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Objective

Proficient in the following areas and interested to obtain a challenging opportunity in any of the areas.

- New Product Development (NPD) – Engineering/R&D
- Project Engineering Management
- Production Process Development
- Process Improvement – Engineering, QMS and ISO Management
- Production: Chemicals, Adhesives, Emulsion Polymer Reactors and Troubleshooting, including synthesis
- Quality Control/Quality Assurance/Quality Management (QMS) and auditing
- Operations/Manufacturing: Cementitious Construction Chemicals, adhesive, chemicals
- Scale-up and production: chemical/polymer/composites/Adhesives/Construction Chemicals.
- Quality/Safety
- Technical and customer service
- Outsourcing

Educational Profile

Master of Science: College of Polymer Science and Polymer Engineering. **University of Akron, OH, USA.**

Bachelor of Engineering: Polymer Science and Technology, **University of Mysore, India**
Certified ISO 9001-2008 Lead Auditor from **ASQ (American Society for Quality)**.

Certified Advanced Project Management (Costing, sourcing, Quality, Accountability, influencing skills), Sourcing, Risk management.

ACI (American Concrete Institute) certified structural Adhesive Anchor Installation, and extensive knowledge on Mechanical and Chemical Anchors installation.

Certification from **AIRES: Department of Transportation (DOT), HAZMAT**-shipping, safety and Security.

Six Sigma Green Belt (SSGB): Certification program from **American Chemical Society**.

Certified Quality Auditor (CQA): Completed certification program from **American Society of Quality (ASQ)** in ISO 9001 and Certification in **ISO/IEC 17025** from **IAS**.

Total Industry Experience: 17+ Years

Achievements

- Granted **US and European** patent on development of structural adhesive anchor and, collaborated with various departments during the product launch process of the adhesives from scale-up, Go to Market Strategy, to launch in various global markets.
- Successfully achieved 100+ Department of Transportation approvals for adhesive products

- Published two technical papers in **ASME** (American Society of Mechanical Engineers) on carbon fiber/glass fiber epoxy resin composites using computer-based filament winding techniques. This project was sponsored by **NASA, Langley, USA**.
- Failure Mode effect analysis (**FMEA**) performed on numerous processes in production (PFMEA and DFMEA), product development, customer service, etc. with continuous improvement results.
- Process improvements and troubleshooting of polymer reactors with the use of **DeltaV process control** environment from NovaSpect (Emerson Process Management)
- Developed reconditioning methods for construction products for more than 800,000 lbs/year that include polymer latexes and construction products, which includes reducing significant cost/labor for 6 years as a production support chemist.
- Replaced an equivalent thixotropic agent in a tile adhesive without resulting in decrease of its properties, saving more than USD 300,000.
- Reduced surfactant amounts in adhesive formulations with savings more than USD 200,000 (USD 100,000 annualized), along with significant savings related to antimicrobial agent reduction in formulations.
- Production support/troubleshooting for more than 150 different construction products (emulsion polymers, cementitious grouts, thinsets, mastics, resilients, rapid sets, etc.) and their successful scale-ups.

Employment History

2013-2020 – Illinois Tool Works (ITW), Chicago, USA

Project Engineer: Seven years+ experience in managing projects and products.

Responsibilities:

New Product development (NPD) process, project management, operations activities for ITW CCNA (ITW Red Head) Engineering that included adhesive manufacturing, product launch, outsourcing, structural anchor design calculations using ACI 355.4, ACI 318, AC308. Working with ECC-ES related to technical certification of products and product/process audits as per ISO/IEC 17025, Knowledge of ETA (European Technical approval) of products, managing NSF (National Sanitation Foundation), technical assistance to customers on structural anchor load calculations etc., handling safety training, approvals of anchors, including Department of Transportation in 50 states. Coatings on mechanical concrete anchors. Safety includes Global Harmonization System (GHS), Handling of Safety data sheets, division training, VOC (Volatile Organic Compound) regulations.

2003-2013 – MAPEI Corp, Chicago, USA.

Ten years' experience in R&D, manufacturing, Quality as Regional Quality Management Lead, Product Engineer, Head Chemist, Production Support Chemist, and Quality Management personnel.

Responsibilities:

Operations: Extensive involvement in Production, Manufacturing processes, **Process Safety Management (PSM)** and **Management of change (MOC)** activities including, leading **FMEA** (Failure mode effect analysis). PFMEA, DFMEA involving different processes/departments or equipdesign in the company.

