



JOB DESCRIPTION

Job Title:	Senior Polymer Engineer/Chemist	FLSA Status:	Exempt
Division/Location:	Sartell, MN	Department:	Product Development
Revision/Date:	10/01/2021	Direct Reports:	None
Reports to:	Director of Engineering	Grade:	J

GENERAL SUMMARY

This position serves as the corporate administrator and technical lead in elastomers and nonmetallic materials with primary locations in Gastonia, North Carolina and Sartell, Minnesota. As a Polymer Engineer/Chemist, you will be responsible for creating, monitoring, and controlling material related projects. You will provide materials expertise in projects that partner with design and manufacturing engineers and ensure manufacturability and performance of DeZURIK Valves and Actuators through proper material selection and processing. Additional projects will be in partnership with Quality Assurance in test method development and material characterization to help drive continuous improvement. The individual in this position will interface with multiple R&D projects, preparation and execution of experiments, analysis and presentation of results, and coordination with external characterization laboratories. You will be expected to maintain and ensure a safe, organized, and efficient lab work environment. The materials tested in the laboratory will include a variety of elastomers, thermoplastics, thermosets, coatings, adhesives, and silicone rubbers.

PRINCIPAL DUTIES AND RESPONSIBILITIES (ESSENTIAL FUNCTIONS)

- **Materials:**
 - a. Create and test new rubber formulations that differentiates DeZURIK from our competition and meet the special needs of our customer's applications such as special flow media, NSF 61 and 372 compliance, etc.
 - b. Revise rubber formulations to increase tack to improve quality of hand-fabricated rubber products
 - c. Support Quality Dept. in the maintenance of existing rubber formulations through daily testing of uncured physical properties and periodic testing of cured & uncured physical properties
 - d. Manage Rubber Lab and direct maintenance/replacement of its equipment. Create and/or maintain standard rubber testing procedures
 - e. Support design-related requirements for rubber manufacturing (milling, molding, & curing) and equipment in the Rubber Room (Mfg. Eng. specifies and supports manufacturing-related issues)
 - f. Support the design of a facility for storage of uncured rubber that would maximize shelf life. Support creation/implementation of operating procedures to ensure proper inventory levels, FIFO, testing, and to prevent use of end of life materials.

- g. Develop inspection procedures for incoming uncured rubber and fabric to ensure adherence to specifications.
 - h. Assist with the qualification of material suppliers
 - i. Support writing of step by step procedures, including graphics, used for the manufacture of hand-fabricated and molded rubber parts.
 - j. Active member of Continuous Improvement events to reduce build time and cost of hand-fabricated, mandrel-built, fabric and wire reinforced rubber products such as pinch valve sleeves, expansion joints, and duckbill valves
 - k. Active member of Continuous Improvement events to evaluate and redesign tooling to reduce build time, improve quality, and reduce cost
 - l. Active member of Continuous Improvement events to identify or design machines and tooling to semi or fully automate fabrication of fabric reinforced rubber products
 - m. Develop methods to improve bonding of different elastomers, fabrics, and metal within the wall thickness of fabric reinforced rubber products during steam autoclave curing.
 - n. Develop optimized autoclave standards for cure time, temperature, and pressure based on product size and dimensions, materials, and wall thickness.
 - o. Develop optimized mold standards for cure time, temperature, and pressure of compression, transfer, and injection molding based on product size and dimensions, material, and wall thickness
 - p. Specify and support design-related requirements for valve epoxy (injectable) backed seat process (Mfg. Eng. specifies and supports manufacturing-related issues)
 - q. Specify and support design-related requirements for product corrosion control and coating processes (Mfg. Eng. specifies and supports manufacturing-related issues)
 - r. Develop and validate new paint and coatings systems including cleaning, pre-treatment, E-coat, base-coat, and top-coat.
 - s. Support paint manufacturing in developing and optimizing paint processes
 - t. Respond to paint/coating manufacturing issues and provide materials or process-based solutions
 - u. Support corporation for design-related requirements for non-metallic materials. Includes supporting new product concepts, FMEA, application of unique engineering materials, performance evaluation of existing and proposed products & components, failure analysis, and media compatibilities
 - v. Create and/or maintain and approve material specifications and their allowable substitutions
 - w. Create and/or maintain design and verification methods for materials
 - x. Train, mentor, and direct corporate employees
- **NSF 61 & 372 Compliance:**
 - a. Provide corporate interface with certifying agencies, NSF International, Water Quality Association (WQA) and Underwriters Laboratories Inc. (UL)
 - b. Analyze product's wetted components for feasibility of success prior to submittal to agency. Troubleshoot and resolve issues found by agency
 - c. Communicate successful certifications to corporation
 - d. Train, mentor, and direct corporate employees
 - e. Maintain central technical files

