NANOMOX®

Job Title: Senior Chemical Engineer
Line Manager: CEO
Direct Reports: None (with potential to mentor junior engineers as the team grows)
Location: London (North Acton – TBC), primarily office-based with some ad hoc lab- and pilot-based work and flexibility for remote working
Working hours: 37.5 hrs per week (full time)
Salary: Competitive, depending on experience (up to £60k)

About the role

Nanomox is seeking a talented and experienced Senior Chemical Engineer to play a key role in the development and scale-up of its innovative Oxidative Ionothermal Synthesis (OIS®) process, taking it from laboratory to commercial reality. You will lead the translation of laboratory data into plant-scale process design, support pilot and demonstration activities, and help define the engineering basis for future commercial plants.

Working closely with the CEO, R&D team, and external partners, you will drive process design, flowsheet development, equipment specification, and scale-up activities. You will also act as a key technical interface for third-party techno-economic analysis (TEA) and life cycle assessment (LCA) studies, ensuring robust data, well-founded assumptions, and consistent modelling of the OIS® process.

This role is primarily office-based, with regular collaboration with external engineering houses, vendors, and specialist consultants, and may involve ad hoc lab and pilot work. As one of the early engineering employees, you will help shape Nanomox's engineering culture, lab and pilot facilities, and the future direction of the OIS® technology platform.

What we are looking for (Essential)

- A degree in Chemical Engineering or a closely related discipline.
- At least 3–5 years of relevant industrial experience (e.g. inorganic materials, hydrometallurgy, mining, or chemical process scale-up).
- Strong skills in process design and flowsheeting using engineering software such as Aspen Plus/HYSYS, gPROMS, or similar.
- Ability to design and evaluate process flow diagrams (PFDs) and piping & instrumentation diagrams (P&IDs).
- Experience with hazard and risk identification and mitigation (e.g. HAZID, HAZOP, SIL/LOPA participation).
- Practical, hands-on approach – comfortable both in the lab/pilot environment and with desk-based modelling and analysis.
- Strong quantitative and analytical skills, including data analysis and modelling.
- Proficiency in MATLAB and/or Python for process modelling, data analysis, and integration with flowsheeting or TEA/LCA models.

- Experience working with or contributing to techno-economic analysis (TEA) and life cycle assessment (LCA), including data collection, model inputs, and scenario testing.
- Excellent interpersonal skills, able to collaborate across R&D, engineering, and external partners (engineering contractors, vendors, consultants, and academic collaborators).
- Demonstrated ability to work in fast-paced, ambiguous environments and to find solutions to open-ended problems.
- Strong communication skills, both written and oral (English), including the ability to produce clear technical reports and presentations for both technical and non-technical audiences.
- Ability to work independently, prioritise multiple projects, and manage time effectively.
- Highly self-motivated, organised, and detail-oriented.
- Professional approach in all interactions, demonstrating punctuality, tact, positivity, flexibility, and cooperation.
- Alignment with and support for the vision, mission, and values of Nanomox.
- Candidates must be eligible to work in the United Kingdom.

Desirable

- 5+ years' industry experience, including experience leading technical workstreams or small engineering teams.
- Experience taking processes from lab to pilot and/or from pilot to commercial deployment.
- Experience with engineering supply chain management, including vendor selection, RFQs, and technical bid evaluation.
- Background in crystallisation, solids handling, or inorganic materials processes.
- Experience with carbon capture, metal recovery, hydrometallurgy, or related low-carbon process technologies.
- Experience working directly with external third parties on TEA/LCA – e.g. consultancy firms, academic groups, or industrial partners.
- Familiarity with quality management systems and regulatory/permitting aspects of pilot and demonstration plants.

Key responsibilities

- Lead and support process design activities for the OIS® process at lab, pilot, and pre-commercial scales.
- Develop and maintain process flow diagrams (PFDs), P&IDs, and heat and material balances for pilot and future commercial plants.

- Perform process simulations and flowsheeting to inform equipment sizing, utility requirements, and scale-up strategies.
- Specify and size process equipment, prepare process data sheets, and validate these with vendors and engineering partners.
- Liaise with equipment vendors and engineering contractors for design, procurement, fabrication, installation, and commissioning activities.
- Work closely with the R&D team to translate experimental data into scalable process design inputs and to design experiments that de-risk scale-up.
- Own or co-own the design, build, and operation of lab-/kg-scale rigs and pilot/demo units as required to support scale-up and materials production.
- Act as a key technical interface for third-party techno-economic analysis (TEA) and life cycle assessment (LCA) studies, including:
    - Coordinating data collection (CAPEX, OPEX, mass/energy balances, operating scenarios).
    - Building and/or reviewing TEA/LCA models (in Excel, MATLAB, Python, or specialist tools).
    - Reviewing and challenging assumptions and ensuring consistency with Nanomox's process understanding.
    - Presenting and discussing results with internal and external stakeholders.
- Use MATLAB and Python to analyse experimental and plant data, develop process models, and support TEA/LCA and optimisation studies.
- Contribute to process and safety reviews (HAZID, HAZOP), and support the implementation of appropriate process safety measures.
- Support the planning and delivery of environmental and other regulatory permitting activities for pilot/demo facilities.
- Keep accurate, well-organised engineering and experimental records in line with Nanomox procedures.
- Provide technical support across the organisation's portfolio, including R&D, engineering, business development, and grant applications.
- Contribute to the company's IP strategy by identifying potential patentable innovations and supporting documentation for the IP register.
- Support dissemination activities (e.g. conference presentations, customer workshops, technical papers) in collaboration with the wider team.
- Other engineering and R&D responsibilities as may be reasonably required by the CEO.