Syntetica

Lead Process Engineer

Who we are

Syntetica is an early stage chemistry startup decarbonizing the textile industry through textile-to-textile recycling, starting with nylon.

Synthetic materials are made from crude oil entailing a major carbon footprint. When these materials become waste, less than 1% of them are recycled to produce new textiles. Syntetica is on a mission to eradicate crude oil from synthetic materials. We are creating a world in which the waste we generate is seamlessly recycled into the new clothes we wear and the textiles we use daily in automotive or home applications. Our mission is to create circularity in the textile industry, making net zero an achievable reality.

And the starting point is nylon. Our nylon depolymerization process is the first of its kind, capable of breaking down all nylon rich textile waste into circular, virgin-equivalent nylon monomers, and separating materials such as elastane, cotton and polyester for further recycling. We are backed by the world-leading accelerator Entrepreneur First and are currently finalising our seed fundraising round. What’s next? We are looking to scale our process at speed to produce recycled nylon for our customers around the world, which already includes two of the largest fashion brands in the world.

Context

We are looking for a Lead process engineer with a proven background in the building of chemical pilot plants.

As our Lead Process Engineer, you will lead efforts to efficiently scale up our chemical process, from the catalytic system to the purification process. Your responsibilities will include conducting the analysis related to the chemical process scaling, building a PFD & a PID and building the thermodynamical model of the process.

You will work side by side with the founders to integrate our technology into existing industry workflows. If you want to play a pivotal role in an early-stage start-up on a mission to decarbonise the textile industry, this job is for you.

Key responsibilities

You will play a pivotal role in scaling up our depolymerization process from laboratory-scale to pre-industrial scale. Key responsibilities include:

Simulation

- Lead the analysis (ASPEN, Matlab, etc) and studies for the pilot and plant designs and sizings.
- Build the thermodynamic models of the entire process and build PFDs and P&IDs.
- Plant design and equipment sizing for pilot & pre-industrial scale.

**Laboratory skills**

- Plan and execute experiments to build the flow sheet of the process.
- Plan experiments for thermodynamic/kinetic determination and guide the team to perform the required measurement.

**Scale-up & production**

- Lead efforts in scaling up the chemical process in batch production while ensuring output quality control
- Implement continuity in the chemical process to optimise system efficiency

**Management of the scale-up**

- Collaborate with the research team to optimise catalysts, reaction conditions, and purification processes
- Lead interactions with external engineering companies and process engineer partners

**What we’re looking for:**

**Education & background :**

- A PhD or MsC in Process Engineering, Chemical Engineering or a related field
- 8+ years in an industrial environment / engineering company scaling chemical processes from the lab to industrial scale
- Strong knowledge of industrial environment and processes and state of the art technology/apparatus
- Expertise in process simulation (ASPEN, Matlab etc)
- Proven experience in flow sheet building and PFDs and P&IDs building
- Exceptional analytical and problem-solving skills, with the ability to quickly grasp complex concepts and adapt to new challenges.

**Personal qualities :**

- Strong communication skills and the ability to collaborate effectively within interdisciplinary teams.
- Demonstrates scientific rigour and meticulous attention to detail
- Shows adaptability and a commitment to continuous learning
- Possesses humility and openness to growth

Starting date: flexible, preferably 01/05/2024
Contact person for more (technical) information: Louis Monsigny (louis.monsigny@syntetica.fr).