TFM 4: Optimization of pressure swing adsorption for CO_2 capture

Global warming is one of the most important challenges of our society. If we want to keep the temperature increase below 1.5ºC will be necessary to deploy different strategies and technologies such as carbon capture systems. In this research project the student will study different materials for carbon capture from a simulated flue gas. He will study as adsorbents zeolites, carbon materials and metallic organic frameworks. The operational conditions of a pilot plant that we have in our facilities such as pressure, temperature and water content of the flue gas will be studied. The student will also study the gas pretreatment needs to operate the carbon capture column with a high efficiency. The adsorption cycle configuration will be studied with the optimal material and operational conditions. This project will be carried out in cooperation with the Spanish company GASN2 and will be a part of the Industrial Doctorate project OPTI-CCU. This research project is completely experimental and a good knowledge in chemical engineering, advanced separations and adsorption is desirable.

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Position for one student.