



# The GROUP **The GROUP** Profile • p3 Interview • p4 Corporate Governance • p6 Key figures • p7 8-14 **Our business ACTIVITIES** Energy • p10 Electronics • p11 Chemicals • p12 Transportation • p13 Process industries • p14 **Our STRENGTHS** Global presence • p18 Innovation • p20 Human Capital • p22

# Expertise, our source of energy.

Global expert in materials and solutions for extreme environments as well as in the safety and reliability of electrical equipment, Mersen designs innovative solutions to address its clients' specific needs to enable them to optimize their manufacturing process in sectors such as energy, transportation, electronics, chemical, pharmaceutical and process industries.

2012 SALES OF €811 MILLION
6,800 EMPLOYEES

PRESENCE IN 40 COUNTRIES

Interview with Luc Themelin. Chairman of the Management Board



## Our **solid finances** enabled us to continue investing in our strategic markets |

#### How would you sum up the year?

2012 was characterized by two main factors-a very bleak economic situation in Europe and a sudden standstill in the solar energy market. Despite these challenging conditions, the Group's sales were still in line with the level posted in 2011 on a reported basis and were stable excluding sales in the solar energy market.

What were the key factors that helped lersen to contend with these tough

> The Group continued to implement its strategy, with renewable energies and electronics remaining our strategic markets given their growth potential in the medium to long term. Our global presence remains a major advantage, and it enabled us to post a sales increase in Asia and North America excluding the solar energy market. We also capitalized on the booming aerospace and conventional energy markets. Lastly, we had an excellent year in the chemicals and pharmaceuticals sector, as reflected by the contract

worth several tens of millions of euros signed with Sabic, one of the leading industry players worldwide.

## What is the outlook for the solar energy

After massive equipment purchases in 2011, solar cell manufacturers based predominantly in China sharply slowed down their production in early 2012 to give the market time to absorb the excess inventories that had built up. When they resumed their production in the second half, the antidumping measures kicked in, slowing their solar cell output.

In our view, this contraction will be shortlived, even though it triggered a reduction of 50% in Mersen's sales in this market during 2012. There are definitely some positive signs. Solar panel installations continued around the world, and China is prepared to complete a major domestic installation program during 2013. What's more, the lower cost of solar cells is helping to make this type of energy more and more competitive.

#### Did the Group's profitability hold up?

Our EBITDA margin stood at 14.3% of sales, and our operating margin before non-recurring items came to 9.4%. This was a very decent performance given the business contraction in solar energy and the large contribution by the chemicals business, which generates lower margins than our other markets. The cost-cutting efforts rolled out across the Group from mid-2012 made this possible. We stepped them up in late 2012 to give us the means to continue our expansion. We will continue to trim our costs to consolidate our positions in our markets, so that we are able to capitalize on the recovery as soon as it materializes.

## What consequences will these

We are reducing the size of our workforce on every continent and reorganizing our manufacturing operations in certain areas. In France, we decided to divest of metal boilermaking equipment for the nuclear power market, metal plate heat exchangers, and stirrers & mixers businesses. The depressed economic conditions and the consequences of the Fukushima disaster for the nuclear industry took their toll on these businesses, which posted a negative operating margin and have no prospect of recovery within the Group. Selling them will help our Materials segment focus

on its core business. We will do everything in our power to bring this project to a successful conclusion and to find a buyer that can secure the future and development of these businesses, while effectively protecting the interests of all the stakeholders and especially of its employees.

## Are Mersen's finances still in good

Our ability to look and plan ahead helps to keep our finances solid. During 2012, the Group generated cash flow from operating activities of over €100 million before capital expenditures, which was higher than in the previous year. This enabled us to continue investing in our high-potential strategic markets, capitalizing on our technological lead. What's more, our debt stood at less than half our equity.

#### What are your priorities for 2013?

In a similarly uncertain economic environment to that which prevailed in 2012, meeting the needs of our customers will again be our top priority around the world. Through in-depth analysis of their requirements, we will relentlessly improve our range of products and services and our business processes. Our ability to innovate and the enthusiasm of our teams will help us to seize any opportunities arising to inject fresh impetus into the Group's expansion.

