eci group

ECI • Simon Carves • ITEC

LDPE & Co-Polymers
Technology Licensing & Engineering

ECI Group is the world's most experienced High-Pressure Polyethylene specialist. We have built plants on six continents over six decades. Our specialist high-pressure technology expertise has benefited over 100 LDPE/EVA plants worldwide. Since 2021, we have licensed 1 million tons of LDPE and co-polymers. Working with key technology providers, we provide full plant life cycle services.

Hybrid HPPE Technology Licensing

- We offer proprietary autoclave and hybrid technology for high-pressure polyethylene.
- The ECI Group design is capable of producing Low Density Polyethylene (LDPE), Ethylene Vinyl Acetate (EVA), Ethylene n-Butyl Acrylate (EnBA) and a range of other acrylate and acid copolymers.

Plant Upgrades & Retrofits

- Technology upgrades and retrofits including Direct Co-monomer Injection (DCI) technology, Reactor Blowdown System (RBS) technology, High-Conversion Autoclave Reactor Extension (HARE™), and more.

Consultancy

- Consultancy services from ECI Group's Subject Matter Experts, including feasibility studies, plant optimization, capacity expansions for all polymer technologies including: Solution phase (LLDPE and elastomers), Gas phase (LLDPE and HDPE) and Slurry phase (HDPE and PP).

Engineering

- Our full service capabilities cover the complete range of engineering disciplines, everything from: process to mechanical (machining/vessels), piping and pipe stressing, plant layout, electrical control and instrumentation, civil and structural.

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.
- Delivered over 100 LDPE/HP co-polymer streams across 6 continents.
- Licensed 1 million tons of LDPE and co-polymer capacity since 2021.

Benefits of ECI Group's Technology

Our technology has been developed from the well-proven ICI autoclave process and is optimized to make use of modern materials, design techniques, standards, and industry best practices for construction, operation, and maintenance.

Our technology offers significant improvements in the product range, reliability, and expandability to the original ICI technology, including:

- **Product Capability:** High-value, high-margin products for a wide range of applications.
- **Product Flexibility:** Multiple product families can be produced on the same line.
- **Capacity Options:** Wide range of capacities ranging from 50kta to 500kta in autoclave, hybrid and tubular reactor configurations.
- **Future Growth:** Expandable in capacity and product portfolio.
- **Modular Design:** Provides advantages in schedule, cost and safety.

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

As well as technology for new-build plants, ECI Group provides specialist consultancy services to the polyolefins sector, delivering technology support and plant optimization services to help you achieve your profitability, safety, and sustainability goals.

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. 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.

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.

Professional Technical Services (PTS)

- 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.

eci group

ECI · Simon Carves · ITEC

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.

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