



POWERING A SUSTAINABLE FUTURE

—
Axens Overview

Axens
Powering integrated solutions

Editorial

In a fast-changing world, societal and environmental issues are shaping the future of countries and companies alike

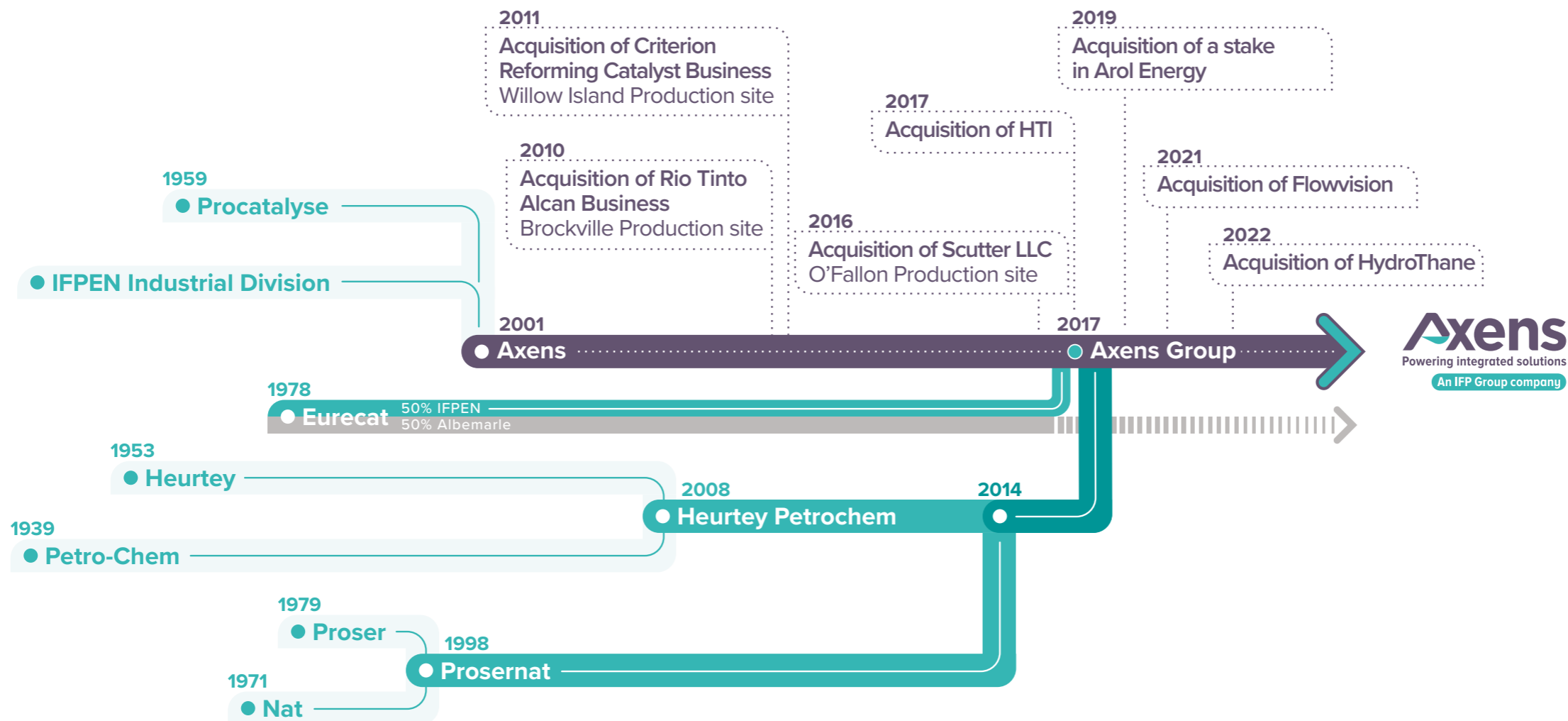


Jean Sentenac
Axens Group Chairman
and CEO

Today, the energy and chemical industries must be responsive and proactive in adapting their assets and operations to contribute to a sustainable future. Our commitment is to deliver a complete offer of inventive, sustainable and economically efficient integrated solutions for cleaner mobility, chemical intermediates production, natural gas and effluent treatment, supporting our clients' environmental and energy transition challenges. To address these challenges, we have taken decisive steps. Thanks to its latest acquisitions, Heurtey