Our global presence remains a major strength

9% of sales generated outside france NET DEBT TO EQUITY RATIO OF 45%





## Management Board

- 1 Luc Themelin: Chairman
- 2 Thomas Baumgartner: Group Chief Financial Officer
- 3 Christophe Bommier: Group Vice President, High Temperatures
- 4 Didier Muller: Group Vice President, Electrical Applications and Chemical Equipment
- Marc Vinet: Group Vice President, Electrical Protection

#### **Executive Committee**

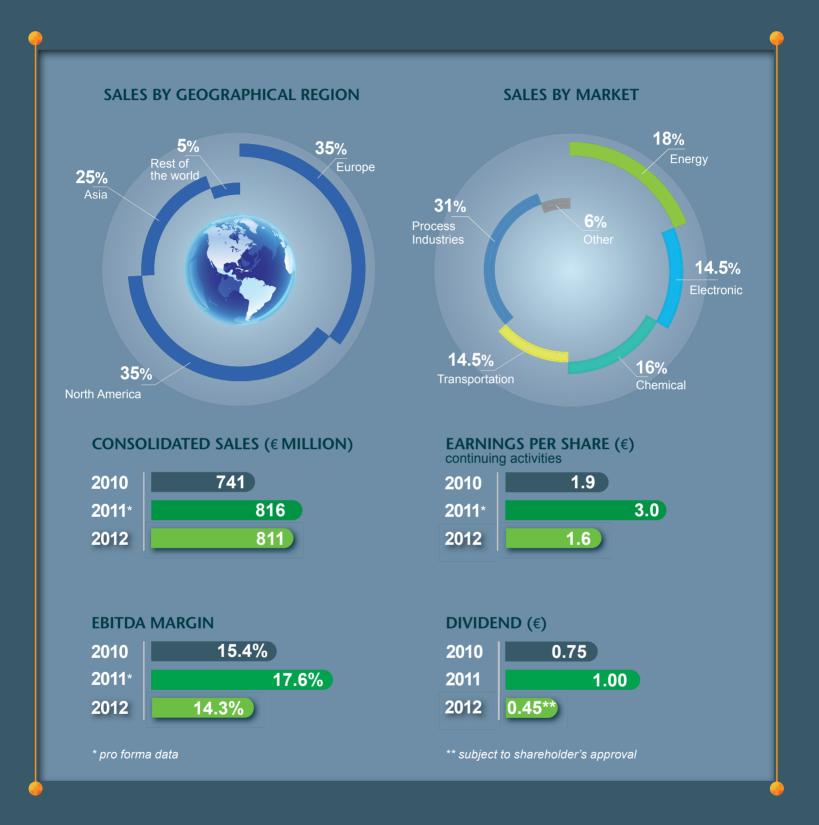
- 6 Thomas Farkas: Group Vice President, Strategy and Development
- Estelle Legrand: Group Vice President, Human Resources
- 8 Jérôme Sarragozi: Group Vice President, Legal
- Charles-Henri Vollet: Group Vice President, Purchasing and Information Systems

## Supervisory Board

Hervé Couffin\*: Chairman Henri-Dominique Petit\*: Vice-Chairman Jocelyne Canetti Yann Chareton Bertrand Finet Dominique Gaillard Jean-Paul Jacamon\* Agnès Lemarchand\* Walter Pizzaferri\* Philippe Rollier\* Marc Speeckaert

Chairman of the Audit and Accounts Committee: Henri-Dominique Petit Chairman of the Appointments and Compensation Committee: Jean-Paul Jacamon Chairman of the Strategy Committee: Walter Pizzaferri

<sup>\*</sup> Independent members



## **ACTIVITIES**



The Group's business activities are built around two **AREAS OF EXPERTISE** in which it holds leadership positions

#### **MATERIALS**

A range of graphite and very highperformance materials (reactive metals, SiC, etc.) geared to meeting the industrial constraints posed by high temperatures and corrosive environments.

WORLD O IN GRAPHITE ANTICORROSION EQUIPMENT WORLD NO2 IN HIGH-TEMPERATURE APPLICATIONS OF ISOSTATIC GRAPHITE

#### **ELECTRICAL**

A range of electrical solutions and services for motors and generators, enhancing the safety and performance of electrical installations and power electronics.

