

Yareli Gonzalez

US Citizen | yareli.inbox@gmail.com | yareligonzalez.com

Education

University of Texas at El Paso – BS in Metallurgical and Materials Engineering Expected May 2027

Experience

Quality Metallurgy Intern, Nucor – Jewett, TX May 2026 – Present

- Traced caster choke-off to alumina buildup and refractory wear by sectioning spent submerged entry nozzles and characterizing bore clogging and erosion under the microscope
- Mapped ibaAnalyzer casting-parameter trends onto recorded nozzle clogging events, isolating the conditions that consistently precede choke-off
- Built a model that predicts finished physical properties from incoming scrap chemistry and recommends charge adjustments, compensating for residual elements by specifying added carbon to keep heats on spec

Metallurgical Intern, Freeport-McMoRan – El Paso, TX Dec 2025 – May 2026

- Performed quick-turnaround failure analysis on customer wire break and weld submissions in copper, aluminum, and tin-coated rod, using SEM/EDS and optical microscopy to identify oxides, inclusions, slivers, and hollow cup-cone breaks, and examining welds for porosity, grain flow, and heat-affected zone dimensions
- Assessed casting and electrodeposition quality through crop bar and starter sheet metallography, daily cathode inspection for nodulation and surface defects, and grain size analysis on customer samples
- Traced cathode plating defects to elevated electrolyte calcium by EDS analysis of starter-sheet salt deposits, supporting tankhouse process adjustments

Quality Metallurgy Co-Op, Nucor – Jewett, TX Jan 2025 – Aug 2025

- Defended over \$900,000 in disputed customer claims with SEM/EDS analysis proving billet conformance on material flagged in E45 inclusion testing
- Automated weekly scrap reporting through a Python-to-Power BI pipeline, replacing 2 hours of manual calculation with dashboards sent automatically to production teammates and supervisors
- Supported internal and external audits to ISO 17025, ISO 9001, and ABS standards, covering method validation, equipment calibration records, and measurement traceability
- Led FMEAs and root cause investigations on recurring defects, then walked process owners through prioritized corrective actions

Legislative Intern, National Mining Association – Washington, DC June 2024 – Aug 2024

- Quantified \$2.3 million in compliance costs across 8 operations that informed industry response to proposed EPA regulations, and analyzed 15+ critical minerals patents to assess domestic supply chain vulnerabilities

Research Assistant, UTEP Polymer Extrusion Lab – El Paso, TX Feb 2023 – June 2024

- Engineered immiscible PCL/TPU/PLA shape memory blends for additive manufacturing that reached 99.9% shape recovery and elongation near 1970%, with constituents chosen on solubility parameter
- Pinned the strengthening effect on strain-induced crystallization through XRD, DMA, TEM, and SEM fractography, and co-authored the resulting paper in the Journal of Materials Science

Skills

Characterization: SEM/EDS, optical metallography, TEM, XRD, DMA, FTIR, tensile testing, hardness testing

Software: Python, SQL, Power BI, ibaAnalyzer, MATLAB, SolidWorks, ANSYS Workbench

Quality: Statistical process control, root cause analysis, FMEA, ISO 17025, ISO 9001, ABS, NCR disposition

Certification: OSHA 10-Hour General Industry, CareerSafe (2020)

Publications

Lares Carrillo, L.E., **Gonzalez, Y.O.**, Parga, M. et al. Development of binary and ternary polyester shape memory blends for additive manufacturing. *Journal of Materials Science* 59, 8040–8057 (2024).