Petrochem and Prosernat, Axens Group is now delivering a broader range of solutions, covering the entire value chain and enabling to enhance the profitability and environmental performance of its clients. Our global offer is based on highly trained human resources, modern production facilities and an extended global network for industrial, technical support and commercial services. Working as one company, we are committed to promoting diversity and to fostering innovation and collaboration in order to create added value for our clients.

Sharing a common culture of trust, safety and customer orientation, we aim to be the preferred partner through multi-specialist integrated offers, inventing and delivering ever more advanced and efficient solutions for a better world.

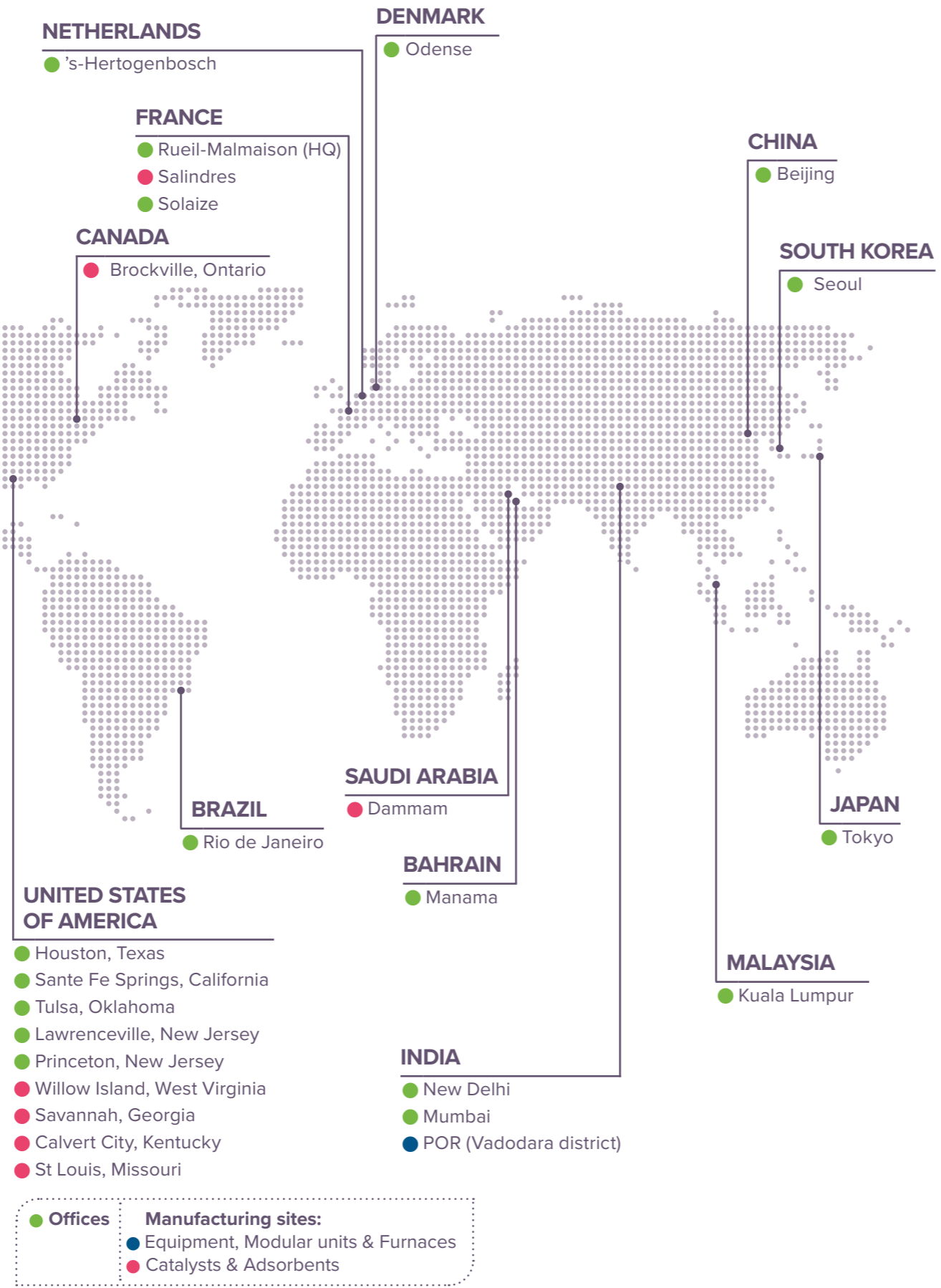


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Powering Worldwide Synergies

Axens capability is backed up by an international network of nine industrial sites all over the world. Relying on this industrial capacity, Axens Group has supplied over 500 modular units and has more than 2,000 process furnaces references, both onshore and offshore. Axens also produces more than 60,000 tons of catalysts and adsorbents each year.



Following the acquisition of Heurtey Petrochem and Prosernat, Axens expands its portfolio of solutions and introduces its new brand architecture, identity and logo.

Prosernat's input reinforces Axens gas treatment technologies and enables synergies between catalysts and technologies.

Heurtey Petrochem's industrial legacy expands Axens offer in the field of process furnaces, which will be developed through synergies with its own technologies, combining them with its energy efficiency and digitalization services.

Thanks to these latest acquisitions, Axens now offers modularization options, providing fully integrated solutions with associated guaranteed process-equipment packages.

Through its 50% stake in the capital of Eurecat, Axens expands its offer to all services dealing with the catalysts management, including catalyst conditioning and regeneration along with reactor loading and unloading operations.

Axens is thus ideally positioned to cover the entire value chain from feasibility studies to the start-up and follow-up throughout the entire unit life cycle.

Axens Group now offers one of the most comprehensive range of solutions with the highest level of performance and a reduced environmental footprint.

The new identity reflects the scope of Axens integrated offer, which now includes a wide range of technologies, proprietary equipment, furnaces, modular units, catalysts, adsorbents and related services.



As a result, Axens introduces 3 new commercial brands:



Powering a Complete Offer

Axens Group is currently active in 5 markets and is recognized as one of the world's foremost suppliers of technologies, products, services and equipment to the Refining and Petrochemical intermediates markets.

For these 5 markets, and through its latest acquisitions, Axens supplies modular units reducing on site works to civil engineering and modules assembly.

Oil Refining



Axens Solutions is recognized as a leader for the production of cleaner fuels, providing hydroprocessing technologies and related catalysts that lower the sulfur levels of gasoline and diesel to figures below 10 parts per million (ppm). Once removed, the sulfur is then recovered by Claus process units, a market segment where Axens has a global reputation combining its historical catalyst business with sulfur recovery technologies for acid gas from refineries inherited from Prosernat. Its expertise covers a wide array of solutions from liquid petroleum gas sweetening to vacuum residue conversion.

Axens offers a complete range of equipment: heat exchangers, reactor internals, trays, desalters, and also process furnaces marketed under Heurtey Petrochem Solutions brand.

Petrochemicals



The petrochemical industry relies upon a wide range of intermediate products and processes to turn source materials into finished goods. Axens Solutions provides technologies, along with class-leading catalysts and adsorbents, for the production and purification of olefins and aromatics.

These petrochemical intermediates are the building-blocks used in manufacturing polymers for industries such as packaging, automotive, electronics and clothing. In the future, global demand for fuels should experience slower growth than the petrochemicals market. Refining and petrochemicals sites will need to be integrated to cope with these market changes and to improve asset profitability.

Reactor internals and trays are part of Axens offer as well as process furnaces for steam crackers, Ethylene Dichloride Crackers (EDC) and for aromatics complexes. Furnaces are marketed under the Heurtey Petrochem Solutions brand.

Gases



Even though they represent different markets, the natural gas sector and industrial gases share a common requirement

for gas purification and treatment. In Natural Gas Processing, Axens Solutions has a long-standing lead in the supply of technologies and performance catalysts.