WORLD O IN BRUSHES AND BRUSHHOLDERS FOR INDUSTRIAL ELECTRIC MOTORS

WORLD IN POWER ELECTRONICS PRODUCTS AND SOLUTIONS (FUSES, COOLERS, BUSBARS)

WORLD 1 INDEPENDENT PLAYER IN INDUSTRIAL FUSES

## A top performer in FIVE MARKETS



#### **ENERGY**

Facilitate access to renewable energies and deliver solutions maximizing the efficiency of conventional energies.

#### **ELECTRONICS**

Provide advanced technology solutions for **power conversion** and the manufacture of increasingly high-end semiconductors.

#### **CHEMICALS AND PHARMACEUTICALS**

Supply the chemicals industry with the high-performance systems it needs for its development.

#### **TRANSPORTATION**

Capitalize on the growth in aerospace construction and provide the best power distribution and supply solutions for the rail industry.

#### **PROCESS INDUSTRIES**

Improve the **energy efficiency** of process industries and develop more services.

## Provide solutions for the PRINCIPAL ENERGY SOURCES

A contrasting year in this market.

#### A year of transition for renewable energies

In solar energy, panel installations continued apace during 2012, with growth running at close to 20% compared with 2011. New countries, such as China, the United States and Japan, went ahead with major investment projects in this sector. The fall in cell prices has helped to boost the profitability of solar energy, bringing it closer to grid parity in a number of countries. Even so, structural and cyclical factors weakened this industry currently being restructured, affecting Mersen's sales in 2012.

The Group maintained its positions, thanks notably to its presence in China close to the principal photovoltaic cell manufacturers and the fact that it is their longstanding supplier. It remains confident about the market's mediumterm potential.

Wind energy capacity installed worldwide rose by 15% compared with the previous year in spite of the financial problems facing certain industry players. During 2012, Mersen supplied equipment to the market for new wind turbines, particularly in the United States. The Group is also active in the replacement market, reaping the benefits of its global reach and its customized range of maintenance services. Given the performance of its solutions, the Group was also able to move into offshore wind energy.



#### **SPOTLIGHT**

#### Mersen supplies components for the most powerful offshore wind turbines in the world

REpower, which ranks among the world leaders in wind turbines, selected Mersen to supply signal transmission systems for the Thornton Bank wind farm located off the coast of Belgium. It will feature 48 giant turbines, each with a unit capacity of 6.15 MW. The hybrid systems proposed by Mersen, which represent key components of a wind turbine's electrical system, are geared to the specific requirements of offshore environments and their power imperatives.



#### Solid demand in conventional energies

Mersen is also present in conventional energies, a market that enjoyed upbeat trends. By working together with the leading generator manufacturers around the world (France, Germany, Russia, United States, Japan), the Group was able to design dedicated brushgear systems and to launch projects and prototypes with encouraging prospects. In addition, the Group developed

a testing capability for turbogenerators, enabling it to provide an additional service to its customers.



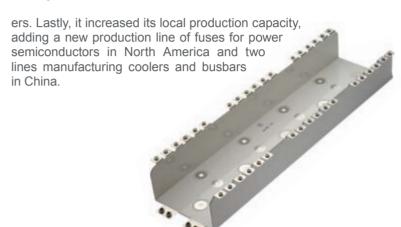
## Design HIGH VALUE-ADDED COMPONENTS

Despite sluggish activity in 2012, the electronics market boasts substantial potential in the medium term.

#### A leading partner with global reach in power electronics

The Electrical segment provides sophisticated voltage surge protection, cooling and busbar systems used in power converters. For example, they are used in the speed drives managing electric motors in industrial and office installations, as well as in grid interconnections. During 2012, Mersen considerably strengthened its position as a leading partner to the sector. Firstly, it extended its product range through the acquisition of Eldre, one of the world's premier suppliers of insulated laminated busbars.

