



**ERAMET**

ALLOYS, ORES AND PEOPLE.



# LOOKING AHEAD

ANNUAL  
REPORT  
2017

**E**RAMET is one of the world's leading producers of:

- manganese and nickel, used to improve the properties of steels, mineralised sands (titanium dioxide and zircon),
- parts and semi-finished products in alloys and high-performance special steels used by industries such as aerospace, power generation, and tooling.

A global player with presence in 19 countries, ERAMET draws on high-quality mineral reserves from Gabon to New Caledonia, world-class research & development, high-performance industrial assets and outstanding expertise.

ERAMET has begun a strategic and managerial transformation. The aim is to unleash energies, regain competitiveness in a changing environment and create lasting value for all stakeholders. Digital transformation across all activities is a key driver of this momentum. In this framework, the Group aims to establish itself on the energy transition market. To do so, it is developing projects to produce strategic metals that are crucial to tomorrow's applications, as well as virtuous recycling solutions.

# 06

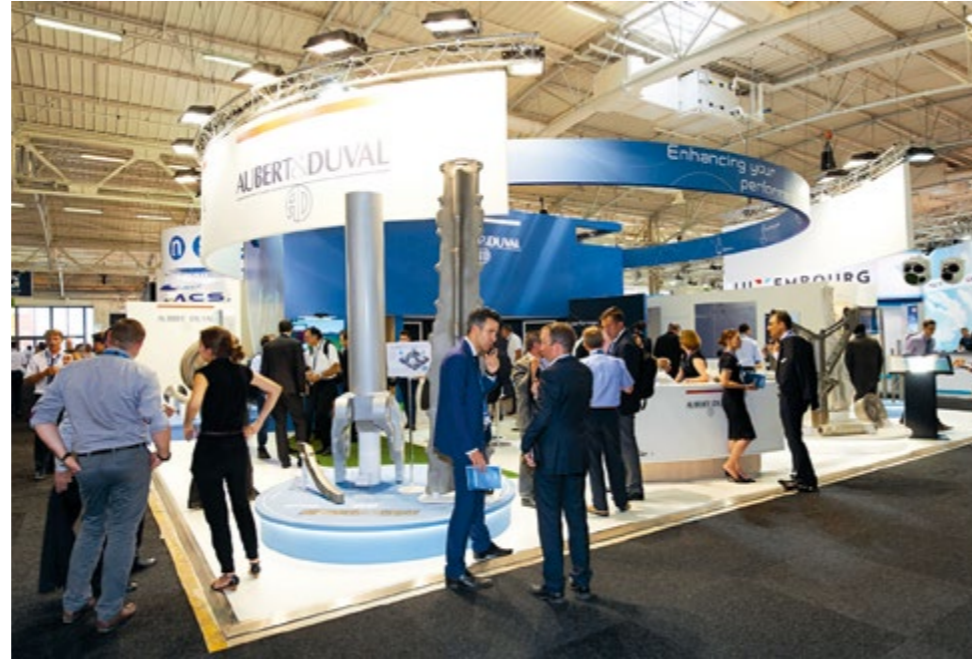
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Chairman & CEO,  
ERAMET group

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FIND OUT MORE AT  
[WWW.ERAMET.COM](http://WWW.ERAMET.COM)



**CHRISTEL**  
 RALLYING TO  
 MAKE ERAMET  
 A BENCHMARK  
 IN THE INDUSTRY  
**BORIES**  
 CHAIRMAN & CEO, ERAMET

“  
**ON EVERY LEVEL  
 I SEE PEOPLE  
 WITH GOOD  
 INTENTIONS  
 AND THE DESIRE  
 TO PROGRESS.”**  
 —

**You joined ERAMET in February 2017. What’s your view of the Group?**

— **Christel Bories**: ERAMET has solid foundations. Skills and know-how are outstanding in several technical areas and teams are highly committed. People are very attached and loyal to the company and full of good intentions. ERAMET’s mining and industrial assets are its other strength. The Group mines extremely valuable deposits: today in Gabon, New Caledonia and Senegal, tomorrow, in Indonesia and Argentina. And our industrial assets position us across the entire metals value chain from extractive metallurgy to processing. But I also see that we must transform the company’s strategic vision and management culture. The raw materials supercycle in the 2000s concealed structural problems stemming from a lack of competitiveness and anticipation. We must put this right today to establish lasting performance.

**Yet ERAMET is doing well today?**

— **C. B.**: 2017 marked a key step for the Group. The rise in manganese and, to a lesser extent, nickel prices, together with productivity efforts, led to significant improvement in our financial results. EBITDA increased sharply to 871 M€ compared with 375 M€ in 2016 and the year’s current operating income totalled 608 M€, compared with 84 M€ in 2016. The Group’s debt decreased significantly and its financial liquidity improved, totalling €2.8 billion, thanks to a successful €500 million bond issue in September 2017. ERAMET’s financial situation is healthier and the Group has been generating cash for three semesters. This return to health is reflected in an excellent stock market trend, with the share price increasing 76% in 2017! That great success was crowned by ERAMET stock’s return to the SBF 120 index.

**What are the other positive points of the year?**

— **C. B.**: Buoyed by economic conditions, ERAMET took full advantage of vibrant markets and higher metal prices, particularly manganese, which was driven by stainless and carbon steel demand. The Group also achieved its operating goals. First on safety, with a 24% decrease in accidents, with or without lost time. I’ll also mention the SLN 2018 performance plan, which reduced the company’s cash cost to 4.5 USD/lb, the goal set for the end of 2017, which represents an almost 25% decrease from the end of 2015. This was a major objective and we owe it to the unflagging efforts of SLN’s people. Another major success was COMILOG setting an all-time record with the production of 4 million tons of manganese ore in 2017. For the first time in several years, Erasteel broke even on its historical scope, high speed steels. These achievements show that ERAMET is on the right track to turn the long-term trend around.