Managing ISO 9001, Quality management system as a **Regional Quality Management Specialist**, responsible for three plants. This involves extensive **ISO-9001 auditing** in all

departments of the company (including **safety audits**), extensive use of quality tools such as Failure Mode Effect Analysis etc. in various facilities to improve the processes, handling corrective and preventive actions (**CAR** and **PAR**), non-conformities (**NCR**) and analysis of service-related complaints (**SRC**) and determining their effectiveness.

Research and Development: Construction chemicals, Emulsion polymers, **Spray drying** of polymers, Tile Adhesives, Carpet Adhesives, Grouts, Self-levelers and their production scale ups in a **certified ISO 9001 environment** including operations activity and trouble shooting.

Managerial responsibilities in the above including **quality control** with releasing the construction chemical products and development of new techniques/ procedures/specifications for them, including analytical instruments such as Gas chromatograph (GC), particle size analyzer etc. and production support/trouble shooting on all the construction products such as polymer latex, Adhesives, Rapid sets, etc.

2000-2003 – University of Akron, Polymer Science, Ohio, USA

Research Associate: Synthesis of High Performance Polymers - Worked for Dr. Joseph P. Kennedy, University of Akron and Dr. Andras Nagy, Vice President, Royal Sheen and Chief Chemist, Capital Chemical Co., Akron, OH.

Responsibilities:

Synthesis of new polymers like grafting PVC, D5H, Flexible ceramics, Tri continuous bio-membranes for drug delivery and other applications using PEG-D5H-PDMS using sophisticated equipment such as Dry Box, Pressure Reactors etc. involving extensive siloxane chemistry and making a membrane out of the three components (PEG-D5H-PDMS) and characterizing the membrane using different instruments like GPC, NMR, FTIR, TGA, DSC, Gas permeability and diffusion apparatus along with swelling measurements for the membranes using hydrophilic and hydrophobic solvents used for drug delivery systems.

2000-2003 - University of Akron, Polymer Engineering, Ohio, USA

Research Assistant: Filament Winding of carbon fiber prepregs and glass fibers for Composite structures with NASA (National Aeronautics and Space Administration) for the application of containment ring mandrels with potential use in jet planes: Dept of Polymer Engineering, **University of Akron**, Akron, OH Under Dr. Erol Sancaktar.

Responsibilities:

Filament winding of carbon fiber prepregs with a filament winder for different lay-up configurations using a 4-axis filament winding machine with CADWIND software. Which also involved making carbon fibers sandwiches of with glass fibers, incorporating the plugging effect during the impact and testing and analyzing them for different mechanical properties such as degree of deflection, Strength, energy absorbed, rigidity etc. and also demonstrating their applications.

1997-1999

Research Assistant: Project on Synthesis of biodegradable polymer blends: **Central Institute of Plastic Engineering Technology (CIPET)**, Mysore, India, under **Dr.K.S. Jagadeesh, Deputy Director, CIPET**.

Responsibilities:

Processing of polymers in Haake Rheomer with extruder attached and synthesizing polymers in an in-situ environment using Allylated starch, amylase and rice-bran oil and testing those polymers for biodegradability, mechanical strengths and weathering resistance while optimizing the biodegradable enzyme loading in polymers along with complete routine mechanical, weathering resistance and biodegradability tests with accelerated aging study.

Skills

- NPD Process, Product launch, Global project Management.
- ITW 80/20 process applied to different area of product development/projects.
- Outsourcing
- ACI certified structural adhesive overhead installation per global construction codes in concrete.
- Certified ISO/IEC 17025 by IAS and assist customers with technical or design needs.
- Quality Management of ISO/IEC 17025 accredited testing laboratory.
- Experience in International Building codes including ACI 355.4, ACI 318 and AC308, strength design in anchoring (structural construction).
- Production/Manufacturing and Quality Assurance of chemical products.
- Technical support, marketing & Sales support and customer interactions on design/assistance with product applications.
- Intellectual Property management
- Emulsion polymerization (production) techniques and troubleshooting of manufacturing processes.
- Working knowledge of all departments in a design and manufacturing environment, and auditing them using Quality Management tools.
- Broad knowledge and manufacturing of **Emulsion polymers, Polymer composites, Monomers, Mastics, Resilient technology, Carpet adhesives, Thin sets, Grouts** and its color science, Self-levelers etc. related to construction chemicals. Wide experience in quality control, **production scale-up**, polymerization techniques and **Quality Auditing** experience in development of a product till customer satisfaction, including product auditing and 3rd part auditing.
- Extensive experience in ERP working environment.
- Inventory variance analysis.
- Product development experience in both construction chemical products and emulsion polymers including spray drying polymers in **ISO 9001** working environment.
- **Synthesis of emulsion polymers** in lab scale reactors for development/trouble shooting in manufacturing, including use of pressure reactor and **dry boxes** for sophisticated polymer synthesis.
- Production **Scale up** of emulsion polymers, construction chemicals in large production capacities.
- Trend analysis and modification of processes for optimal production results including improvements with process and product efficiencies.
- Failure mode effect analysis (**FMEA**) for different processes with emulsion polymerization, and production of construction chemicals including customer service processes.
- Analysis and evaluation of **Corrective action report (CAR), Non-Conformity Report (NCR)** and **Service-Related Complaints (SRC)** handling activities for both internal and external product/service complaints and their resolution.
- Effective identification of **corrective and preventive actions**.

