

## NOTA DE PRENSA

### Arteche and Tekniker collaborate to achieve a more sustainable electric grid

- *Arteche and the technology centre are researching the option of replacing mineral dielectric fluids used by measurement transformers with biodegradable fluids.*
- *After analysing several options and choosing the most effective alternative for electrical insulation both organisation are now applying nanotechnology to study how fluid features can be upgraded.*
- *This week, Ana Aranzabe, director of Technology at Tekniker, presented the results obtained at the international Lubmat 2023 conference held in Preston (England).*

[Eibar, July 20, 2023] – The Basque industrial sector is currently involved in an energy transition process whose aim is to reduce emissions, boost renewables and further efficiency in the sector. These are also the environmental goals set by the European Union to minimise the impact this sector has on the planet.

It is in this context that the electricity company [Arteche](#) is leading BIOAT, a project in which the [Tekniker](#) technology centre is also involved, and is focused on looking into how conventional mineral dielectric fluids can be replaced by biodegradable fluids in measuring transformers, used to transform high voltage line intensities and voltages into values that can be measured by meters and protection devices.

More specifically, Tekniker has been commissioned to analyse several biodegradable dielectric fluids shortlisted by Arteche to choose the most suitable option.

Subsequent to running several trials, synthetic ester fluids were chosen as they offered the best physical-chemical and electric (non-conductive) properties. Market requirements and technical criteria related to the transformer's manufacturing process were also taken into account.

Alberto Villar, the Tekniker researcher in charge of the project, stated that “by replacing mineral dielectric fluids with biodegradable fluids we will be able to meet all the environmental goals set by the European Union without affecting the transformer’s properties nor increasing manufacturing costs significantly.

The Tekniker expert also underscored “that these dielectric fluids are used in electric applications such as measurement and power transformers. Electric insulation is the main function of a measurement transformer in addition to the oil-impregnated paper that forms part of the insulation system. Compared to mineral fluids, biodegradable fluids can decompose in a natural and environmentally friendly manner”.

## **Improvements thanks to nanotechnology**

During the trials, Tekniker analysed the physical-chemical and electric features of the fluids and verified the extent to which the fluids were compatible with the transformer’s gaskets.

The technology centre has also investigated the effects produced by nanotechnology in terms of improving the dielectric features of the insulation.

As explained by José Miguel Nogueiras, D&D engineer, eta Ixone Urruela, Sustainable Product leader from Artech, the project will also verify the degree of compatibility between the fluid and the rest of the transformer’s materials that are in contact with it to perform a life cycle analysis.

The results obtained to date were presented by Ana Aranzabe, director of Technology and deputy director of Tekniker, at [Lubmat 2023](#), the international lubrication and industrial maintenance conference held in Preston, England on July 17-19.

BIOAT is a project that comes under the Basque Government’s Elkartek programme and has been rated as type 2 related to those characterised by a high degree of industrial potential.

## **More about Artech**

Founded in 1946, the Artech Group operates in the electrical sector, from generation to distribution, specializing in the electrical equipment, components, and solutions industry. Within this framework, the Artech Group is among the TOP 3 world leaders in the instrument

transformer market, number 1 in the auxiliary relay market, and maintains a regional leadership position in the rest of the products, especially those aimed at highly demanding and value-added markets, such as renewable generation and the railway sector.

The Artech Group's business is focused on enabling the transmission and distribution of electric power from any generation plant to the end user with efficiency, quality, and reliability.

This is why the company invests recurrently in R&D&I, with the intention of improving the quality and efficiency of its products, innovating in the development of new products, and offering the customer a differential added value. Artech is currently available in more than 175 countries with commercial distribution capabilities; it has 13 factories in Europe, America, Asia and Oceania, including 6 research centers; and employs more than 2,600 people worldwide.

## More about Tekniker

Tekniker is a technology centre specialised in advanced manufacturing, materials and surface engineering and ICTs for production. Its mission is to further growth and wellbeing via R&D&I in society at large and contribute towards boosting the competitiveness of the Basque industrial fabric in a sustainable manner. Tekniker is a member of the Basque Research and Technology Alliance (BRTA).

At TEKNIKER the control in the use of industrial fluids has as its objective the diagnostics of fluids for predictive maintenance of lubricating oils and greases, dielectrics, coolants and fuels.

The main areas of work are the characterisation of high heat transfer and low temperature fluids for various applications, the development and improvement of industrial fluids through selective additives and the development and refinement of advanced characterisation techniques in response to new fluids entering the market.

### More information:

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