“  
**IN 2017, ERAMET  
 TOOK FULL  
 ADVANTAGE  
 OF MARKETS’  
 REGAINED  
 VITALITY.”**  
 —

“

I VIEW OPERATING EXCELLENCE IN ALL OUR ACTIVITIES AS KEY TO THE GROUP'S FUTURE.”

—

### With this repositioning, is ERAMET back on solid ground?

— C. B.: 2017's results benefited from very high manganese prices, but these favourable conditions won't last forever. Even if we've regained some financial leeway, we still have a lot to do to come out of the next downturn safely. The performance of several assets remains insufficient and turning them around is our priority. This is the case for SLN, where the performance plan has been stepped up to reach a cost price of 4 USD/lb by the end of 2020, but also Aubert & Duval and Erasteel. I view operating excellence in all our activities as key to the Group's future.

### Why does ERAMET need to transform?

— C. B.: The world is transforming around us, rapidly and radically. We have to transform too, in terms of strategy and management, to adapt and, wherever possible, anticipate changes. ERAMET belongs to a traditional industry with long cycles, heavy assets that structure the business, proven technologies and long-established ways of doing things. That makes it difficult to challenge ourselves, at the risk of being overtaken by newcomers... Who would have bet that nickel pig iron (NPI), a product that almost didn't exist 10 years ago, would account for 25% of global demand today? So transformation is vital and digital tech is at the centre of that process today.

### What does this transformation involve? For what purpose?

— C. B.: This transformation supports an ambition: create a portfolio of value-creating mining and metallurgical activities to be among the best in our sectors in terms of performance and profitability. ERAMET wants to be recognised for its strategic model, management and social commitment.

To do so, we're leveraging a new strategic vision and a managerial transformation program called NeWays. A good strategy is useless if we don't create the right conditions internally for its successful execution. Strategy takes us 20% of the way there; execution takes us the remaining 80%. With NeWays, we're aiming for managerial and operational excellence on every level of the organisation. The program was launched in September 2017 to enable the Group to unleash its potential. It has 3 pillars: 1) new ways of organising, 2) new ways of managing and, 3) new ways of working. The aim is to create an agile, empowering organisation that learns and is open onto the world. NeWays is a change of corporate culture and mindset that should enable us to achieve profitable, sustainable performance.

“

THE COMPANY IS IN A MUCH BETTER SITUATION THAN TWO OR THREE YEARS AGO, BUT THERE'S STILL A LOT TO DO FOR IT TO DEVELOP.”

—

“

NEWAYS IS A CHANGE OF CORPORATE CULTURE AND MINDSET.”

—

### What are the main lines of the Group's new strategic vision?

— C. B.: ERAMET's strategy is structured along three main lines. First, turn around or reposition our lowest-performing assets. This is the case of Erasteel, Aubert & Duval and SLN, as I already mentioned. Secondly, seek organic and/or external growth in attractive businesses, like manganese ore, by consolidating our positions in Gabon and acquiring new assets. Third, broaden our portfolio by developing on high value-creating sectors, like metals for energy transition including lithium, cobalt and nickel salts. ERAMET has considerable scientific, industrial and commercial strengths in these metals, which are crucial to electric mobility for the future, for example lithium-ion battery production. This redeployment will enable ERAMET to diversify its asset base both geographically and financially, and absorb cycle troughs more easily. Operational excellence and managerial transformation are our levers for implementing this strategy.

### How is digital transformation important for ERAMET?

— C. B.: The digital revolution is a game-changer. We've seen it in services and commerce. It's true for industry too. The growth of accessible and affordable tech enables small players to play in the big league. It substantially improves performance and is changing our businesses in depth. From drones that monitor our mines and smart sensors that track metal melting in furnaces, to self-driving vehicles and tablets for maintenance operators, digital tech is a source of safety, efficiency and responsiveness. So a few months ago, I launched a program to move towards factory and mine 4.0. A purpose-built organisation is centred on a Group-level team in charge of digital transformation, in liaison with managers on our sites.

These teams are tasked with speeding up ERAMET's transformation to support value creation, driven by the company's men and women every day. I'm confident that the Group's people can meet these key challenges for our success.

“

THE DIGITAL REVOLUTION IS CHANGING THE GAME AND TRANSFORMING OUR BUSINESSES IN DEPTH.”

—

**A NEW CHAIRMAN & CEO**

2017 was a year of change in the Group's governance. The movement began with the appointment of Christel Bories as Delegate CEO in February 23<sup>rd</sup>. Following the Shareholders' General Meeting on May 23<sup>rd</sup>, 2017, she became Chairman and Chief Executive Officer, in succession to Patrick Buffet, who managed the Group for 10 years. Drawing on her extensive industrial experience, Christel Bories' mission is to start a new cycle of growth for ERAMET.

**EVOLUTION OF BOARD OF DIRECTORS**

ERAMET's Board of Directors has two controlling shareholders, the Duval family and the French state, as well as state stakeholders in New Caledonia and Gabon. In 2017, the Board changed its rules & regulations and reformed the organisation and workings of its specialised Committees, redefining their scopes. The Strategic Committee became the Strategic & CSR Committee, the Compensation Committee became

# A NEW TEAM FOR A NEW MOMENTUM

**A RENEWED EXECUTIVE COMMITTEE**

Following its extension in May 2017 to include Philippe Gundermann, Vice-President Strategy & Innovation, and Jean de L'Hermite, General Counsel, the ERAMET Group's Executive Committee was renewed in the first quarter of 2018. Philippe Vecten, Mining Divisions CEO, retired in March 31<sup>st</sup>, 2018 after a 20-year career in the Group. Kleber Silva, previously head of iron ore and coal at ArcelorMittal, took over from him. Jérôme Fabre, previously CEO of SLN, takes on the role of Deputy CEO for the Alloys division. Bernard Laflamme succeeds him at SLN. This renewal makes the Executive Committee more international and enhances a strong sign that the Group is starting a new chapter.

the Compensation & Governance Committee, and the Audit Committee was renamed the Audit, Risk & Ethics Committee. Finally, gender balance on the Board of Directors improved further with the arrival of female independent directors.

