

eci group

ECI • Simon Carves • ITEC

ECI Group Consultancy Services High-Pressure Polyethylene & Co-Polymers

We provide specialist consultancy services to the polyolefins sector, delivering technology support and plant optimization services to help you achieve your profitability, safety, and sustainability goals.

Typical examples of demonstrable benefits we can provide for our clients in the High- Pressure Polyethylene and Co-Polymers industry include:



Safety, Quality, and Environmental Performance

- Reducing decompositions and reactor emergency vents frequency.
- Reducing gels and black specks.
- Minimizing community impact with Reactor Blowdown System (RBS).
- Reducing energy intensity through conversion increases.



Plant Operability and Reliability

- Troubleshooting polymer carry-over into high- and low-pressure recycles.
- Reducing fouling in High Pressure Recycle.
- Improving hyper compressor reliability.
- Reducing fouling in tubular reactor for conversion increase and stability.

Our Experts

- Experts with 40+ years of experience in the design and operation of Polyethylene and Polypropylene technologies of various licensors.
- Consultants and engineers.
- Varied backgrounds in manufacturing (producers), engineering, consultancy and projects delivery.



Opportunity
Identification &
Prioritization

Improvement
Implementation
• Zero Capital, or
• Brownfield Projects

Sustaining
the Gains

Maximized
Performance
& Profitability

Our Model

Our services range from traditional small and large brownfield capital projects, but also include **zero-capital improvement projects** to ensure we can provide the best services to suit your needs.



Compliance

- Fitness-for-service evaluations of high pressure piping systems and equipment.
- High-Pressure pipe specification updates, harmonization and code calculations.



Profitability Improvements

- Converting homo polymer LDPE lines into high-value co-polymer plants (e.g. vinyl acetate or acrylate co-monomers).
- Up to 40% capacity increases through implementation of Hybrid Reactor Technology.
- Capacity debottlenecking projects through gas throughput increases and reactor optimization.

ECI Group is the world's most experienced polyethylene engineering contractor:

- 145 years of multi-discipline petrochemical engineering.
- Executed over 5,000 projects across 75 countries.
- Engineered over 40% of the global capacity of LDPE/HPPE.
- Delivered over 100 LDPE/HP co-polymer streams across 6 continents.

Contact us today to find the best solution for your plant:



www.ecigrouponline.com



info@ecigrouponline.com



USA: +1(225)-293-7768
UK: +44(0)161-718-4400

If you are experiencing chronic performance problems in your plant, going through a reliability or decomp crisis or want to explore options for plant improvements but do not know where to start, ECI Group can help by offering a free one-hour consultation:

- Initial 30 minute consultation with ECI Group via Teams to discuss the problem and your project goals.
- ECI Group will send our Preliminary Opportunities Questionnaire for you to complete and return.
- A follow-up 30 minute Teams call will be held with ECI Group to review the completed questionnaire and plan the path forward.

Free Initial Consultation

Zero-Capital Improvements

Plant Performance Assessment

Plant health and performance assessment and benchmarking for opportunity identification.

- Operational Excellence.
- Reliability.
- Process Safety.
- Quality.
- Plant Organization.
- Overall plant health.

Technology Support Agreements (TSA)

Continuous improvement through expert support.

- Daily operations and reliability support.
- Advanced troubleshooting.
- Subject Matter Expert review for plant changes.
- Critical operations and maintenance decisions.
- Root cause analysis expert input.
- Plant performance monitoring.
- Technology Best Practices.
- Specialized engineering resources.
- Access to ECI Group's full suite of expertise.

Technology Training & Expertise Development

Knowledge and expertise your team needs to succeed.

- Full training programs for operators, engineers, and maintenance.
- Tailored to your equipment and process.
- Technology mentorship to leaders.
- Train-the-trainer programs.

Problem Solving & Improvement Programs

Expert Solutions for standalone or one-off problems.

- Targeted improvement programs.
- Advanced troubleshooting.
- Root Cause Analysis.
- Fitness-for-service analysis.
- Plant start-up support.


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Capital Projects

Plant Upgrade & Modernization

Technology retrofits and engineering to maximize plant performance and profitability.

- Direct Co-Monomer Injection (DCI) technology for improving hyper throughput and reliability.
- Reactor Blowdown System (RBS) technology for environmental emissions abatement during decomposition events.
- High-Conversion Autoclave Reactor Extension (HARE™)
- Jet Pump.
- Product grade slate expansion: high-value LDPE or introduction of Co-Monomers.

Brownfield Projects

High pressure engineering and projects expertise.

- Debottlenecking methodology.
- Feasibility Studies.
- FEED Packages.
- Detailed Design.

Asset Life Extension

Expertise to extend the life of existing plant assets.

- Project identification and prioritization.
- Life Extension program development.
- Project execution (EPCm).

Professional Technical Services (PTS)

Services across the full project life cycle.

- Expert contract and direct-hire staffing solutions customized to your needs to support your operations or projects execution.
- Our engineering background means our team knows first-hand the skill sets required to fill technical positions.

Previous Project Success Stories

Consultancy Services & CFD Modelling, Qatar

- **Objectives:** Investigate and resolve corrosion problems near peroxide injection points in the LDPE reactor which were causing frequent shutdowns and repairs.
- **Solutions:** Root Cause Analysis study and CFD modelling identified problems with injection quill design and impurities in supply of peroxide that were causing the problems. Recommended a redesign of the injection quill and tightening peroxide specifications.
- **Outcomes:** Improved understanding of the corrosion issue and implemented effective solutions to prevent recurrence.