- Individual **ISO 9001 auditing** on processes and complete systems.
- Complete maintenance of Gas Chromatograph and particle size analyzer.
- Trouble shooting of polymer reactors, mixers and their processes.
- Worked with Environmental health and safety (EH&S) related to monomers and polymer processes.
- **Rheology of polymers**, Mechanical Testing, evaluating, and predicting polymer product performance under various conditions for packaging, coating and other applications.
- Extensive use of **Injection molding**, **Extrusion** and **compression** molding machines and their product/process troubleshooting.
- **Coating technology** including **micro lithography**, radiation curing, paints, pigments etc.
- **Synthesis** and characterization of Polymers.
- Complete assembly and troubleshooting of the pressure reactors.
- Extensive use of **GPC**, **FTIR**, **DSC**, **TGA** and **NMR** etc. for characterizing the synthesized polymer.
- **Coatings chemistry**, and compounding technology with rubber/plastics.
- Knowledge and Practical training in **Nano-Technology**, **Film Blowing** methodologies for different polymers.
- Computer knowledge: Unix, Visual Basic, SQL, Microsoft Office (Word and Excel), operating systems (DOS and Unix), word perfect, Programming Languages like Basic, Fortran, Pascal, C and Web development tools like HTML, DHTML, VB Script, Java Script etc, MicMac software for determining mechanical testing and Cad Winding software for filament winding of polymer fibers.
- ISIS DRAW for developing chemical structures.

Extensive Training

- Certified - Installation and knowledge of chemical and mechanical anchors.
- Certified Advanced Project Management (Costing, sourcing, Quality, Accountability, influencing skills), Sourcing, Risk management.
- A project named Filament winding for containment ring in jet engines using carbon fibers and epoxy resin, sponsored by NASA for Masters' thesis.
- Project with carbon fiber and incorporating them with glass fibers, testing them and analyzing different kinds of mechanical measurements like, compression strength, stiffness, rigidity impact strengths etc. sponsored by
- Determination of processing parameters for different polymer machineries like Injection molding, extrusion etc.
- Has completed "**Polymer Technology Management**" and a three-day workshop in filament winding.
- Methods of mechanical testing of polymers for strength Impact and operated mechanical testing equipment such as Instron, universal testing machine and impact tester etc.
- Physical, chemical, mechanical properties of polymers with respect to metals and their relationship to Selection, design, manufacture, performance, and evaluation of end products.
- Extensive use of HPLC (High performance liquid chromatography), TLC (**Thin layer chromatography**), GC (**Gas chromatography**) and to be able to prepare methods, analysis and maintenance.
- Integrated study of processing parameters in different kinds of polymer processing techniques such as **injection molding**, **extrusion**, **thermoforming**, **Calendering** etc. and their trouble shooting.

- Have studied different packaging techniques and their usage in shelf life, barrier properties, **bio-degradability** etc.
- Detailed study of different types of Paints and Adhesives and their properties.
- Use of SEM (**scanning electron micro scope**) and morphology of polymers.
- Use of different types of rheometers like **Mooney, cone and plate, cone and cone, Haake** etc. for viscosity measurements.
- Use of **Bi-Refringence** instrument and tubular film blowing equipment.
- Use of different kinds of mixers like internal mixer-**Brabender, Two-Roll mill** etc.
- Use of contact angle measurement, spin coater, profilometer etc.
- **Fiber spinning** and film blowing techniques.

Activities

Member - American Society of Mechanical Engineers. (ASME)

Member – Product Management Institute (PMI)

Member – American Society of Quality (ASQ)

Member - Indian Plastic Institute. (IPI)

Member - Alumni, Univ. Akron, Ohio, USA

Key Words

Structural adhesive anchoring, Construction Chemicals, Emulsion Polymers, packaging, NCR, CAR, SRC, composites, FTIR, GPC, NMR, DSC, TGA, testing, synthesis, characterization, analytical, formulation, documentation, research, production, injection molding, Quality, Quality Management, Auditor, NCR, CAR, SRC, FMEA, Project Management, CQA, SGGB etc.

References

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