**CHANGES ON SLN'S BOARD OF DIRECTORS**

2017 was also a year of change at the head of SLN's Board of Directors. Dominique Katrawa's appointment as its Chairman continues a movement that began several years ago to anchor SLN more firmly in its host territory, where it is a major economic player. Having a New Caledonian at its head reflects SLN's reality and its specific identity.



(1) Until March 31<sup>st</sup>, 2018 – (2) Since April 1<sup>st</sup>, 2018.

- 1 Christel BORIES**  
Chairman & CEO, ERAMET
- 2 Michel ANTSELEVE**  
Special Advisor to the President of the Gabonese Republic
- 3 Christine COIGNARD**  
Managing Partner, Coignard & Haas GmbH, strategy & development consultants (independent director)
- 4 Georges DUVAL**  
CEO, SORAME and CEIR
- 5 Édouard DUVAL**  
Chairman, SORAME and CEO, CEIR

- 6 SORAME, represented by Cyrille DUVAL**  
CEO, SORAME and Chairman, CEIR
- 7 CEIR, represented by Nathalie DE LA FOURNIÈRE**  
Chief Financial Officer, Agence d'Urbanisme et d'Aménagement Toulousaine Urbaine
- 8 Marie-Axelle GAUTIER**  
Public & Mining law cluster manager, ERAMET Group Legal Department - director representing employees
- 9 FSI-Equation<sup>(1)</sup>, represented by Bruno VINCENT**  
Director, Energy Investments, Agence de Participations de l'État

- 10 Jean-Yves GILET**  
Chairman, Gilet Trust Invest
- 11 Philippe GOMES**  
Member of Parliament for 2<sup>nd</sup> constituency, New Caledonia
- 12 Manoelle LEPOUTRE**  
Senior Vice President Civil and Society Engagement, TOTAL (independent director)
- 13 Miriam MAES**  
Chairman, Foresee, Sustainable Development and Enterprise Energy Management Consultancy (independent director)

# BOARD OF DIRECTORS

as on 31/12/2017

- 14 Pia OLDERS**  
Deputy Risk Manager, ERAMET Group Insurance & Risk Management Department - director representing employees
- Ferdinand POAOUTETA**  
Special Advisor on Mining Matters to the Chairman of Northern Province, New Caledonia

- 15 Catherine RONGE**  
Chairman of Weave Air, strategy consultancy (independent director)
- 16 Sonia SIKORAV**  
has held executive, strategic and purchasing management offices in various industrial groups (independent director)

- 17 Claude TENDIL**  
Chairman of the Board of Directors, GENERALI IARD (independent director)
- 18 Antoine TREUILLE**  
Chairman, Charter Pacific Corporation

## WORKS COUNCIL DELEGATE

- 19 Jean-Philippe LETELLIER**

## HONORARY CHAIRMAN

- Yves RAMBAUD**

(1) FSI-Equation is held by the French state (APE).



# 2017, A DECISIVE YEAR FOR ERAMET

On a buoyant metals market, particularly for manganese, ERAMET stepped up its transformation on every level and in every activity. With renewed governance, new facility openings, a production record and vibrant share prices.

## FEBRUARY

### CHRISTEL BORIES APPOINTED

ERAMET's Board of Directors appointed Christel Bories as the Group's Deputy CEO. On May 23<sup>rd</sup>, 2017 she took over from Patrick Buffet as ERAMET's Chairman & CEO. With recognised experience in industry, particularly the metals sector, Christel Bories' mission is to take ERAMET into a new growth cycle.

## MARCH

### HEALTHY MARKET FOR MANGANESE ORE

2017 saw a sharp rise in manganese ore production against a backdrop of record carbon steel production. After fluctuating in the first quarter, manganese prices began an upturn in March 2017. They averaged 5.97 USD/dmtu (Mn CRU CIF China 44%), compared with 4.30 USD/dmtu in 2016.

**5.97** USD/  
dmtu

Average manganese ore price in 2017



## MAY

### LES ANCIZES ATOMISING TOWER STARTS UP

The superalloy powder atomising tower in Les Ancizes (Puy-de-Dôme, France) came on stream in May 2017. This new production capacity positions Aubert & Duval as a leading player in alloy powders. The company is able to meet the market's growing needs, particularly in the aerospace sector with applications like Rafale engines.

## JUNE

### WEDA BAY FRAMEWORK AGREEMENT SIGNED

A world-class Indonesian nickel deposit in terms of both size (estimated reserves 9.3 MT) and ore quality, Weda Bay, acquired by ERAMET in 2006, has great growth potential. To develop the site, ERAMET entered into a framework agreement with the Chinese group Tsingshan, the world's leading stainless steel producer in June 2017. The aim is to make highly competitive nickel ferroalloy, with the first sales planned for 2020. ERAMET will hold a 43% share and Tsingshan 57%.

**9.3** million  
tons

Estimated nickel reserves in Weda Bay



## JUNE

### AUBERT & DUVAL PAMIERS CELEBRATES BICENTENNIAL

10 years after its last open days, the Pamiers site repeated the experience for its 200<sup>th</sup> anniversary. The first day was given over to the inaugural tour by institutional visitors and partners, who joined employees for a celebration in the evening. The next day, personnel showed their families and the public around the operating plant's different professions and workshops through the site's industrial history.

## JULY

### AIRBUS HELICOPTERS BEST SUPPLIER

Aubert & Duval was elected Best Supplier 2016 by Airbus Helicopters at the Paris Air Show. This trophy rewards its technological and industrial know-how and service quality in supplying forged and closed die-forged parts and bars.