By combining Axens products portfolio with natural gas treatment technologies, legacy of Prosernat, Axens is ideally positioned to provide all the treatment, purification and drying technologies needed for the production of purified natural gas meeting end users natural gas specifications, including the tightest ones required for Liquefied Natural Gas (LNG) industries. In Industrial Gases and Air Drying markets, Axens is a major supplier of alumina adsorbents used in air separation plants and for compressed air drying systems.

Process furnaces for the syngas and hydrogen markets are offered under Heurtey Petrochem Solutions brand.

Alternatives & Renewables



Axens is a pioneer in the production of renewable fuels and petrochemicals from biomass. Axens Solutions provides technologies converting various biomass sources into high-quality diesel and jet fuel as well as second-generation ethanol, produced from non-edible biomass.

Ethanol can be transformed into bio-ethylene, while further processes enable the production of bio-based butadiene or aromatics.

Axens has also developed solutions for the production of alternative liquid fuels from non-oil resources, such as the Gas-To-Liquids Fischer-Tropsch technology.

Water




Axens Solutions supplies high-performance water treatment adsorbents for three main markets: drinking water, environmental remediation and industry.


For potable water, Axens products are used to remove arsenic and to lower fluoride levels – meeting needs that range from village hand-pumps to bottled water and major urban networks. Axens adsorbents are also used to purify storm water and to treat water used by industries such as manufacturing, Oil & Gas, and mining – removing arsenic, fluoride, copper, zinc, lead, silica, phosphates and nitrates.


Powering Integrated Solutions


Axens Group provides a complete range of solutions for the conversion of oil and biomass to cleaner fuels, the production and purification of major petrochemical intermediates as well as treatment and conversion options for natural gas. The integrated offer includes technologies, equipment, furnaces, modular units, catalysts, adsorbents and related services.


From feasibility studies to unit start-up and follow-up throughout the entire unit life cycle, Axens Group is ideally positioned to cover the entire value chain while ensuring the highest level of performance with reduced environmental footprint.

- 

Over
3,000
industrial units
under license
- 

Over
70,000
tons of catalysts
and adsorbents
each year coupled with
catalysts services
- 

