

eci group

ECI • Simon Carves • ITEC

ECI Group Consultancy Services Polyolefins



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 issues where we can find solutions for our clients across different polyolefin technologies include:

High Pressure Polyethylene & Co-Polymers

- Ethylene decompositions and reactor emergency vents.
- Hyper compressor reliability.
- Fouling in tubular reactor.
- High-value co-polymer introduction.
- Polymer carry-over into high- and low-pressure recycles.
- Fouling in high pressure recycle.

Gas Phase Polyethylene and Polypropylene

- Rubble, agglomerate and sheeting.
- Reactor skin temperatures.
- Reactor static.
- Reactor discharge system capacity, efficiency and flowability.
- Cycle gas system fouling.
- Raw material and recycle purification.
- Catalyst feed system plugging.
- Product discharge degassing.

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.



Solution Polyethylene

- Reactor fouling.
- Reactor hot/cold spots.
- Catalyst productivity.
- Raw material and recycle purification.
- Recycle system fouling.
- Volatile content in final product.

Slurry Polyethylene

- Lumps forming in the reactor.
- Chips and lumps in the fluid bed dryer.
- Evaporator separator blockage.
- Slurry transfer line blockage at flash vessel and reactor segment.
- Decanter reliability.
- High volatile content in powder.
- Distillation and wax separation unit blockage.
- Fluid bed dryer underperformance during high-wax campaigns.

All Polyolefins Processes

- Gel and black specks.
- Product cycle – off grade minimization.
- Granulation/pellet quality.
- Fines and streamers in final product.
- Capacity increase and debottlenecking.
- Monomer efficiency.
- Energy intensity.
- Additives feeding issues.

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.

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 quality 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. Operations, Quality, Process Safety & Reliability Excellence.

Technology Support Agreements (TSA)

Continuous improvement through expert support to your operation and critical operational and reliability decisions. Access to ECI Group's specialized engineering resources and full suite of expertise.

Technology Training & Expertise Development

Knowledge and expertise your team needs to succeed. Full training programs for operators, engineers, and maintenance.

Problem Solving & Improvement Programs

Defined studies and targeted programs to resolve specific problems and improve specified areas of your operation through ECI Group's specialized engineering resources and polyolefins expertise.

Capital Projects

Plant Upgrade & Modernization

Technology retrofits and engineering to maximize plant performance and profitability.

- Plant debottlenecking and capacity increase.
- Product grade slate expansion.
- Process technology retrofits (e.g. Hybrid Reactor Technology, Reactor Blowdown System).

Brownfield Projects

Engineering, projects expertise with our polyolefins know-how.

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

Asset Life Extension

Expertise to extend the life of existing plant assets.

Professional Technical Services (PTS)

Expert contract and direct-hire staffing solutions customized to your needs to support your operations or projects execution.

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.


Translations can be provided, if required.

eci group
ECI · Simon Carves · ITEC

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



Our areas of expertise in Polyolefins

Equipment and Unit Operations in Polyolefins Processes

- Reactors, compressors, devolatilization, high viscosity and slurry pumps, feed pumps and systems, raw materials purification, molten polymer equipment, solids handling equipment.

Polymerization Reaction

- Free-radicals and catalyst-based polymerization.
- Reactor optimization, catalyst selection and upgrade, reactor trials.

Operations & Reliability Know-how

- Troubleshooting, root cause analysis, operations best practices, equipment reliability, process control, product quality.

Process Safety

- Safe handling of olefins and light hydrocarbons, pyrophoric and thermally unstable materials, ethylene decomposition, combustible dust, runaway reactions, safety systems for reactive scenarios.

Polyolefin Products, Market & Business

- Value/profitability analysis, product slate evaluation and optimization, Product Slate expansion.