## SEPTEMBER

### INAUGURATION OF ECOTITANIUM

In Saint-Georges-de-Mons (Puy-de-Dôme, France) on September 15<sup>th</sup>, 2017, in the presence of Mr. Benjamin Griveaux, French Deputy Minister of Finance, ERAMET inaugurated Europe's first production plant for aviation-grade titanium from recycling. EcoTitanium makes alloys from solid titanium cuttings and scrap, collected from the major aircraft manufacturers and their subcontractors. This is the final link in the integrated titanium chain developed by Aubert & Duval. The European Investment Bank (EBI) granted a 30M€ loan to support this environmentally responsible stream.



SEPTEMBER

**SUCCESSFUL BOND ISSUE**

ERAMET successfully closed its €500 million bond issue that matures in February 2024. Completed in a context of low rates, the issue reflects investors' confidence in the Group's growth and prospects, and further strengthens ERAMET's robust financial liquidity.

**500** M€

Amount of bond issue



NOVEMBER

**CHANGE IN GOVERNANCE AT SLN**

Société Le Nickel's Board of Directors unanimously appointed Dominique Katrawa as Chairman on November 16<sup>th</sup>, 2017 in Nouméa. This appointment is in line with the evolution of governance in the ERAMET Group's New Caledonian subsidiary. Dominique Katrawa, who joined the ERAMET group in 2007, is the first New Caledonian at the head of a leading company in the territory.



DECEMBER

**VIGILANCE PLAN FORMALISED**

In line with the new obligations of the French laws Sapin II (anti-corruption and influence peddling) and Devoir de Vigilance (prevention of social, environmental and governance risks), ERAMET worked with specialists to set down its Vigilance Plan, to be rolled out in 2018.



DECEMBER

**MORE THAN 4 MILLION TONS**

That's the volume of manganese ore mined in Moanda and transported to Owendo port, Gabon. It's the highest volume since the activity began in 1962. This record rewards the performance of COMILOG's mining teams and SETRAG's logistics teams. And the goal was achieved with improved safety results.



DECEMBER

**ERAMET BACK IN SBF 120**

Rising from €56.40 on January 1<sup>st</sup>, 2017, ERAMET shares ended the year at €99.10. With the increase in its float and a market capitalisation over €3 billion, ERAMET returned to the SBF 120, the index that lists the 120 biggest stocks on Euronext Paris by liquidity and capitalisation.



DECEMBER

**SLN CASH COST GOAL ACHIEVED IN FULL**

SLN's productivity plan came to fruition, enabling the company to achieve a cash cost of 4.44 USD/lb in the second half of 2017, in line with the 4.5 USD/lb\* target under the SLN 2018 plan.

\*At constant economic conditions (early 2016).



**4.5** USD /lb

Cash-cost target in the SLN 2018 plan



OCTOBER

**AFRICAN ART SPONSORSHIP**

ERAMET sponsored "LES FORÊTS NATALES", an exhibition of Atlantic Equatorial Arts at Musée du Quai Branly - Jacques Chirac from October 3<sup>rd</sup>, 2017 to January 21<sup>st</sup>, 2018. 100,000 visitors were able to see 325 works that were brought together in the same place for the first time. This sponsorship follows the Group's support of the exhibition "KANAK, l'Art est une Parole" in 2013.



NOVEMBER

**EHS SEMINAR**

"New Challenges, New Roadmap". 80 employees from around 30 sites met on November 8<sup>th</sup> and 9<sup>th</sup>, 2017 to set down the new CSR roadmap. An essential prior condition for the Group's growth and an essential component of its new ambition, the roadmap is organised along four main lines: people, environment & energy, products and ethics & governance. The seminar also focused on stakeholder relations through eight case studies.



# 2017: EXCEPTIONAL RESULTS AND AN EVEN STRONGER FINANCIAL POSITION



MANGANESE



NICKEL

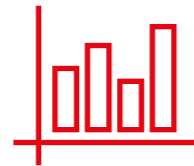


ALLOYS



## 3.7 Bn€

Annual revenue  
**+22%** vs 2016



## 608 M€

Operating Income  
**x7** vs 2016



## 203 M€

Net income, Group share  
**+382 M€** vs 2016



## 476 M€

Free cash-flow  
**+542 M€** vs 2016



## 376 M€

Net debt  
**-55%** vs 2016



## 12 590

Employees  
in **19** countries

**E**XCEPTIONAL RESULTS  
With 22% turnover growth to 3,652 M€ and a 7-fold increase in current operating income from 2016, at 608 M€ versus 84 M€, ERAMET 2017 posted a sharp improvement in results, mainly driven by the highly favourable rise in manganese prices, but also by 99 M€ in productivity gains. These gains are in line with the target for the 2014-2017 period, which was raised to 405 M€ and achieved. The Group's share of net income was positive at 203 M€, compared with a 179 M€ loss in 2016. Capital expenditure totalled 230 M€, an approximately 6% increase from the low amount recorded in 2016.

### EVEN STRONGER FINANCIAL POSITION

The favourable environment in 2017 enabled the Group to reduce its debt significantly and improve its financial liquidity to €2.7 billion. This result was largely made possible by the successful 500 M€ bond issue, maturing in February 2024, which was taken up by a diverse set of international and French institutional investors, reflecting their confidence in the Group's growth and prospects. These operations further strengthen ERAMET's robust liquidity and enable the Group to benefit from favourable terms on the credit market, continue to diversify its financing sources and extend the average maturity of its debt.

