PREET JIGNESH PATEL

Chemical/Paints/Process Engineer

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PROFESSIONAL SUMMARY

- Chemical Process Engineer specializing in paints and coatings commercialization, batch manufacturing, and lab-to-plant scale-up. Experienced in DOE, SPC, Lean Six Sigma, PLC/HMI automation, Aspen Plus simulation, and statistical analysis to improve process robustness, yield, and cost efficiency. Skilled in PFDs/P&IDs, mass and energy balances, instrumentation, and cross-functional project execution, consistently delivering measurable gains in throughput.

TECHNICAL SKILLS

Process Engineering: Batch manufacturing, dispersion/milling/letdown, process design, scale-up, PFDs & P&IDs, mass & energy balance, plant utilities
Methodologies: DOE, SPC, RCA, FMEA, Lean Six Sigma (DMAIC), Kaizen, 5S, WCM
Materials & Testing: Polymer/film development, coating characterization, rheology, FTIR, DSC, TGA, SEM, viscosity/gloss/adhesion testing
Automation & Controls: PLC (RS Logix 5000 – Ladder Logic), HMI (PanelView), instrumentation, batch automation
Tools & Analytics: Aspen Plus, Minitab, AutoCAD, Power BI, Advanced Excel (dashboards, SPC, OEE tracking)
EHS & Sustainability: VOC reduction, solvent recovery, waste minimization, GMP/SOP compliance

PROFESSIONAL EXPERIENCE

Associate Engineer | The Sherwin-Williams Company, USA July 2025 – Present

- Partnered with team on **new product commercialization and lab-to-plant scale-up** initiatives, transferring formulations to full-scale manufacturing while improving process robustness, yield, and time-to-market.
- Designed and executed **DOE-based process and formulation experiments**, identifying critical parameters and applying SPC/Six Sigma to reduce batch variability and improve first-pass quality by 20–25%.
- Managed cross-functional **NPI and continuous improvement projects**, developing project plans, timelines, and deliverables while collaborating with Manufacturing, Quality, and Operations teams.
- Analyzed production data using **Minitab and statistical tools**, driving cost optimization, cycle-time reduction, and troubleshooting via RCA/FMEA, delivering 10–15% savings and consistent product performance.

Process Engineer | Asian Paints, India January 2022 – December 2023

- Led chemical process optimization for **water-based emulsions, primers, enamels, and putty formulations**, improving dispersion, milling, and letdown efficiency to increase plant throughput while maintaining consistent rheology and film performance.
- Developed and updated **PFDs, P&IDs, and mass/energy balances** for mixing, bead mills, and solvent handling systems, enabling safe scale-up of 12+ formulations from lab to commercial production with 95%+ first-pass yield.
- Simulated and optimized process conditions using **Aspen Plus**, reducing solvent usage and utility consumption by 12% while improving heat transfer and batch homogeneity for high-viscosity coatings.
- Automated dosing, mixing, and transfer operations using **PLC (Ladder Logic) and HMI (PanelView)** controls, minimizing manual intervention by 30% and enhancing batch repeatability and quality stability.
- Applied **Lean Six Sigma, Minitab, and Root Cause Analysis** to resolve settling, foaming, and shade variation issues, cutting rework and rejection rates by 28% and improving overall first-pass quality.
- Built **Power BI and Advanced Excel dashboards** to track OEE, downtime, yield, and raw material consumption, enabling data-driven decisions that improved productivity by 18% across multi-shift operations.
- Optimized **plant utilities, instrumentation, and sustainability initiatives** (steam, compressed air, solvent recovery, waste reduction), reducing downtime and lowering hazardous waste generation while ensuring EHS compliance.

EDUCATION

Master of Science in Chemical Engineering – Cleveland State University, Cleveland, OH, USA December 2025
Bachelor of Science in Chemical Engineering – Parul University, Vadodara, India April 2022

CERTIFICATIONS

- **Lean Six Sigma Green Belt** – Process optimization & quality improvement
- **Industrial Automation & PLCs** – Automation systems & control logic
- **cGMP Compliance** – Quality standards in regulated manufacturing
- **Project Management Professional (PMP)** – *Technical Institute of America (TTA), 2025*

PROJECT

Sustainable Bio-polymer Film from Citrus Waste – Academic R&D Project

- Developed biodegradable bio-polymer films from citrus waste through optimized extraction, formulation, and thin-film processing, designing and executing pilot-scale trials to improve mechanical, thermal, and barrier performance.
- Characterized material and process behavior using FTIR, DSC, TGA, and mechanical testing, applying DOE, SPC, RCA, and FMEA to enhance consistency, reduce variability, and optimize formulation and operating conditions.
- Documented experiments and supported scale-up using Minitab, AutoCAD, PLC controls, and Excel, collaborating with R&D teams to refine recipes, standardize processes, and improve overall product quality and reproducibility.