TECHNIQUES TO SEPARATE BYPRODUCTS FOR MORE SUSTAINABLE CHEMICAL PROCESSING

A Major Chemical Processing Company at the Forefront of Sustainability

The Client had designed a system to minimize discharges that significantly reduced the consumption of catalysts, solvents, and other chemicals. However, this made it more difficult to remove waste from the system, and byproducts of the chemical reaction built up within the reactor to a much higher concentration.

CHALLENGE

The Client was seeking approaches that could selectively remove, precipitate, or encapsulate impurities that were extremely similar in composition, weight, and chemical activity to the key component of the catalyst in operation, without impacting the catalyst. Solutions needed to be compatible with a high-pressure, high-temperature process and an extremely acidic environment.

APPROACH

Drawing on expertise from a variety of disciplines and relying on scholars with fluency in Mandarin, Thai, and Arabic, PreScouter combed through scientific journals, filtered results of significance, and identified any procedural shortcomings in the techniques.

OUTCOME

PreScouter determined that a very similar catalyst was used in natural resource extraction and that several techniques used in mining operations had the potential to solve the technical challenges as well as having scaled production facilities and economically sourceable reagents. The PreScouter team provided the Client with a survey of available technologies, identifying several of interest as “previously unknown” and “highly relevant.”

Impact of PreScouter’s Work: The Client was able to perform outreach and begin immediately negotiating price, supply chain, and other logistical concerns.