### GREATER FOCUS ON PERFORMANCE AND RESULTS

The first line of the strategic momentum begun in 2017, the long-term improvement of the Group's least efficient assets through their recovery and/or strategic repositioning, will be rolled out in 2018. In parallel, the Group wants to grow in high value-creating businesses and develop on new segments such as metals for energy transition. This ambition will be supported by the management transformation embodied in the NeWays program, which, through mobilisation and training actions, aims to develop teams' ability to focus on those goals. Cash generation culture and focus have been strengthened, with special care given to working capital management in activities in the recovery process. ●

### THOMAS DEVEDJIAN

Deputy CEO, Chief Financial Officer

“

THANKS TO THE ACHIEVEMENTS OF AN EXCEPTIONAL 2017, WHICH ENABLED THE GROUP TO STRENGTHEN ITS FINANCIAL POSITION, THE GROUP HAS THE MEANS TO MEET ITS CHALLENGES AND AMBITIONS. IT INTENDS TO FOCUS ON A FEW DEVELOPMENTS AND PROJECTS ON ITS SCALE, IN LINE WITH ITS STRATEGY AND WITH THE AIM OF HIGH VALUE CREATION.”



# 01

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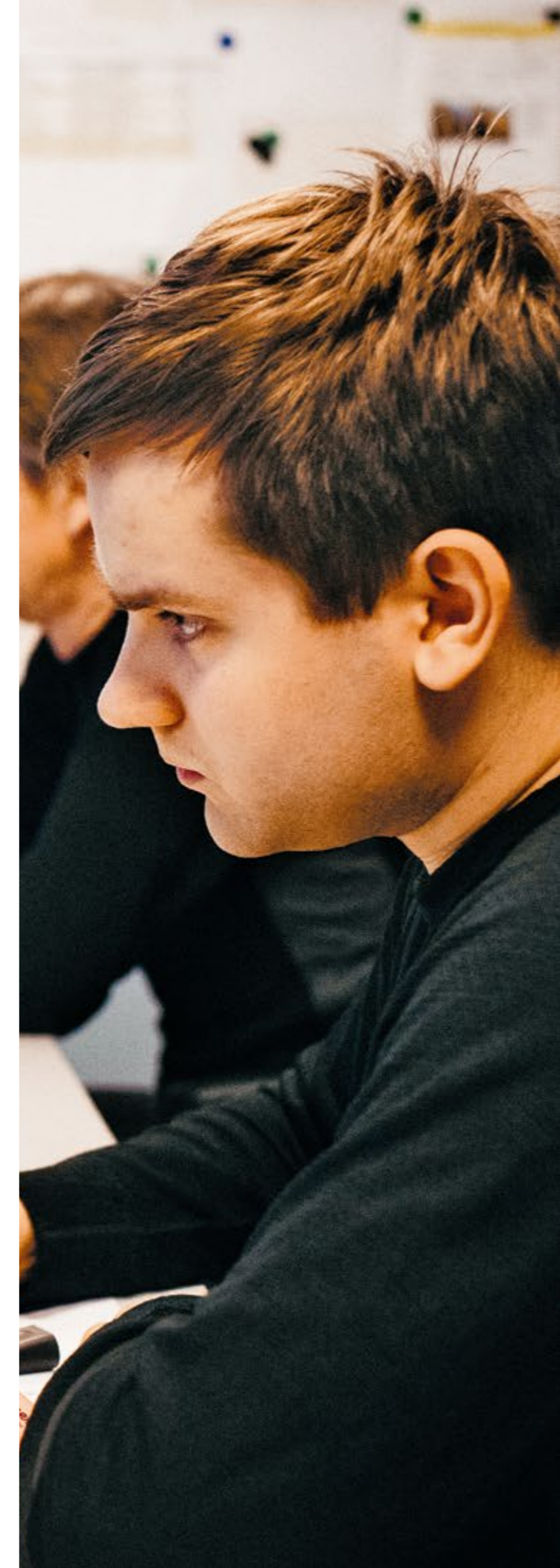
## LOOKING AHEAD BY LEVERAGING OUR EXPERTISE

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**LOOKING AHEAD** means speeding up our digital transformation to be more competitive and agile. This game-changing digitisation process has begun at ERAMET and will intensify in the coming years.

**LOOKING AHEAD** means unflagging innovation to increase our competitiveness and assert our positions in high-potential markets like powder metallurgy. Innovating also means meeting tomorrow's needs and practices, such as electric mobility.

**LOOKING AHEAD** means a threefold transformation – strategic, managerial and digital. This cultural change and new mindset, shared on every level and in every region, will make ERAMET the best in all its activities.



# WE'RE SPEEDING UP OUR DIGITAL TRANSFORMATION

## SLN GOES DIGITAL

The Group's digitisation has already begun. At SLN, for example, it is one of the 10 projects in the SLN 2018 performance plan. It involves deploying digital tablets to optimise patrollers' work and safety audits, using drones for rapid topographic surveys of unreachable zones, or fitting sensors on mobile equipment at the Doniambo plant. Smart objects are used to monitor the health of the most critical components in real time and spot any drift immediately.

## TOWARDS PLANT AND MINE 4.0

Digital technologies are a bigger and bigger part of our lives as individuals and businesses. Today, with the exponential increase in algorithms' computing power, tech is being integrated into every organisation on a massive scale. In industry, the arrival of these technologies is revolutionising operating management and business models, levelling the playing field. Industry 4.0 covers these realities. It includes smart sensors that transmit data that was previously unobtainable to optimise machine maintenance through a predictive rather than preventive model, cobots that work interactively with humans, virtual reality headsets that help to model deposits or train drivers on a new machine, drones that monitor or map sites, or machine learning to track processes more

effectively for greater quality and reliability. The ERAMET group aims to make digital transformation a real game-changer and a major lever for growth and performance. It must help to reduce costs and improve productivity in all the Group's subsidiaries.