Secondly, it rolled out a network of specialized engineers to bolster its design assistance capabilities and thus enhance the level of service provided to custom-



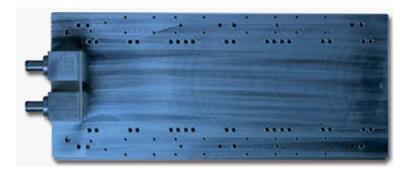
#### Slower demand for semiconductors

Mersen's materials segment supplies high-grade and ultra-pure graphite for the manufacture of semiconductors used in power electronics and LEDs. Mersen combines the quality of its graphite with high-precision machining to maximize yields in the power semiconductor manufacturing process. It can meet the exacting constraints associated with the latest generations of smaller and

smaller components that can support higher and higher voltages. The reduction in semiconductor production by manufacturers as a result of a temporary overcapacity slowed down Mersen's sales in this sector during 2012. Even so, the Group strengthened its positions by gaining market share, especially thanks to its presence in



#### **SPOTLIGHT**



#### A contract with Siemens Energy

Mersen started to deliver the thousands of coolers ordered by Siemens Energy for the European project to develop green energies in the North Sea. The coolers have been customized to protect the converters used to carry the electricity generated by offshore wind farms via subaquatic cables and to connect to the onshore power grids. This project has established the Group both as a key player in the renewable energies market and as a leading partner to the power electronics industry.

# An extensive range of **CUSTOMIZED EQUIPMENT** for the chemicals and pharmaceutical industries

Mersen's business in this market grew significantly during 2012 as it was awarded several large contracts.

#### Development in high-performance plastics

Mersen signed a contract worth several tens of millions of euros with Sabic, one of the world leaders in petrochemicals. Under the contract, the Group is due to deliver critical reactive metals equipment in 2013 and 2014.

This will be used to manufacture high-performance plastic materials-a sector with tremendous potential around the world. The production process employs highly corrosive substances, which need to be handled safely in a manner that protects the environment. Mersen was chosen on account of the quality of its equipment made using advanced materials, its ability to meet a specific need with a customized product and its track record of successfully completing large-scale projects.



#### **SPOTLIGHT**

#### Turnkey systems for the production of chlorinated products

A very large order was received from AkzoNobel for its new chloromethane unit in Germany. Mersen will supply a set of turnkey systems integrated within units producing chloralkali and chloromethane. These products are used in the manufacture of plastics, silicones and synthetic rubber, as well as by process industries (metal-working, pa-



per, textiles, etc.). Mersen was selected on account of the innovative nature of its heat recovery system, which cuts the energy bill for the process.

#### Brisk demand in fertilizers

The market for fertilizers, the manufacture of which requires phosphoric acid production units, continued to expand. Business trends were healthy in the Middle East and North Africa, which is where the majority of phosphate mines are located. Mersen's local workshop in Morocco was able to provide a swift response to demand from Office Chérifien des Phosphates (OCP), one of the region's largest fertilizer and phosphoric acid producers.





#### Opportunities in drilling for shale gas

Mersen benefited from the development of drilling for shale gas in the United States. It logged major orders for turnkey production facilities for hydrochloric acid, which is used in the extraction process for this new source of energy.

## Support the development of MASS TRANSIT SYSTEMS and harness growth in the AEROSPACE MARKET

In 2012, Mersen reaped the benefit of growth in the upbeat aerospace market.

#### A good year in the aerospace sector





#### Despite a market slowdown, Mersen has maintained a strong position in the rail sector

Mersen's solutions are used in both infrastructure and rolling stock. They encompass the distribution of electrical energy (coolers, laminated busbars, fuses, overvoltage protection devices, disconnect switches, brushes and brushholders) and power supply components (current collectors, grounding systems, third-rail shoes, pantograph strips). They draw on the Group's expertise, which is highly respected by the leading manufacturers. The rail construction market was generally sluggish in 2012 as a result of the crisis. Even so, the subway segment recorded growth, while the freight sector held firm.

#### SPOTLIGHT

#### London Underground again places its trust in Mersen

The major contract agreed with London Underground to overhaul motors on its Tube trains made sure that the operator maintained a flawless service during the Olympic Games, when the eyes of the whole world were on the city. Given the quality of service provided and customer satisfaction, the contract was renewed for 2013. This represents a strategically important service for the Group, as it provides it with an opportunity to demonstrate its maintenance expertise to customers, while offering its full range of products.



### Consolidate our position in our **ORIGINAL MARKETS**

Mersen reaped the benefit of growth in emerging markets' industrial sectors.