- **New Product Identification** – participate as directed or independently
 - a. Assist in the research of product needs
 - b. Evaluate DeZURIK and competitive products
 - c. Propose and develop technologies to fulfill customer needs

- **Misc. Technical Support** – as requested by internal and external customers
 - a. Perform necessary research including the use of consultants
 - b. Research/perform engineering calculations or analysis within qualifications
 - c. Technically defend the company in product liability suits
 - d. Perform engineering evaluation for acquisitions
 - e. Provide any other support based on specific experience and qualifications

EDUCATION AND EXPERIENCE

- Master's Degree or Ph.D. in Chemical Engineering, Polymers/Materials Science, or related scientific field from an accredited college/university with min. of 10+ years of related work experience in chemistry, polymers with demonstrated knowledge of polymer characterization, formulation, and processing.
- Experience with skim and friction-coated fabrics desired.
- Experience with hand-fabricated mandrel-built rubber products such as tires and rubber hose desired.
- Experience with compression, transfer, and injection molding processes desired.
- Experience with 6 sigma tools and design for lean manufacturing desired.
- Extensive exposure in the rubber industry including formulating and compounding elastomers, physical testing, all types of molding, hand lay-up of material, polymer experience, autoclave curing, factory production experience, and rubber compound development
- Valve and actuator design experience using applicable industry standards desired
- Requires the technical knowledge to conduct analysis and failure analysis and make materials related decisions, solve engineering related problems, and the ability to teach these techniques to others through formal training and mentoring
- Fundamentals of Engineering / Professional Engineering registration desired
- Working knowledge of ISO 9001 requirements for design and development control and documentation
- Experience at working both independently and in a team-oriented environment
- Proven ability to conform to shifting priorities, demands and timelines
- Strong written and oral communication skills and strong interpersonal skills
- Willingness to stay current with emerging trends and developments in technical fields

COMPETENCIES:

- Action oriented: Taking on new opportunities and tough challenges with a sense of urgency, high energy, and enthusiasm.
- Communicates effectively: Developing and delivering multi-mode communications that convey a clear understanding of the unique needs of different audiences

- Decision quality: Making good and timely decisions, based upon facts and data, that keep the organization moving forward.
- Cultivates innovation: Creating new and better ways for the organization to be successful.
- Nimble learning: Actively learning through experimentation when tackling new problems, using both successes and failures as learning opportunities. Keeps abreast of the latest developments in areas of Polymers, fibers, fillers and other materials and processes through study of technical literature and membership in technical societies.
- Resourcefulness: Securing and deploying resources effectively and efficiently.

PHYSICAL DEMANDS

Normal office environment. Factory floor support is imperative. The physical requirements of the job are related to testing in the engineering lab, field service activities that can be part of the job assignments or handling component parts in the plant during a quality inspection.

WORKING CONDITIONS

Normal working conditions. Stress may result from workload and meeting schedules. Travel will be required to resolve production and product issues, and to support cost reduction/product outsourcing initiatives.

DISCLAIMER

The above statements are intended to describe the general nature and level of work being performed by people assigned to this classification. They are not intended to be construed as an exhaustive list of all responsibilities, duties and skills required of personnel so classified.

QUALITY

Quality encompasses all aspects of DeZURIK, Inc.'s business, and every employee shares the responsibility to prevent the occurrence of any nonconformity relating to product, process and the quality system. All employees have an obligation to identify and record any such nonconformity, and, through designated channels, initiate and recommend solutions.