



# Sample Project: Characterisation for the development of magnet insulation systems

Code	TE7594
Programme	FCT
Department	TE
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## Title

Characterisation for the development of magnet insulation systems

## Description

The traineeship focuses on the characterisation for HL-LHC coils and development for FCC coils. During the vacuum pressure impregnation (VPI) of superconducting coils, the interaction between the different materials contributes to the quality of the insulating system. The insulating system can be compared to a composite material, made of an epoxy matrix, fibre glass, and additional materials, such as binders.

Base materials will be characterised by thermoanalytical techniques, such as TGA and DSC, and by spectroscopy techniques, such as FTIR. Samples will be prepared by VPI and characterised with mechanical testing and microscopy. Other techniques may also be used for correlating the results. The main objective is a better understanding of the current insulating system and to identify valid alternatives.

## Skills

Chemistry/Chemical Engineering: Analytical chemistry, Surface chemistry. Material Science: Composites, Mechanical testing of materials, Polymers, Surface analysis <p>thermoanalysis, spectroscopy, rheology</p>

## Disciplines

Chemistry/Chemical Engineering, Material Science

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