## SPECIFIC GOVERNANCE & ORGANISATION

In 2017, ERAMET set up a specific cross-Group organisation to speed up the rollout of new technologies and the resulting management models. This organisation is structured around a team in charge of digital transformation on the Group level: 1 digital transformation director and 4 project managers (mining, extractive metallurgy, processing metallurgy, big data) in liaison with Digital Transformation Managers reporting

## LUDOVIC DONATI

Group Digital Transformation  
Project Director

“DIGITAL TRANSFORMATION IS A GREAT OPPORTUNITY FOR ERAMET TO REINVENT ITSELF. IT'S ALSO A CHANCE FOR EVERYONE TO WORK MORE OPENLY, EFFECTIVELY AND COLLABORATIVELY.”

to division and subsidiary management. To ensure that projects are relevant and monitored, there are also correspondents in every area of the enterprise (Information Systems, Human Resources, Legal, Purchasing, Communication, etc.). In addition, the Group has set up a Digital Committee whose role is to select funding for relevant digital initiatives and validate their rollout in the event of success. The Committee met for the first time in early February 2018.

## A TEST & LEARN APPROACH

To optimise investments and move fast, ERAMET has launched a Proof of Concept (POC) approach. This involves testing the relevance of an idea based on a well-defined digital scope over a few weeks. If the concept is proven and combined with a business case, it will be rolled out on a bigger scale with the Information Systems Department and Operating Departments. In 2017, the Group defined four priority avenues: predictive maintenance, energy efficiency, process automation and using big data. Each time, ERAMET brings in outside partners like startups to move faster. Progress will be reviewed in 2018, following highly promising initial results. ●

## SOME OF THE POC LAUNCHED IN 2017

**Use of machine learning tools** to improve operation of COMILOG's silico-manganese furnace in Dunkerque by anticipating major deviations from the process.

**Fitting smart sensors to measure temperatures** on furnace chimneys at ERAMET Norway and data analysis to anticipate any blockages.

**Development of a mobile app** for operators in charge of preparing and filling trains in Moanda, Gabon to optimise the slots that SETRAG allocates to COMILOG.

**Installing smart sensors to measure temperature in the industrial water network** in Pamiers, France to avoid heat increases, a risk factor for equipment.

**Rollout the "Safety Interactions" mobile app** developed in SLN and pooling it with other subsidiaries to save time and efficiency.



# WE INNOVATE TO MEET FUTURE NEEDS AND PRACTICES

## INNOVATE TO PREPARE FOR THE FUTURE AND IMPROVE OUR PERFORMANCE

ERAMET's R&D teams are recognised for their expertise in mineralogy, mineralurgy, hydrometallurgy, pyrometallurgy, alloy grades and, more recently, powder metallurgy and recycling. Today they are increasingly integrated into engineering and industrial development teams for the sake of efficiency and responsiveness. They work together to improve industrial processes and set up promising streams like lithium or develop new products. They also take part in collaborative European research projects, with R&D opened onto the outside world. These programs include the GO-4-0 project on beneficiating by-products from the steelmaking

and manganese metallurgy sectors. Another example is Geothermal Lithium, stemming from ERAMET Research's work in Argentina. It involves beneficiating the metal contained in geothermal waters.

## OPTIMISE OUR INDUSTRIAL PROCESSES

ERAMET's R&D constantly works with workshop teams on subjects from extending the lifespan of our furnaces to reducing their energy consumption or emissions. For example, ring grinders were recently installed on SLN's rotary furnaces. Before going into the reduction furnaces, ore is calcinated in these rotary facilities. This pre-reduction stage also removes any residual humidity. But sometimes ore sticks to the walls of the furnace and builds up

until it forms a ring. Grinders prevent the rings from forming, increasing the rotary furnaces' energy yield. The calcinated ore comes out at a higher temperature. So even more energy is saved for the following stage in the reduction furnaces, with direct impact on the Doniambo plant's energy bill, one of SLN's highest cost items. This is a significant contribution to the company's overall competitiveness effort. The system was tested in 2016 and extended to all SLN's rotary furnaces in 2017.

## ASSERT OUR STRENGTH IN POWDER METALLURGY

The growth of additive manufacturing means new outlets for powder metallurgy. This trend is due to the unique properties that powder metallurgy can give steel. Those qualities are highly valued by the aerospace, defence, energy and medical industries, particularly for remote production, rapid prototyping and brand-new designs. The Alloys division aims to gain positions in this area. First in industrial terms, thanks to the expertise of its Erasteel sites in Sweden and Aubert & Duval Irun in Spain, as well as the recent startup of a new superalloy atomising tower in Auvergne, France. In scientific terms too, as shown by Aubert & Duval's partnership in Metaforsch, a metallurgy institute in Lorraine, France to develop titanium powders. A development from late 2017 should also be highlighted: the success of industrial tests to produce an aircraft engine turbine seal prototype with a honeycomb structure, using Pearl® Micro Ni718 powders, a proprietary grade. This technology makes it possible to make the part in a single stage with a significant weight reduction.

## ESTABLISH THE GROUP AS A PLAYER IN ENERGY TRANSITION AND TOMORROW'S MOBILITY

The automobile is clearly at the dawn of a major revolution: electrification. All players – manufacturers and parts makers – are focusing their strategy and

research in this direction. Electricity storage and, consequently, battery development and production, are crucial issues. The lithium-ion battery market is set to triple global demand for lithium by 2025, creating opportunities for ERAMET. First in nickel, as nickel salts are essential to electric and hybrid vehicles' lithium-ion batteries, with annual growth estimated at 15% over the next 10 years. Moreover, ERAMET's ambition is to be a key player in the lithium industry by producing lithium carbonate from brine in Argentina's salt flats. In 2017, several semi-industrial operating tests and engineering studies were conducted. These were a prelude to a larger-scale pilot, which takes place in 2018, and to the technical-economic study. The process developed by ERAMET's teams has the advantage of a 90% yield, compared with the usual 50%.