#### Industrial opportunities in emerging markets



#### **SPOTLIGHT**



#### At the heart of the extractive industries

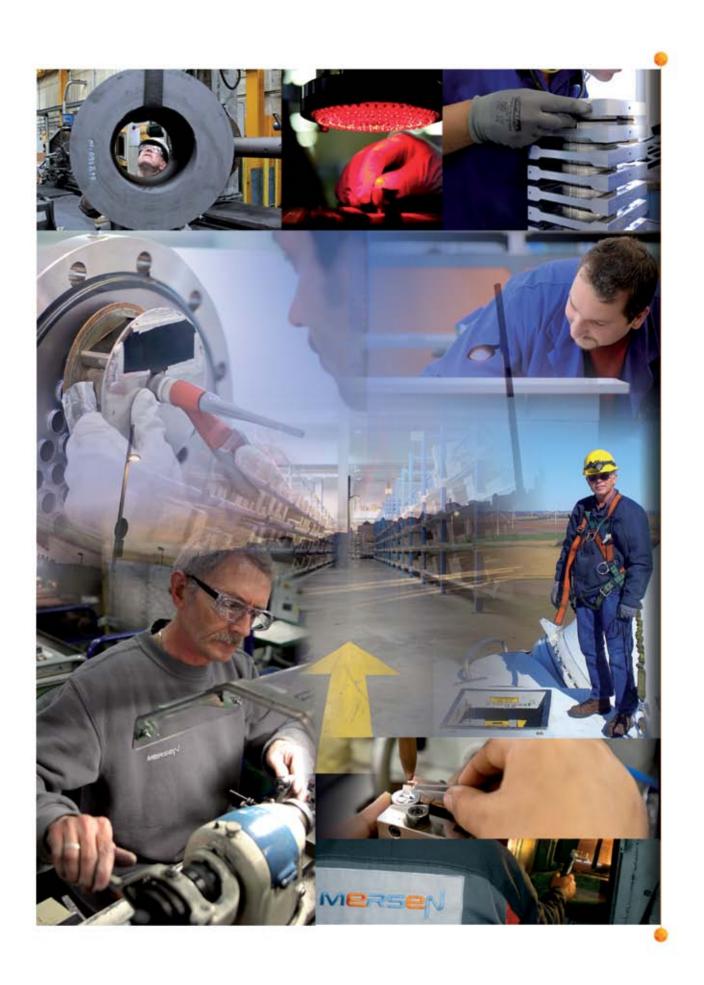
Mersen supplies a very extensive range of (several thousand) graphite components for sintering cutting inserts on drill heads. These small molds are used to sinter the polycrystalline diamond (PCD) and tungsten carbide plates of cutting tools that are used in vast quantities on drill heads. This expertise enabled Mersen to capitalize on the strong demand from the oil and gas extraction industries during 2012, especially in the United States with its quest for energy independence.

#### Strong expansion in services

Mersen has won a series of motor maintenance service contracts in traditional industrial sectors. Numerous assignments were performed in the steelmaking sector during 2012, including for Arcelor Mittal in France and the Benelux countries, Tata Steel in France, Marcegaglia in Italy and Usiminas in Brazil. Development of this type of service is powered by a fundamental market trend. It is the result of the combined effect of a loss

of technical knowledge as maintenance staff retire and a desire to outsource certain services previously carried out in-house. The Group regards its ability to offer a full range of services as a competitive strength. It is also a means of strengthening its relationship with its customers, as services can often lead to purchases of Mersen's products. In addition, the technical training provided to customers has gained traction in several countries, prompting the Group to open a dedicated center at its Bangalore (India) plant.





#### **OUR STRENGTHS**



## **66** Helping to build a future for our customers

"Innovation is a longstanding component of Mersen's culture. The Group is always looking to foster innovation at its six research centers and through its Innovation Challenges. Beside our regular interactions with universities, leading educational institutions and research laboratories, our customers remain our leading partners in innovation. Most of them are leaders in their own industry, and their exacting demands spur us on to take developments to the next level. Our customers also provide us with an opportunity to co-develop certain projects. Above all else, we aim to devise solutions that add value for our customers and stand the test of time. This spirit of innovation fits perfectly with our positioning in high-end specialties.



Thomas Farkas. Group Vice President, Strategy and Development



Estelle Legrand, Group Vice President, Human Resources

## **ff** Harnessing each employee's potential ",

"In a company such as Mersen that has a human touch, the Group's real value derives from all the knowledge and expertise accumulated by its employees. This wealth is predicated on occupational safety, which is a fundamental priority for us. Mersen has thus taken measures to enhance the efficacy of its safety policy based on a specific methodology and experience-sharing. It is also underpinned by the cultural diversity of our teams and their complementary nature at our facilities around the world. The Group benefits from diversity and draws strength from occupational well-being, which fosters engagement, and creativity for all. Lastly, it benefits from our advance planning for changes in our businesses requiring new competencies, giving all employees the chance to upgrade their skills.'



