

## PRESS RELEASE

# Simulation tools to develop lubricants that are more sustainable

- *Tekniker is leading SITOLUB, a European project whose goal is to evaluate industrial fluids and develop environmentally friendly ecogrease and oil*
- *Thanks to the knowledge generated in this EU-funded initiative it will be possible to design customised lubricants adapted to specific applications such as wind turbines or electric vehicles*

[Eibar, 11 April 2024] - The industry is currently undergoing a transition and heading towards more sustainable practices which, in the specific case of lubricants that ensure the correct operation of machines and equipment in diverse sectors, will encourage manufacturers to look for alternatives that are safer and more environmentally friendly to reduce their footprint.

It is in this context that the **Tekniker** technology centre, a member of the Basque Research and Technology Alliance (BRTA), is leading the European project SITOLUB whose main goal consists in developing simulation tools that are integrated by means of AI methods to formulate lubricants and evaluate issues related to their safety, sustainability, toxicity, environmental impact and potential risks for humans.

In addition to analysing these elements, the initiative will also look into the functionality of lubricants used in different industrial applications and assess their economic feasibility and social impact to ensure that sustainable practices cover the entire value chain.

It is along these lines that Tekniker is playing an outstanding role as regards validating simulation tools developed thanks to in-house AI and the organisation's solid experience in the area of tribology. With a track record of more than 30 years and one of Europe's most fully equipped laboratories, the Basque technology centre will evaluate the physical and chemical properties of materials and how they behave from the tribology perspective in terms of friction and wear, for instance, under different operating conditions.

During the project, a digital platform will be developed and equipped with all the simulation tools created to date that can be used to analyse and process all the data generated within the framework of SITOLUB and its future exploitation.

## **Customised lubricants**

The initiative coordinated by Tekniker will also apply advanced molecular dynamics to learn more about interactions between the molecules of lubricants and additives; tribological simulations will be carried out to predict behaviour patterns under different working conditions and LCA software will be used to see how this might impact the environment, society and the economy. Consequently, it will be possible to develop ecogrease and oil specifically adapted to each industrial use, thus ensuring efficiency and integrally managing social and environmental impacts.

Francesco Pagano, a researcher from Tekniker's Tribology and Materials Unit, explains that "the knowledge produced will allow manufacturers to design custom-made lubricants for specific applications such as wind turbines, electric vehicles or space systems in order to save time and reduce costs".

It is along these lines, and with a view to pooling efforts and resources, that SITOLUB will collaborate closely with other European projects in which Tekniker is already involved such as i-Tribomat, a European start-up that offers tribological characterisation services for materials and lubricants; OntoCommons, focused on establishing a standardised model that digitises the results of tribological experiments; and IRISS, an initiative whose aim is to speed up a transition that will eventually deliver materials, products and processes that are more sustainable.

Funded by the Horizon Europe programme and ending in 2027, SITOLUB has 12 partners from 7 European countries.

## More about Tekniker

As regards sustainable mobility, Tekniker has focused on developing electronic devices and communications, power electronics, electric motors and mechatronic systems, multi-purpose surfaces for components and batteries and charging infrastructures.

### Further information:

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