-TEKNIKER has designed a piece of equipment that can evaluate friction coefficients on this type of coatings. Based on this system, the technology centre will be able to develop and optimise new, more durable, efficient and environmentally friendly anti-fouling coatings.

#### **More sustainable designs**

This tribometer (i.e., the instrument used to measure surface friction and wear as well as the amount of energy dissipated when a vessel glides through a fluid), called Drag Friction,

represents a significant advance as it allows for the accurate detection of coatings with the lowest friction coefficients. A versatile solution that is suitable for different types of fluids and simulates the entire range of vessel sailing speeds.

The unit allows tests to be performed according to the specific requirements of each case and takes into account features such as temperature and oxygen concentration monitoring, etc. Another improvement relative to other systems currently in use is that it isolates any influence of engine vibrations on torque measurements.

IK4-TEKNIKER is also focusing on designing new anti-fouling coatings that are more efficient and sustainable. Hence, their physical-chemical, mechanical and tribological characteristics (adherence, hardness, resistance to abrasion, scratching and shock resistance, etc.), are analysed in addition to their environmental impact (eco-toxicity and biodegradability) to reduce fuel consumption and polluting gas (CO<sub>2</sub>) emissions. Laboratories, moreover, are measuring biocide responses of the new coatings and studying their behaviours in terms of marine corrosion by means of accelerated testing in synthetic seawater and other procedures covered by Norsok M-501.

### **Concerning IK4-TEKNIKER**

With more than 30 years of experience in applied technology research that has been transferred to companies, IK4-TEKNIKER has achieved a high degree of specialisation in four major areas (Advanced Manufacturing, Surface Engineering, Product Engineering and ICTs). This means that its cutting edge know-how has been made available to customers to meet their requirements.

### **Further information**

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