Mersen has built close relationships with the leading industrial companies around the world, with a presence in 40 countries.



Mersen's policy of continuous innovation helps it to meet its customers' expectations.



Mersen seeks to develop its

employees' skills and relentlessly strives to guarantee their safety and their personal development





## Leverage a policy of **CONTINUOUS INNOVATION**

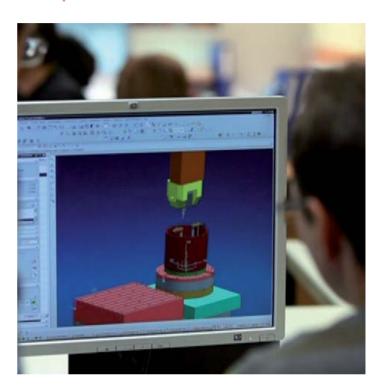
Innovation, which lies at the heart of its development, represents a real source of added value for Mersen. It is enriched by the manufacture of customized products for certain customers in strategic markets.

#### Initiative-taking encouraged across the Group

Innovation lies at the heart of Mersen's corporate culture. Its small number of management tiers and easy access to senior executives help to promote autonomy, initiative-taking and idea-sharing.

In addition to its rigorous technology watch involving the Group's ten or so R&D centers, innovation flows from Mersen's close relationship with its customers and its in-depth knowledge of their priorities. The Group's customers, leaders in their own sector, are its primary partners in innovation. Mersen manufactures customized products for them, and a large proportion of new products stem from their increasingly exacting requirements. They lead to the development of new systems, which may occasionally be developed jointly. Innovation is encouraged through highly motivating events within the Group, such as Development Days and Innovation Challenges rewarding the initiatives with the greatest promise. As well as helping to build a distinctive range, innovation fosters growth.

During 2012, the innovation drive, focused sharply on the markets targeted by the Group, continued in the same vein as in previous years, with two main avenues of expansion: i) developing new products and services fueling growth in strategic markets; and ii) increasing the competitiveness of the products sold by the Group's core businesses.



#### **SPOTLIGH**1

GreenEye, a system making photovoltaic installations safer Mersen has developed a safety

system providing additional protection against fires at photovoltaic installations and protecting staff against the risk of electrocution. GreenEye is an electronic card providing an individual circuitbreaker in each photovoltaic module. It can be supplied in a separate box or built directly into the junction box located on the back of photovoltaic modules. It complies with the latest safety standards that will soon enter force in various countries. In the event of an emergency shutdown, the photovoltaic modules do not deliver any voltage or current.

The GreenEve module provides total safety during the assembly of photovoltaic installations, during maintenance operations or in the event of a fire. It is an improvement to the concept of the smart solar panel developed by Mersen which includes innovative solutions allowing real-time monitoring of each photovoltaic installation module. All these features help increase control, profitability, reliability, security and modularity of the photovoltaic installations and consequently reduces their maintenance cost in the long run.

**Thierry Arnaud** 



#### INNOVATION CHALLENGE

## Superior wind energy generator performance delivering more competitive energy

Every year, Mersen holds an Innovation Challenge, which rewards the best projects devised by its Research and Development teams. In 2012, the two main prizes went to innovations that aim to improve the performance of the generators installed in wind turbines.

A circular busbar for generators has been developed. This is a unique, customized busbar that can replace a series of cables on generator motors. This innovation helps to save space, shorten assembly times and eliminate wiring errors, while enhancing generator reliability. Mersen is the first group in the wind energy market to offer this solution. It provides a boost to the performance of motors, severely reduces raw material costs and cuts assembly times.

A new brushholder system for existing wind turbine generators has been developed. Thanks to a customized design based on the existing system, it can enhance the performance of brushes and also the generator's efficiency. In addition, it meets specific constraints to facilitate future maintenance.



#### **SPOTLIGHT**



#### Next generation of solar kilns

Mersen has linked up with two other French businesses to equip kilns at a new solar cell plant built in Kazakhstan. ECM Technologies has developed the next generation of high-capacity kilns for the crystallization of silicon. Vesuvius produced the crucibles into which the silicon melts, while Mersen provided the graphite support plates for the crucibles, which are needed to limit silicon defects.

