

Hector Garza

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SUMMARY

Aerospace special-processes engineer with 20+ years across chemical processing, coatings, heat treating, composites, welding, and surface enhancement. Owns processes end-to-end — from new-process qualification through SPC-driven production control, NCA / RCCA, and tooling and fixture design — throughout on ITAR-controlled aerospace programs. NADCAP and AS9100 fluent; led NADCAP, AS9100, and customer audits across multiple OEMs. Partners across Quality, Maintenance, and Production to lead Lean / Six Sigma / Kaizen continuous-improvement initiatives, standardizes work through SOPs and work instructions, monitors KPIs, and ensures safety, environmental, and regulatory compliance. Track record of turning failing lines into capable ones — most recently cutting a process failure rate from 67% to 3% and driving reworks to near zero.

CORE COMPETENCIES

Process & Manufacturing — New-Process Scoping & Production Qualification · New Product Introduction (NPI) & Design for Manufacturability · SPC / Statistical Process Control · Process Capability (Cpk) Improvement · Yield & Cycle-Time Reduction · Tooling & Fixture Design · Traveler / Work-Instruction & Standard-Operating-Procedure (SOP) Development · Engineering Drawing & Blueprint Interpretation · Cross-Functional Collaboration (Quality · Maintenance · Production) · Root-Cause Analysis & Corrective-Action Implementation (NCA / RCCA) · Tank Chemistry · Wastewater Treatment · Pyrometry · First Article Inspection · Customer & NADCAP Audits

Continuous Improvement & Quality Tools — Lean · Six Sigma · Kaizen · 5S · PFMEA / FMEA · DOE (Design of Experiments) · 8D · PPAP / APQP · Control Plans · CAPA

Materials & Process — Material & Process Specification Review and Call-Out · Processing Methods for Metallic / Non-Metallic / Composite Materials · Failure Analysis & Corrective Action · Vendor Selection & Qualification · Materials Test Laboratory (XRF · ICP-OES · Microscopy · Cross-Sectioning for Hardness & Thickness)

Design, Tooling & Quality — Tooling / Fixture / Jig Design · Racking & Masking · GD&T · Metrology · DFM / DFA · Automated Process Equipment (Fanuc Robotics · PLC) · CAD (SolidWorks · AutoCAD)

STANDARDS & COMPLIANCE

NADCAP · AS9100D · AS9110 · First Article Inspection (AS9102) · AMS2750 (Pyrometry) · QMS · FAA Advisory Circulars · ITAR · Safety / Environmental / Regulatory Compliance (EHS, EPA / RCRA wastewater) · led NADCAP, AS9100, and customer audits across multiple OEMs

PROFESSIONAL EXPERIENCE

TAT Technologies — Process Engineer · Greensboro, NC · 2024 – Present

- Manage 7 special-process lines — chrome plating; chromic / Type II anodize and anodize strip; nickel plate / strip / passivation; chromate conversion coating / etch; cadmium plate / strip; temper etch / descale; and solvent / alkaline clean.
- Reduced process failure rate from 67% to 3% within 3 months and raised process capability (Cpk) from 0.12 to above 1.33 through workflow redesign, standardization, and SPC-driven control, driving reworks to near zero.
- Raised NDT fluorescent-penetrant-inspection (FPI) first-pass yield from 32% to 92% and cut a machine-grinding operation from 16 hours to 2 hours.
- Lead 5-12 NCA / RCCA (8D / 5-Why) investigations per month to closure and corrective-action implementation, working cross-functionally with Quality, Maintenance, and Production.

- Built SPC dashboards with automated control-limit calculation and daily / weekly / monthly KPI tracking on tank chemistry, deposition thickness, and etch rate; unified production and quality data from machines, spreadsheets, and quality records.