## DEVELOP CIRCULAR ECONOMY LOOPS

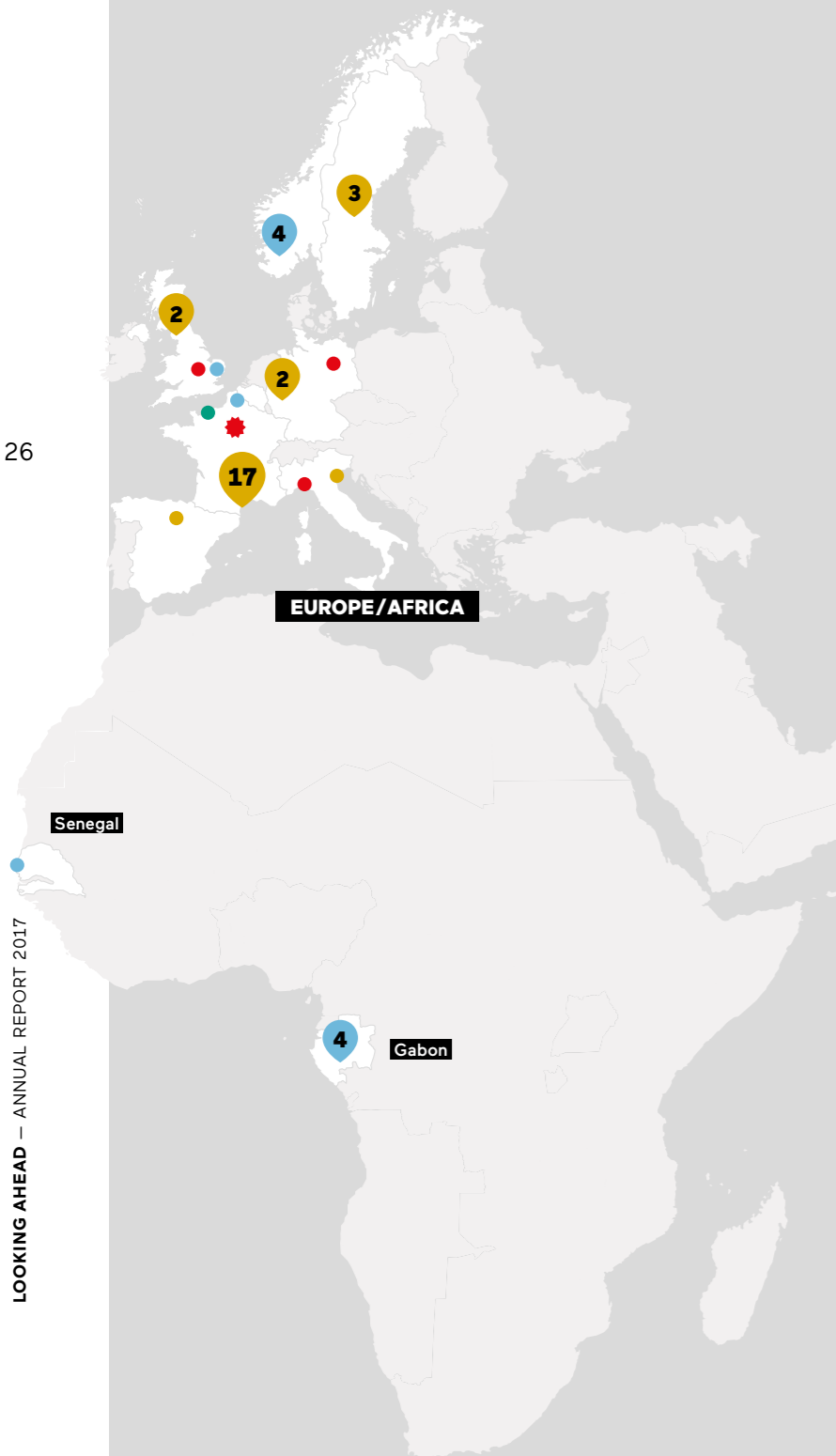
Because natural resources are finite, costly and their processing has an environmental impact, ERAMET designs and rolls out industrial processes that reuse materials. This is the case in the titanium stream, where Aubert & Duval set up the facilities to provide the aircraft manufacturing industry with forged and/or closed die-forged parts in aviation-grade titanium from recycling in its new EcoTitanium unit. 2017 also saw the kick-off of the new battery, catalyst and metal oxide recycling stream on the Commentry. Europe targets a maximum recovery rate for these products. ●



Mineral concentrate under a stereoscopic microscope - ERAMET Research (France)

# GLOBAL PRESENCE

as of 31/12/2017



## FRANCE

- **COMILOG Dunkerque** (manganese alloys)

- **ERAMET Sandouville** (high-purity nickel, nickel salts, cobalt)

- **Erasteel • Champagne** (high speed steels)
- **Commentry** (high speed steels, recycling)

- **Brown Europe** (wire drawing)

- **Forges de Monplaisir** (toll forging)

- **Aubert & Duval La Pardieu** (support services)

- **Aubert & Duval TAF Gennevilliers** (heat treatments)

- **Erasteel Chalons-sur-Saône** (service centre)

- **Aubert & Duval Heyrieux** (distribution centre)

- **6 Aubert & Duval plants**
  - Firminy
  - Imphy
  - Issoire
  - Interforge
  - Les Ancizes
  - Pamiers

(closed die-forged parts, forged parts, long products, tooling)

- **UKAD** (titanium processing)

- **EcoTitanium** (titanium recycling)

- **MKAD** (titanium parts)

## SWEDEN

- **3 Erasteel plants**
  - Långshyttan
  - Söderfors
  - Vikmanshyttan

(high speed steels)

## GERMANY

- **Erasteel GmbH Germany** (distribution centre)

- **Aubert & Duval Special Steels** (distribution centre)

## SPAIN

- **Aubert & Duval Irun** (powder metallurgy)

## ITALY

- **Aubert & Duval ADES** (distribution centre)

## NORWAY

- **3 ERAMET Norway plants**
  - Porsgrunn
  - Sauda
  - Kvinesdal

(manganese alloys)