#### New high-tech materials to manufacture electronic chips

The wafer production processes used to manufacture electronic components need to be adapted to the latest requirements and advances in technology. In particular, they need to be able to withstand the very high temperatures and highly corrosive conditions associated with epitaxy, which consists in growing a thin crystalline layer on the wafer. To this end, Mersen has developed graphite components coated

> with new materials, including ultra-pure tantalum carbide (TaC). This new equipment can withstand the epitaxy process for several

hundred hours.

## Helping teams to **ACHIEVE THEIR FULL POTENTIAL**

Human resources are a priority for Mersen. The Group supports the development of each of its employees, while promoting diversity and mixity.

#### Advance planning for changes in jobs

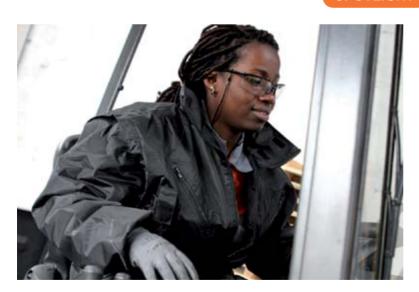
Through its Human Resources plan, Mersen continued its efforts to build a strong corporate identity. This year again, the Group took into consideration both the needs of the divisions and its emplovees' expectations, while giving managers crucial visibility on the changes to be implemented. The Group is constantly changing and has planned ahead by identifying the skills it requires for its future development. At the same time, employees catalogued the likely changes in their jobs so that they themselves can make the necessary adjustments to their own skill set.

Each division prepared the annual assessment of the skills that it will need in the coming years. This review was based on the

new reference job framework produced in 2012. It identifies reference jobs common to all the divisions across each of the nine functions, i.e. sales and marketing, business, R&D, industry, industry support, purchasing, information systems, human resources/safety and security/general services, and finance/legal. This mapping of jobs is used to fine-tune recruitment and training policies, deliver consistent personnel management based on employee contributions and facilitate competency development and career path manage-



#### **SPOTLIGHT**



#### Constant improvements in mixity

Mersen has clearly identified mixity as a priority area for improvement. It has created real momentum by consistently implementing a series of measures since 2009, including recruitment, career path planning, communication, efforts to raise awareness of the importance of this issue among managers, compensation, measures aimed at reconciling the demands of parenthood with professional life, and creation of a Women's Network. The proportion of women managers increased from 13% at year-end 2008 to around 18% at year-end 2012.

After graduating from the Ecole Polytechnique and MIT and then spending five years with Areva in France and the United States, I joined Mersen in 2012. I took over responsibility for the graphite operations at the Pagny-sur-Moselle chemical engineering plant. Our graphite and boilermaking equipment workshops manufacture heat exchangers and columns for major customers in the chemicals industry. I run a highly motivated team that oversees seven workshops and around a hundred staff. I was attracted to the Mersen group because of its market positioning, its reputation and its size, which make it such a dynamic and flexible organization. My aim is for us to make progress together on all our various tightly controlled projects so we are able to meet our customers' expectations more effectively, and I will devote all of my skills and energy to my teams to achieve this goal.

Marie-Anne Brudieu



## **HEALTH** and **SAFETY**, major priorities for Mersen

Safety, better working conditions, and the prevention of psychosocial risks and occupational stress represent a fundamental part of the Group's social policy.



#### Firmly anchored by its STRONG ROOTS



Mersen Deutschland Holding GmbH & Co. KG celebrated its 115th anniversary at Frankfort-am-Main (Kalbach). Under its former name of Deutsche Carbone AG, it made it through two world wars without any changes in ownership and has steadily expanded its international footprint over the past decade. The plant manufactures graphite brushes and brushholders.

The Pagny-sur-Moselle facility recently celebrated its 120th anniversary. Originally set up to manufacture lamps, the company changed its name to Compagnie Lorraine des Charbons pour l'Electricité, then merged with Le Carbone to form the Carbone Lorraine group, which has since been renamed Mersen. Now devoted to anticorrosion equipment, the plant held an open day to mark the anniversary, which was attended by local dignitaries and officials, with the Group's active and retired employees playing a major role.







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