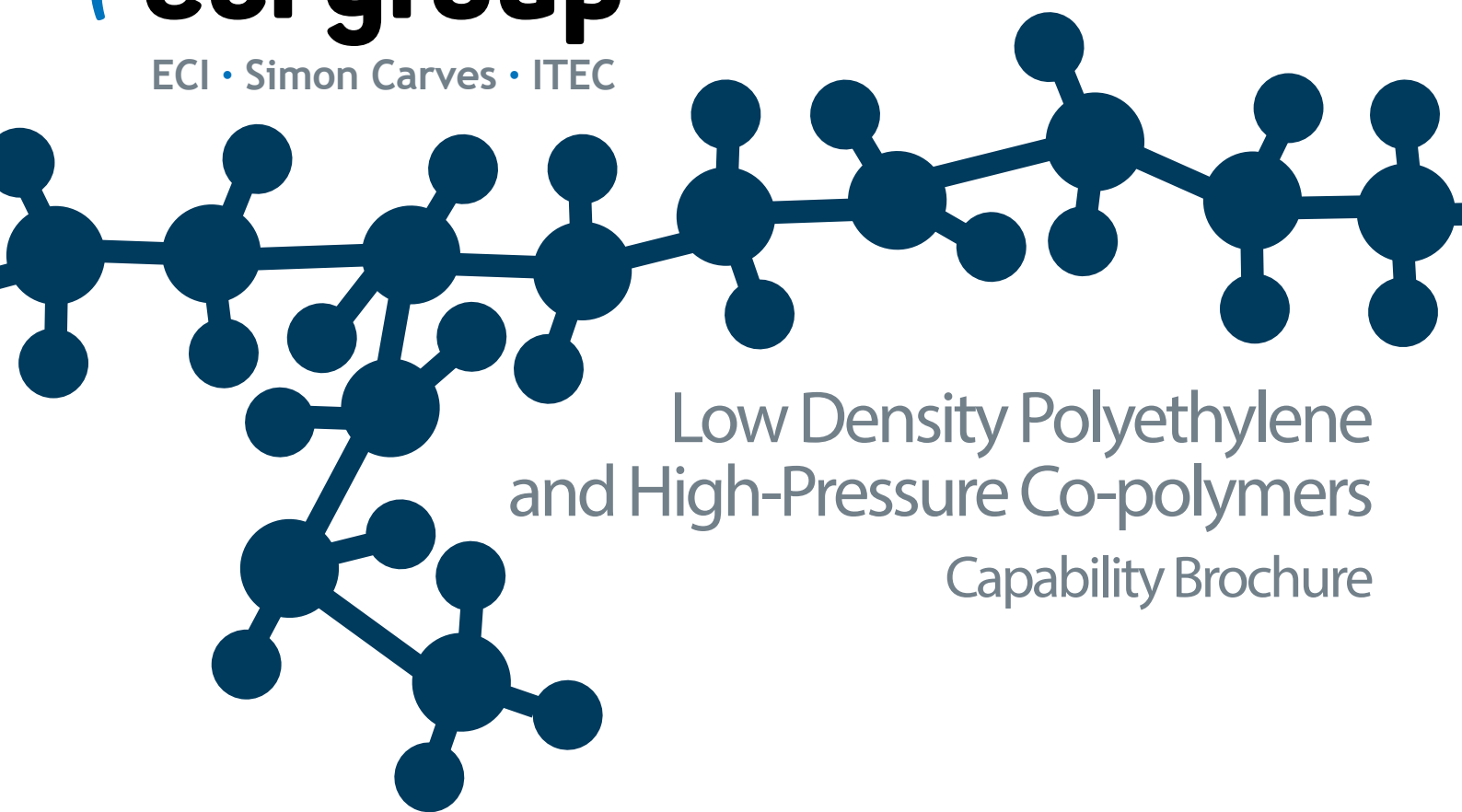




ECI • Simon Carves • ITEC



## Low Density Polyethylene and High-Pressure Co-polymers Capability Brochure

Engineered **40%** of the current global capacity

Executed more than **10** million high-pressure manhours

Delivered **100** LDPE/HP co-polymer streams across **6** continents

When it comes to the design and engineering of Low Density Polyethylene (LDPE) and high-pressure co-polymer facilities, the figures speak for themselves. But beneath the numbers lies experience that spans geographies, cultures, and time zones and builds the foundation for a unique service offering to each client, no matter where you are or what challenges you face.

Our experience and expertise are unrivalled. From a stand-alone process study, to plant lifecycle support, ECI Group provides complete “cradle to grave” solutions that are cost-effective and tailored to your specific needs.

Take a look at what ECI Group can offer you.



ECI Group, comprising ECI, Simon Carves and ITEC, is recognised as the world's leading specialist for LDPE and HP co-polymers.

We have delivered over 100 LDPE/HP co-polymer projects worldwide, and are responsible for more than 40% of the current installed global capacity of LDPE/EVA. In the last 10 years, we have engineered over half of all of the worldscale Plants built globally.

