

First Industrial Thesis between Cepsa and the University of Cadiz

- **The thesis, entitled *Valorización de corrientes de la unidad FCC* (Adding Value to FCC Unit Streams) and written by the doctoral student Elena Pérez Guevara, was awarded a distinction (Cum Laude)**
- **It is the first industrial thesis for both the University of Cadiz and Cepsa**
- **Cepsa emphasizes that this is an applied thesis geared to industrial realities**

Cepsa and the University of Cadiz now have their first industrial thesis following the virtual presentation and approval, with distinction (Cum Laude), of the thesis written by the doctoral student Elena Pérez Guevara entitled *Valorización de corrientes de la unidad FCC* (Adding Value to FCC Unit Streams).

Pérez Guevara explains that the objective of the thesis is to "increase the value of refinery products with low added value by transforming them into high-quality fuels. Specifically, into diesel that meets stringent legal specifications and quality standards. This means that it has to be highly efficient and its environmental impact needs to be minimized."

This thesis involved the study of a two-stage catalytic process. The objective of the first stage is to transform FCC naphtha (a stream product from refining) into diesel. "However, this diesel would not meet the required quality standards. So, a second stage is carried out with the aim of improving the quality of the diesel. Model reactions were used to study both of the stages, meaning that no actual refinery loads were used," says Elena Pérez Guevara, before adding that "as this was a research study starting from scratch, we needed to simplify the problem, which is why we used model loads. More specifically, the project involved designing and preparing the most suitable catalysts for each of the stages that we studied."

The thesis presentation was attended by the Vice-Rector of Scientific Policy at the UCA, María Jesús Mosquera, who said that "Cepsa and the UCA have a very close relationship" and emphasized "the importance of industrial theses for both universities and companies. Business innovation is impossible without knowledge generation, and knowledge generation is one of the fundamental objectives of universities, which means that universities and companies are destined to come together. Knowledge transfer is the one matter that our universities are yet to find a solution to, so forging alliances and synergies between businesses and universities is fundamental at the moment. I believe that industrial doctorates are without a doubt one of the best ways of building

those relationships, and I will therefore do my all to find synergies so that our relationship can grow stronger."

Juana Frontela, head of Cepsa's Research Center, recalled that this thesis began in 2014 and stressed that it is "an applied thesis that required a high level of academic development guided by industrial realities. This thesis brings together various technical disciplines and, fundamentally, is an extremely thorough thesis that has fulfilled Cepsa's expectations."

"As part of its vocation for boosting scientific quality among students, Cepsa believes that undertaking this type of project is essential both for academia and for society, and enables us to support the development of talent and harness it," says Frontela, before adding that Cepsa wishes "to continue enhancing this agreement. We are confident that Cepsa and the UCA will continue their long and prolific relationship in the future, with R&D+I projects that are of interest to both organizations."

Finally, Elena Pérez Guevara said that thanks to this thesis, "I achieved my dream of becoming a researcher. This industrial thesis enabled me to gain experience in both academic and business circles; you can learn what a job is like and how things are done in the business and research worlds. I think this type of thesis has double the benefits."

This thesis was directed by Dr. María José Franco at Cepsa and by the professors Enrique Martínez de la Ossa and José María González at the UCA.

Cepsa is a global energy and chemical company operating at every stage of the oil and gas value chain. Cepsa also manufactures products from plant-based raw materials and operates in the renewable energy sector. Cepsa has 90 years of experience and a team of over 10,000 employees, who combine technical excellence with adaptability. Cepsa operates on five continents.

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