Over
500
modular units
references
- 

Over
2,000
furnaces
references
- 

Offices in
15
countries



Axens SOLUTIONS

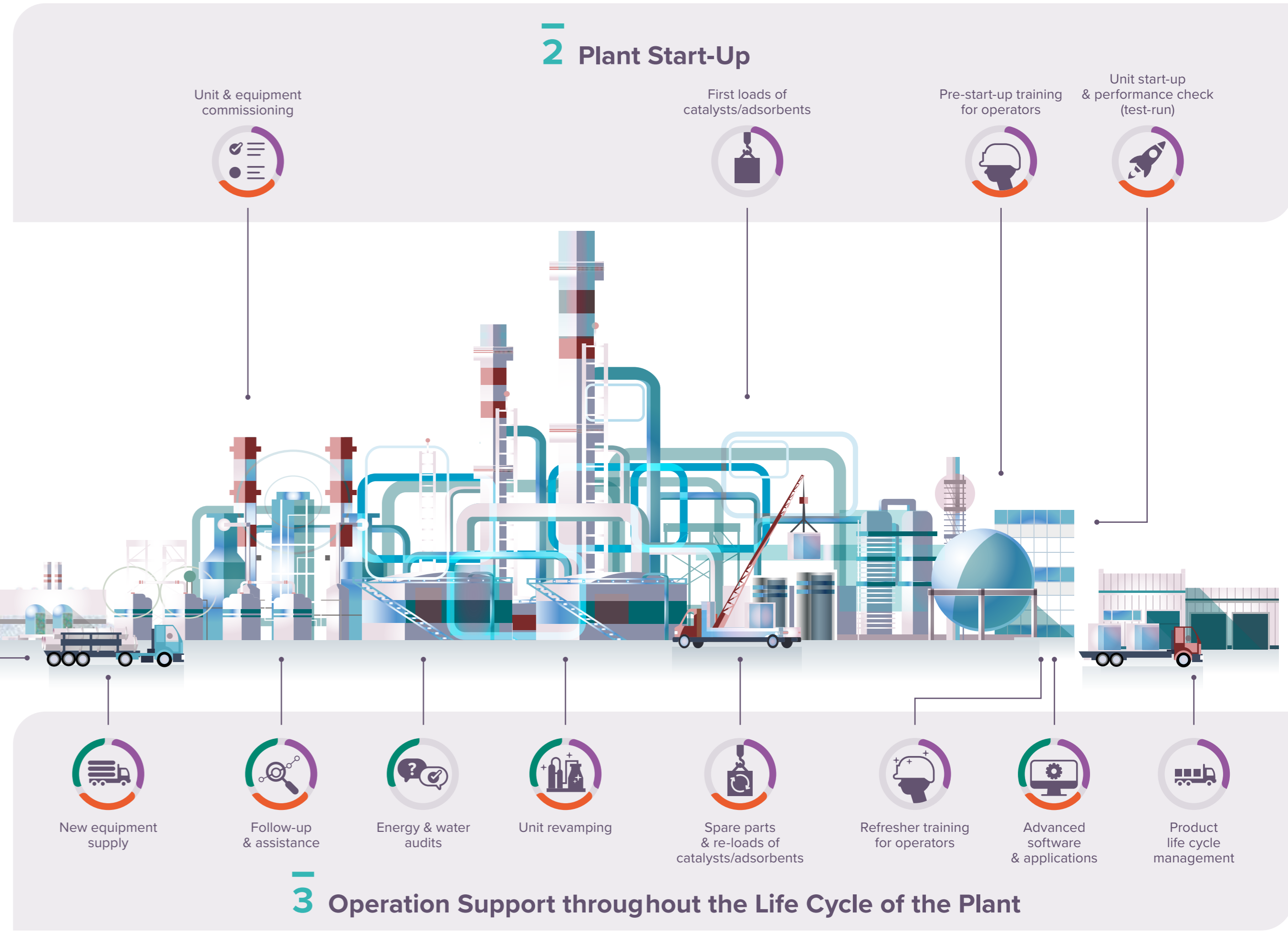
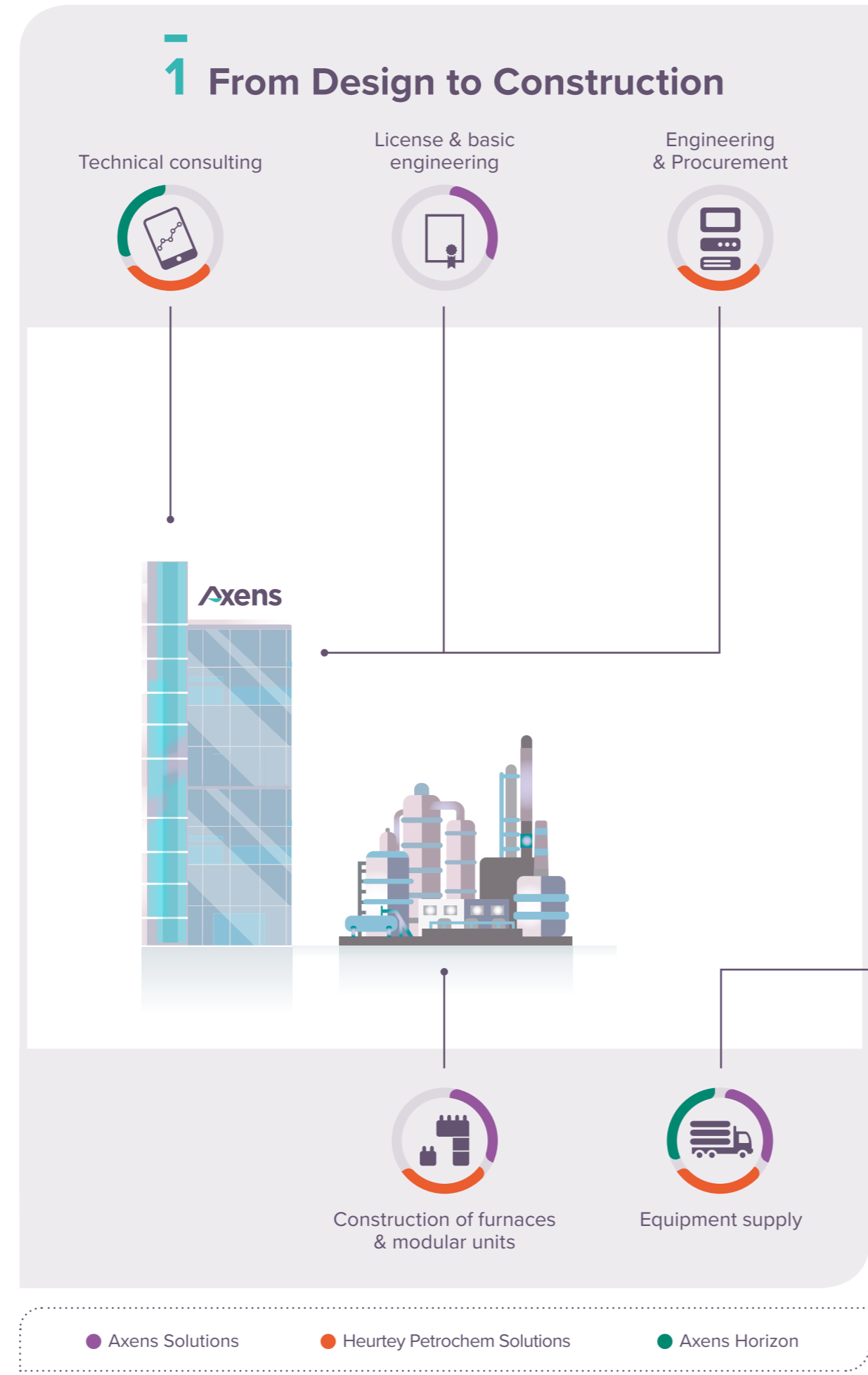
- › Technology Sales incl. Natural Gas Processing
- › Process Design Packages
- › Commissioning, Start-up, Tech. Services
- › Process Licensing Training
- › Equipment, Revamping
- › Modular Units
- › Production & Sales of Catalysts & Adsorbents
- › Technical Proposals and Assistance for Catalysts & Adsorbents
- › Catalyst Management

