



## R&D PROJECT ENGINEER (MECHANICAL)

Synthio Chemicals is an early-stage, rapidly-growing specialty chemical manufacturer. The firm uses state-of-the-art continuous flow equipment and process intensification techniques to produce high-value specialty chemicals for industrial, defense and pharmaceutical markets. Our products range from energetic materials for rocket propellants to specialty polymers for hydrogen production. We are seeking a highly qualified mechanical engineer to join our rapidly growing team in a fast-paced R&D environment. The ideal candidate must be able to demonstrate a sound understanding of mechanical engineering fundamentals, particularly heat transfer, fluid mechanics and controls and the ability to apply those principles to clean-sheet designs of novel chemical process hardware. Prior experience with design and construction of process equipment is a plus. Familiarity with 3D solid modelling programs is required; demonstrated experience with Solidworks, including 3-D modelling and detail drawings is preferred. No specific chemical engineering background is required, but basic chemistry knowledge is a plus.

At Synthio, you will be the project engineer on a small team developing novel manufacturing routes for high-value specialty chemicals. The position requires excellent modelling and design skills, coupled with a proven ability to rapidly translate designs into working hardware. This is a hands-on position with an equal mix of design and experimental work. Typical projects involve the design and construction of highly-automated continuous-flow chemical manufacturing systems, including design of custom enclosures, design of custom chemical reactors with integrated heat exchange, thermal and fluid flow modelling to establish pump and value requirements, specification of system hardware and instrumentation, documentation of designs, including the creation of process and instrumentation diagrams and electrical schematics.

You will work with a small team of talented chemists, chemical and mechanical engineers and technicians under the direction of highly experienced Ph.D. chemists and chemical engineers to shepherd breakthrough designs from ideas to production hardware. Utilizing the novel process windows available in miniature flow systems, you will lead small teams in designing and building advanced hardware capable of conducting reactions that normally take hours in minutes or seconds.

If you are an experienced engineer or recent graduate with proven lab experience eager to employ your mechanical engineering knowledge to stake out new ground in advanced manufacturing, please apply and join our team!

### Responsibilities

- Design automated hardware to implement specific chemical processes as specified by chemical engineering team
- Develop and apply thermal-hydraulic models for new chemical production processes
- Design and conduct experiments to validate new hardware designs
- Prepare sketches, PFD's, P&ID's, automation wiring diagrams, and bills of materials
- Conduct and document process hazard analyses and safety reviews
- Create operating procedures for new systems and train operators on new processes and systems
- Assemble hardware, including supervising technicians
- Test production hardware and analyze results
- Use 3D solid modelling software to create and document equipment designs
- Create detailed drawings of custom hardware
- Select and qualify vendors and machine shops for custom equipment
- Select hardware for process equipment
- Clearly document work, report on task progress and communicate results
- Manage and maintain process design documentation
- Support company safety policies, operating procedures, and quality program



- Manage time and organization efficiently
- Continually learn and apply new engineering tools and approaches

## Requirements

- BS or MS degree in Mechanical Engineering
- 2+ years related professional experience (preferably in R&D or process development)
- Demonstrable expertise in mechanical design, heat and mass transfer and equipment selection. Must be able to demonstrate command of engineering fundamentals, and the ability to analyze novel reactor geometries coupled with the ability to rapidly design and build test facilities.
- Experience with 3D CAD software is a plus. Specific expertise with Solidworks is a plus.
- Experience modeling thermal and fluid systems
- Basic familiarity with chemistry
- Strong experimental and mechanical skills
- Driven to achieve results, with the ability to work with a minimum of supervision as well as part of a team
- Desire to learn and apply new technologies quickly
- Strong communication and organization skills
- Military experience is a plus
- **Must be a U.S. citizen or permanent resident and must be able to pass a background check**

Successful candidates will join a team of highly successful serial entrepreneurs and will have the chance to have a significant influence on company technical direction. Growth opportunities include the opportunity to propose and lead programs, and to take projects from ideas to serial production at tens of tons/yr, multi-million \$/yr levels.

Synthio's facilities are located in Broomfield, Colorado, between Denver and Boulder, close to world-class hiking, skiing, fishing, biking and cultural opportunities all along Colorado's Front Range. Position benefits include highly flexible work hours in addition to medical and vacation benefits and competitive compensation with the opportunity for profit sharing.

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

Job Type: Full-time

Salary: \$80,000.00 - \$95,000.00 per year, depending on qualifications

Benefits:

- Flexible schedule
- Health Savings Account
- Health insurance
- Paid time off
- 401K with matching

Schedule:

- Day shift
- Monday to Friday

**To Apply: send a resume and cover letter to [recruiting@synthiochem.com](mailto:recruiting@synthiochem.com)**