Position: Research Scientist

Location: Advanced Biofuels Centre, Calgary, AB Canada

Eager to make a difference in a changing world?

Steeper Energy is a world leader in the development of technology for the production of advanced biofuels from low-value biomass, such as residues and wastes from the agriculture and forest industries as well as urban organic waste, wherein the latter case circular solutions are sought by society, in order to create sustainability. Steeper Energy's Hydrofaction® produces drop-in renewable fuels with high energy density enabling the heavy transport sector to seamlessly transition to low carbon fuels. With an experienced team of world-class talents and strong industrial partnerships, Steeper is a leader in the realization of a low-carbon transport future and circular solutions for society.

Enabling reduction of carbon footprint

Steeper Energy offers a solution to a stated goal by society to reduce carbon emissions. Climate changes caused by the utilization of fossil fuels are known to cause global damage. Within transportation, carbon emissions keep rising while leaders across the globe have made bold commitments to bring emissions down. Electrification of light vehicles provides part of the solution. However, heavy trucking, marine and aviation cannot be readily electrified. Despite improvements in fuel efficiencies, emissions from long-haul transportation are predicted to keep increasing. The international community struggles to find solutions and agrees that action cannot be delayed. Steeper Energy's proprietary Hydrofaction® process provides a solution that cost-effectively converts biomass to renewable transport fuels that can be used in existing infrastructure.

Hydrofaction® is Steeper Energy's proprietary implementation of hydrothermal liquefaction, which applies supercritical water as a reaction medium for the conversion of biomass directly into a high-energy-density renewable crude oil, referred to as Hydrofaction® Oil. Steeper's unique process mimics and accelerates nature's processes by subjecting wet biomass to heat and high pressure. Hydrofaction® process conditions are carefully chosen to promote reaction pathways that favour high yields of high-quality renewable oil. These process conditions, with the operating temperature and pressure well above the critical point of water and the use of homogeneous catalysts promote chemical reactions, leading to the formation of low-oxygen renewable crude oil. Additionally, recycling oil and process water effluent is a unique feature of Hydrofaction®, which brings synergistic benefits in various parts of the process. Using all the above sophisticated and special features, Hydrofaction® achieves biomass-to-oil conversions of

45% on a mass basis and 85% on an energy basis. And, of course, these developments of Steeper Energy are globally patented.

Are you a self-driven and competent person with a desire to drive the development of technologies and vision to the market?

Steeper's Advance Biofuel Centre is a one-of-a-kind laboratory focused on developing economically viable processes for the upgrading and co-processing of Hydrofaction® Oil to high-value ultra-low carbon fuels. We are currently advancing in bio-crude oil characterization, upgrading to drop-in biofuels and value-added chemicals, and co-processing of Hydrofaction® Oil with relevant petroleum refinery feedstocks. We are looking for highly self motivated, enthusiastic, results-oriented individuals who are energized by working with people and achieving superior results. You will be specifically tasked with developing and implementing the biocrude upgrading and co-processing strategies at the pilot-scale plant. Our ideal candidate will be trusted to dive right in, take the lead to improve and optimize our upgrading and characterization technologies and look for opportunities to contribute to value creation.

Essential duties & responsibilities:

- R&D activities in relation to the development and optimization of Steeper Energy's commercial engineering design for upgrading Hydrofaction® Oil produced from various input materials to finished fuels or chemicals both for stand-alone operation and as co-processing at refineries, including definition, execution, supervision, troubleshooting, data analysis, documentation and reporting of agreed experimental studies in the form of technical reports
- Development and maintenance of knowledge about Hydrofaction® Oil properties and applications, including analytical methods and procedures for characterization of oil and other products related to Hydrofaction® and upgrading of Hydrofaction® Oil
- Troubleshooting process unit issues, investigating incidents to determine root cause, reviewing operational procedures, developing safe operating envelopes, improving turnaround timelines and facilitating catalyst selections

Qualifications & experties:

- Masters or PhD in Chemical, Process or Petroleum engineer
- Working experience in laboratory scale or pilot plants operation > 2 years
- Knowledge and experience in refinery operation
- Strong analytical and characterization skills
- Highly self motivated, enthusiastic, results-oriented, and flexible individual
- Ability to develop creative solutions
- Strong written and verbal communication skills in English are required

- Be a strong team player
- Hands-on work

Eligibility to work in Canada

- All applicants who receive an offer of employment must be eligible to work in Canada on their start date. Proof of eligibility shall be in the form of a Canadian birth certificate, Canadian passport, Canadian citizenship certificate, Canadian certificate of permanent residence, Canadian open work permit or receipt from Immigration Canada of an application for a post-graduate work permit. Proof of eligibility must be current and valid (not expired, cancelled, or voided). Proof of eligibility will be required if an offer of employment is made. Failure to provide proof of eligibility at least six (6) weeks prior to the start date may result in the offer of employment being rescinded.

What we offer you:

You'll be a member of a culturally diverse and passionate group of people enthusiastic about commercializing our core technology, Hydrofaction®, as well as providing upgrading pathways to produce 100% renewable fuels and chemicals. A key next step in our development is optimizing biocrude drop-in points within typical petroleum refinery operations. You will have tremendous learning opportunities and will be encouraged to actively contribute and show us your creativity.

You will enter an area with high standards and a high scientific level of research and development and work with groundbreaking processes. Therefore, it is fundamental that the new employees can thrive in an entrepreneurial environment.

This is a full-time position, no night shift but require on-site support when lab equipment needs physical monitoring. Working hours may shift especially when we are running campaigns' or having call meetings with colleagues based in Europe and other global locations.

How to apply:

If you are interested, please send your resume and cover letter to careers@steeperenergy.com. We thank all applicants for their interest; however, only those persons for whom we need further information or are being considered for an interview will be contacted.

In certain situations, Steeper may use your application to consider your suitability for other positions in the company.

Application deadline:

Posting will remain open until a suitable candidate is found.

Steeper Energy is committed to providing all individuals equitable treatment and equal opportunity.