Heurtey Petrochem SOLUTIONS

- › Process Furnaces: from process design to turn key Engineering, Procurement and Construction
- › Furnace Studies & Revamps
- › Spare parts, Technical Support & Training

Axens HORIZON

- › Audit & Consulting:
 - Asset Optimization
 - Configuration Development
 - Project execution
- › Digital Applications for asset optimization
- › Energy Efficiency
- › Air PreHeaters



Powering Smarter Ways

Axens Group provides added value to its clients by developing new ways of collaboration.

Inventive and tailored solutions

Across its various businesses, Axens Group provides tailored solutions to customer needs and responds, in an agile way, to new requirements and market changes.

Creating a genuine sense of partnership, rather than a more traditional customer-supplier relationship, is at the heart of Axens approach.

Innovative and technological development

Axens Group is continuously striving to develop and improve its technologies and products. Axens Group objective is to provide the market with efficient, competitive solutions, while focusing on safety, reliability and sustainability delivered through a three-fold mission:

› Fostering the process of continuous improvement, through a culture of innovation and inventiveness;

› Taking part in joint Research & Development (R&D) programs with The IFP Group or other partners to address current and future demands, and help industrialize new or improved products;

› Ensuring the consistency and technical excellence of Axens Group methods and tools, thereby ensuring the quality of its solutions.

Digitalization



Always aiming at developing state-of-the-art methods, digitalization is a natural evolution of Axens technical services, which enhances the collaboration between Axens Horizon experts and refinery process specialists for improved unit profitability.

Axens Horizon has developed several digital solutions such as Connect'In™. This secured interoperable digital system combines high-speed data networks and cloud-based systems while meeting the highest standards of cybersecurity. Connect'In™ is a real-time unit-monitoring tool incorporating on-demand, advanced modelling of process performance. It simplifies the monitoring of the units, reduces operational risks, improves decision making thanks to its predictive capabilities, enables a more effective shutdown and turnaround time management and, finally improves performance, reliability and margins.



