Juan Francisco Cerón Muñoz

Senior Process & Manufacturing Engineer
Continuous Improvement & Plant Support

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Senior Process & Manufacturing Engineer with **10+ years of experience** in **petrochemical and polymer manufacturing**, combining deep **process engineering expertise** with strong **operational and production exposure**. Proven track record delivering measurable business impact across energy efficiency, raw material optimization, reliability improvement and process safety.

Recognized for **bridging engineering, operations and maintenance**, translating complex process analyses into **practical, operable solutions**. Experienced across the full lifecycle of initiatives: from feasibility and conceptual engineering, through execution and commissioning, to sustained production support and continuous improvement in existing industrial and operating plant environments.

KEY SKILLS

- Process Engineering & Conceptual Design (CDP / FEL-1)
- Production & Manufacturing Support
- Continuous Improvement & Operational Excellence
- Energy Efficiency & Utilities Optimization
- Process Safety (HAZOP, SWIFT, MOC, PSSR)

- Troubleshooting & Root Cause Analysis (RCA)
- Asset Reliability & Lifecycle Optimization
- Techno-economic Analysis & Business Case Development
- Process Simulation (Aspen Plus) & Data Analytics (Seeq, Minitab)
- Performance Dashboards (Power BI)

CAREER HISTORY

SABIC - Cartagena, LX PC plant   October 2023 - present
Senior Process Engineer

Operate **across the entire site and multiple process units**, acting as a **senior technical reference** for **process engineering, production performance and improvement programs**.

Selected impact and achievements:

- Defined and led **energy efficiency and heat recovery initiatives** across **DMC, DPC and CO units**, developing **Aspen-based mass & energy balances** and **conceptual engineering packages**, with individual projects delivering **up to ~500 k€/yr savings**.

- Owned the **Raw Material Usage Program**, combining **process modelling, data analytics and operational feedback** to identify sources of inefficiency and define **optimized operating strategies**, achieving **~870 k€ savings vs previous year**.

- Delivered complex feasibility and CDP packages for projects in existing operating plants (up to ~3 M€ CAPEX), integrating process design, operability, control strategy and lifecycle cost considerations.

- **Enabled asset life-cycle optimization** through **structured decision-making and cost–risk trade-off analysis**, translating recurring reliability and integrity issues into **focused studies and prioritized actions**, including **erosion and corrosion mitigation plans**.

- Led and actively contributed to **Root Cause Analysis (RCA) investigations** covering process upsets, equipment failures and production losses. Translated findings into **design changes, new maintenance strategies, operating improvements or innovations**.

- Acted as mentor and technical leader within the process engineering team and participated as SME in corporate manufacturing assessments for large international projects (e.g. SABIC Fujian, China).

SABIC- Cartagena, DMC&DPC units | May 2024 – October 2024
Production Engineer (Temporary Assignment)

Embedded within **Operations** as **Production Engineer** for **DPC & DMC plants**, with direct accountability for **day-to-day production performance** and **operational prioritization**. Oversaw **production KPIs** and **Production Loss Account (PLA)**, coordinated **corrective actions with shift teams**, and supported **routine troubleshooting**. Managed **minor plant changes** through **MOC and PSSR**. Worked closely with **Logistics, Maintenance and EHS** to align **production priorities, risk assessments and execution planning**.

SABIC- Cartagena, LX PC plant | October 2016 – September 2023
Process Engineer

Supported multiple polycarbonate production units, combining engineering studies, plant trials and sustained production support. Selected impact and achievements:

- Executed **feasibility, debottlenecking and capacity stretch studies** supported by process calculations, **Aspen simulations** and plant data, enabling capacity increases and bottleneck removal.
- Developed and implemented **process improvements for quality, cost and reliability**, including trials achieving **>99.9% DPC purity** with minimal OPEX impact.
- Led and supported **plant trials and commissioning activities**, ensuring safe, robust execution and stable operation.
- Contributed to **process safety and risk management**, supporting incident investigations and the definition of **practical risk mitigation measures** to ensure reliable operation across the site.

PREVIOUS HISTORY

SABIC – Cartagena & BoZ (Netherlands) | September 2014 – September 2016
Manufacturing Graduate Program (SEeD Program)

Two-year rotational program covering Engineering, Operations, Reliability and EHS, including a 6-month international assignment at SABIC BoZ (Netherlands).

Polytechnic University of Cartagena (UPCT) | February 2014 – August 2014
PhD Researcher – Thermal & Fluid Engineering

Research focused on numerical modelling and heat transfer analysis applied to flat-plate solar thermal collectors. Published article in *Applied Energy*: https://doi.org/10.1016/j.apenergy.2014.11.069

EDUCATION & QUALIFICATIONS

MEng Industrial Engineering | 10/10 – 10/12
Polytechnic University of Cartagena

BEng Mechanical Engineering | 10/07 – 09/10
Polytechnic University of Cartagena

MEng Computational Fluid Dynamics | 10/20 – 07/22
Universitat Rovira i Virgili

Published article in *European Journal of Mechanics - B/Fluids*: https://doi.org/10.1016/j.euromechflu.2025.02.004

TRAINING & CERTIFICATIONS

- First Certificate in English, B2 (University of Cambridge)
- Process Hazard Analysis (HAZOP, SWIFT) – Facilitator Training (DEKRA)
- ATEX Hazardous Area Classification (DEKRA)
- Six Sigma Green Belt

- Power BI & Advanced Data Analytics
- Reliability Centered Maintenance (RCM2 – ALADON)
- Maintenance Strategies (RCM, RCA, RBI – Meridium)
- Introduction to Project Management (IFP training)
- Instrumentation and Process Control (IFP training).