Machine Specialties Inc. — Process Engineer · Whitsett, NC · 2019 – 2024

- Owned 4 special-process lines end-to-end — cadmium plate / strip, aerospace paint / strip, passivation, and anodize (Type I/IB, II, III) with chromate conversion coating (Type I / II) — plus composite bonding and pyrometry.
- Raised line yield from 62% to 88% through workflow and process-control improvements.
- Led new product / process introduction (NPI) — qualified and certified 3 new processes from scoping through production launch — titanium anodize, cadmium plate, and dry-film lubricant (fluorinated polymer) — to specification and NADCAP, using PFMEA and DOE to dial in the processes and ensure manufacturability.
- Led and passed 3 NADCAP and 2 AS9100 audits; maintained certification compliance across customer specs.
- Performed prepreg layup and oven cure for bonded composite assemblies; ran pyrometry on cure / thermal equipment.
- Designed process tooling, fixtures, jigs, racking, and masking; applied GD&T and metrology to verify conformance, with DFM / DFA producibility input on new-process introductions.

Senior SSP Aerospace — Quality Assurance Specialist · Burbank, CA · 2018 – 2019

- Analyzed and corrected methods in chemical processing; supported and passed NADCAP welding, chemical-processing, and heat-treat audits and AS9100 / customer-spec compliance.
- Performed hand layup and oven cure of composite skins / panels and detail bonds for harnesses, under NADCAP AC7118 (composites).
- Audited composite material control, pyrometry, and material storage (out-time / cold storage) for AC7118 and customer-spec compliance.
- Welded and audited TIG, MIG, and seam welding to NADCAP AC7110 (incl. /4, /5, /12) and customer specs.
- Conducted internal audits; supported EHS and Manufacturing Engineering.

Moog Inc. — Materials & Process Chemist · Torrance, CA · 2012 – 2018

- Directed plating, painting, shot peening, blasting, and heat-treat processes for aerospace controls; trained 25–35 technicians and senior operators.
- Reviewed and approved materials and process call-outs on engineering drawings; selected and qualified 18 process vendors (test labs, alloy and service providers, technical support) per AS9100.
- Started up and qualified robotic shot peening, brush plating, and zinc-nickel plating to NADCAP and customer approval; programmed and troubleshot Fanuc robots, pulsing rectifiers, and PLC systems.
- Maintained NADCAP and AS9100 compliance; ran pyrometry on thermal-processing equipment, wet-process tank chemistry, XRF, microscopy, leak detection, and mechanical testing.

Danaher — Materials R&D, Lab Technician to Research Associate · Orange, CA · 2000 – 2012

- Formulated thermoset and UV-curing (photoset) polymer composites and tuned them for target mechanical properties; carried formulations from lab through pilot to production — the materials- and process-development work behind new product introductions.
- Technical prototyping lead — designed and built custom equipment for compounding composite formulations (Allen-Bradley PLC control) and the fixtures and instrumentation for mechanical testing of the finished composites, defining success metrics and expected behavior before each build.
- Ran data-driven DOE studies characterizing end-product composites to ASTM and ISO methods — viscosity / dispersion, fatigue, environmental / chemical degradation, and wear — with microcontroller-based data-acquisition rigs (load cells, pressure and flow transducers) for synchronized multi-channel capture.
- Built Python and Excel analysis tools that let engineers and interns run experiments and report results independently; presented validation-backed recommendations to leadership to gate which concepts

advanced, and kept procedures and design data in sync with USC researchers and across multiple Southern California sites.

McCurdy Circuits & Chromalloy — Process Engineering & Metallurgical Lab QA · California · 1996 – 2000

- PCB process engineering (plating-bath chemistry, copper-plate / etch / lamination, first-article testing) and metallurgical-lab QA (ICP-OES, AA, GC, FT-IR, microsectioning / cross-sections); operated PVD and plasma (thermal-spray) coating chemical processes on aerospace components.

TECHNICAL SKILLS

SPC / Statistical Process Control · Control-Limit Calculation · GD&T · Metrology · CAD (SolidWorks, AutoCAD) · Fanuc Robotics · PLC · Tank Chemistry · XRF · ICP-OES · Microscopy · Cross-Sectioning · ERP / MRP Systems · Manufacturing Data Analysis · Engineering Drawings / Blueprints · Process Data Pipelines & Dashboards

EDUCATION

B.S., Chemistry — University of Michigan, 1996