POWERING SMARTER WAYS

Powering a Sustainable Future

Axens Group offers added value to its clients through the commitment in Corporate Social Responsibility by providing safety for its teams and innovative solutions to minimize environmental impact.

“
We do not compromise safety on our clients' and our own industrial sites.

”
Pierre Planquart
Plant HSE
Manager

Safety, a daily priority

Axens Group is committed as a priority to guaranteeing the safety of its employees, its clients, subcontractors and stakeholders.

Each year, audits on quality, health, safety and environmental aspects are conducted on Axens industrial sites and several indicators are monitored.

Regarding safety on clients industrial sites, new training programs, reviewed safety measures and a better management of personal protective equipment are performed as part of Axens continuous quality processes. They aim at creating a close partnership between Axens clients, employees and subcontractors.

Minimized environmental impact

Axens Group actively and responsibly contributes to addressing environmental challenges for our customers. Axens takes action by improving air and water quality through cutting-edge technologies for cleaner fuels and treatment solutions for gas and water. Reducing greenhouse gas emissions at our clients' industrial sites is possible through a complete range of innovative solutions improving energy efficiency and reducing operating cost. These solutions include software, consulting studies, catalysts and adsorbents offer all along the unit life cycle as well as technologies and process furnaces with high and customized energy efficiency. Moreover, Axens offers technologies processing biomass and reducing GHG emissions.

To minimize the ecological footprint of Axens activities, Axens industrial sites are subjected to natural resource consumption optimization programs (energy, water, raw materials) as well as programs dedicated to atmospheric pollution, effluents and waste impact reduction.

“
The same level of environmental requirements for all our industrial sites.

”
Gilles Fournier
Global Operations
& Transformation
Director

Committed teams

Thanks to passionate and committed teams, Axens Group innovates to answer the numerous expectations of its clients and stakeholders. Attracting diverse talents, promoting fairness and equity, developing and enhancing its employees' skills are the three priority courses of action for Axens Group.



Driving Values

Our values are the foundation for our achievements. They inspire our management policy and guide us in our everyday activities as individuals, as a team and as a Group.



We are inventive

Our clients deserve inventiveness. We endeavor to create synergy between people and between businesses, and we believe in our collective ability to seek out innovative solutions for future challenges.



We pursue excellence

Everywhere we are, in everything we do, we aim for excellence. We strive to constantly deliver high quality solutions with professionalism and dedication in order to succeed with our clients. Enthusiasm and agility power this approach.













We are responsible

We act responsibly, as individuals and as a company, and we are committed to reduce our environmental impact. Everyone's health and safety is always a priority. In a highly competitive world, our code of ethics guides our business.



We promote diversity

We rely on the richness of thought and opportunities that spring from diversity in all its dimensions. We actively promote equal opportunities in the workplace, and encourage trust and openness.

- OIL REFINING 
- PETROCHEMICALS 
- NATURAL GAS 
- BIOGAS & LANDFILL 
- CARBON CAPTURE, UTILIZATION & STORAGE 
- LOW CARBON HYDROGEN 
- RENEWABLE, LOW CARBON FUELS & BIO-BASED CHEMICALS 
- CIRCULAR RESOURCES 
- WATER TREATMENT 
- AIR TREATMENT 

Axens Group provides a comprehensive range of solutions for the conversion of oil and biomass to cleaner fuels, the production and purification of major petrochemical intermediates, chemical recycling of plastics, all natural gas treatment and conversion options along with water treatment and carbon capture. The offer includes technologies, equipment, furnaces, modular units, catalysts, adsorbents and related services. Axens is ideally positioned to cover the entire value chain, from feasibility study to unit start-up and follow-up throughout the entire unit life cycle. This unique expertise ensures the highest level of performance with a reduced environmental footprint. Axens global offer is based on highly trained human resources, modern production facilities and an extended global network for industrial, technical supports & commercial services. Axens is an IFP Group company.