Having executed over 10 million man-hours in High Pressure Polyethylene engineering, we are highly experienced in dealing with high pressures; engineering to design pressures in excess of 3500 bar g.



Our services cover the full project lifecycle, from PDP and FEED, through to EPCm and plant modification projects. In the last few years, we have helped numerous clients to extend their plant life and improve their processes. Working with all major licensed technology, ECI Group possesses a unique insight into best practices across the industry.

We also work with other polymers including:

- Linear Low and High Density Polyethylene (LLDPE/HDPE)
- Polypropylene (PP)
- Polyvinylchloride (PVC)
- Polyester (PET)
- Acrylics and other co-polymers

Our specialist areas of expertise include:

- Conceptual Layout / Planning
- Hyper compressors and drivers
- High-pressure pipework and vessels
- Hazard and pressure relief studies
- SIL assessment and SIF/ESD design
- Reliability improvement
- Capacity increase projects
- Product development support

## Six Continents



## Case Study

### 25% Capacity Increase for LDPE/EVA plant using ICI autoclave technology

Our range of activities included:

- Feasibility study and budget cost estimate, followed by  $\pm 10\%$  project control estimate
- Detailed process design and equipment rating
- Specification and requisition of new equipment
- Detailed design for HP and LP piping, HP and LP equipment, civil and structural, instruments and pressure relief systems
- Re-rating of existing HP vessels using FEA
- Procurement and inspection services



## New Build

ECI Group has worked closely with all major licensors of high pressure tubular and autoclave processes and specialist equipment vendors, and can offer you impartial advice for your plant.

We will work with you at all stages of the project lifecycle, including:

- Technology Evaluation and Selection
- Process Design Packages
- Basic and Detailed Engineering
- Procurement
- Field Engineering
- Operating Procedures
- Operator Training
- Construction Planning and Constructability
- Construction Management
- Commissioning and Startup

We are always fully committed to the successful delivery of your plant, and endeavour to deliver cost savings and schedule acceleration while maintaining high standards of quality and safety.

## Existing Plants

We also provide engineering support to operating LDPE and HP co-polymer facilities. We can help you to extend the life of your plant, debottleneck and increase production capacity, expand the product slate, and improve efficiency. Providing a range of solutions to suit the needs of your plant, we can offer:

- Revamp, modernisation and uprating
- Plant Optimisation and debottlenecking
- Technology retrofits including reactor blowdown, High-Conversion Autoclave Reactor Extension (HARE™), jet pump, etc.
- Conversion from homopolymer to copolymer
- Plant Life Extension and Asset Integrity Studies
- Reliability Assessment and Troubleshooting

We hold the technology for the ICI LDPE processes, and can provide support and assistance with all operational ICI plants. We are also an approved sub-licensor for various improvement technologies. Whatever your operational needs, ECI Group has the expertise to deliver.

## ITEC

International Technical Excellence Center (ITEC) is the Technology division of ECI Group. We provide technology, operational and reliability expertise, using our extensive network of Subject Matter Experts in the multiple aspects of the business, operation, maintenance, quality and product design of LDPE/HP co-polymer facilities.

We can support you with:

- Idea generation for plant improvements
- Technology development and execution
- Operating and product troubleshooting
- Optimisation for energy, material consumption and environmental performance

Beyond the day-to-day operations of your plant, ITEC also offers:

- Training programs
- Technology mentorship for leaders
- Performance benchmarking and analysis
- Root cause analysis
- Grade slate improvements

# Equipment & Spares

Our Procurement department provides services ranging from small replacement parts to large facility redevelopment projects. Our specialists are experienced in procuring equipment of all sizes across a range of sectors. With flexible delivery models, we can provide services on a 'for and on behalf of' basis, or 'pass through' procurement.

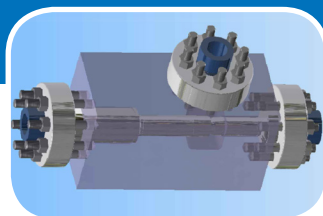
Examples of specialist equipment we have sourced include internals, refurbishments and complete replacements for:

- Compressors
- High-pressure piping, tubing, valves and fittings
- Autoclaves and separators
- High-pressure instrumentation

Our close links to key equipment vendors in the supply chain translate not just to familiarity with equipment and procedures, but tangible savings in cost and schedule.

**For example, on a recent capital project for a North American facility using qualified vendors across the globe, ECI Group realised a net cost saving of 16% for our client.**

As well as sourcing equipment, our experienced personnel can provide Technical and Commercial Bid Analyses, vendor coordination, expediting and inspection services.



## HSEQ

We have delivered 5,000 projects across 75 countries. We pride ourselves on providing innovative solutions to projects across a range of sectors. We are also committed to delivering the latest standards of Health, Safety, Environment and Quality in our operations; striving to protect both the health and safety of employees and the environments in which we operate.


**HSE and Quality are at the heart of everything we do.**

Contact us today to see how we can help you achieve your optimal LDPE/HP co-polymer plant.



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