- **TTI Tyssedal plant** (titanium dioxide slag and high purity cast iron)

## UNITED KINGDOM

- **Erasteel Stubs Warrington** (high speed steels)

- **ERAMET Alloys UK** (sales office)

## SENEGAL

- **TiZir Grande Côte Opérations** (ilmenite and zircon)

## GABON

- **COMILOG**
  - Moanda mine and sintering plant
  - C2M: Moanda metallurgical complex

- **Owendo logistic centre**

- **SETRAG: Transgabonais railway concession operator**

- **Maboumine** (polymetallic deposit)

## UNITED STATES

- **ERAMET Marietta** (manganese alloys)

- **Erasteel Boonton** (high speed steels)

- **Erasteel Bolingbrook** (distribution centre)

## ARGENTINA

- **ERAMINE SUDAMERICA** (lithium deposit)

## INDIA

- **Erasteel India Private Ltd** (distribution centre)

- **SQuAD** (forging and closed die-forging)

## INDONESIA

- **Weda Bay Nickel Halmahera island** (nickel deposit)

- **Weda Bay Nickel Jakarta**

## NEW CALEDONIA

- **Société Le Nickel (SLN)**

- **5 mining centres**
  - Kouaoua
  - Népoui
  - Poum
  - Thio
  - Tiébaghi

- **Doniambo metallurgical plant** (ferronickel)

## CHINA

- **ADMDT Wuxi** (distribution centre)

- **Erasteel Tianjin** (high speed steels)

- **ERAMET COMILOG Shanghai Trading**

- **COMILOG Far East Development Ltd Hong Kong**

## KEY

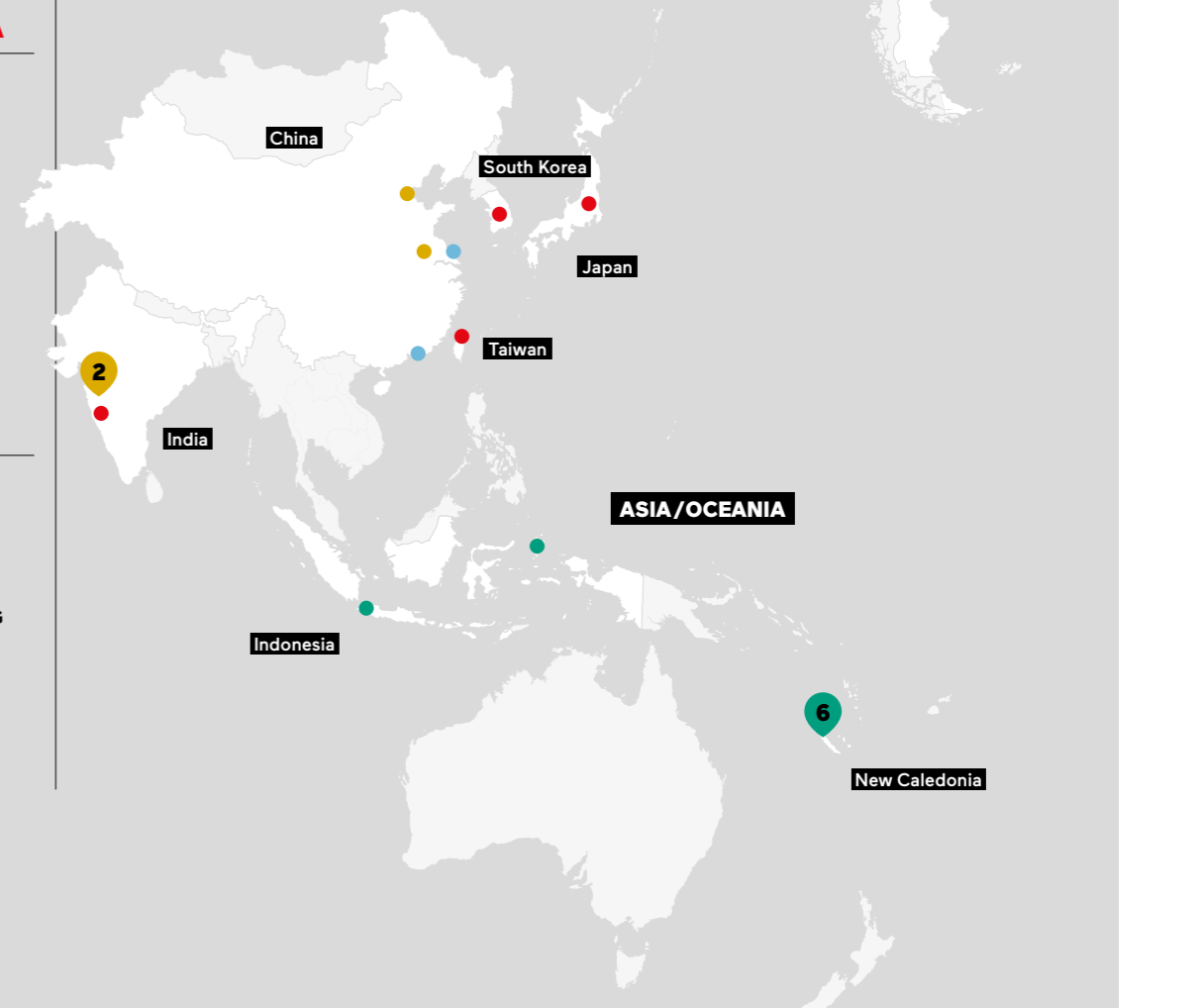
- **GROUP** Headquarters in Paris | ERAMET Research and ERAMET Ingénierie in Trappes | Shared service centre in Clermont-Ferrand

- **MANGANESE**

- **NICKEL**

- **ALLOYS**

- **ERAMET INTERNATIONAL** Brazil | Germany | India | Italy | Japan | South Korea | Taiwan | United Kingdom | United States





# 02

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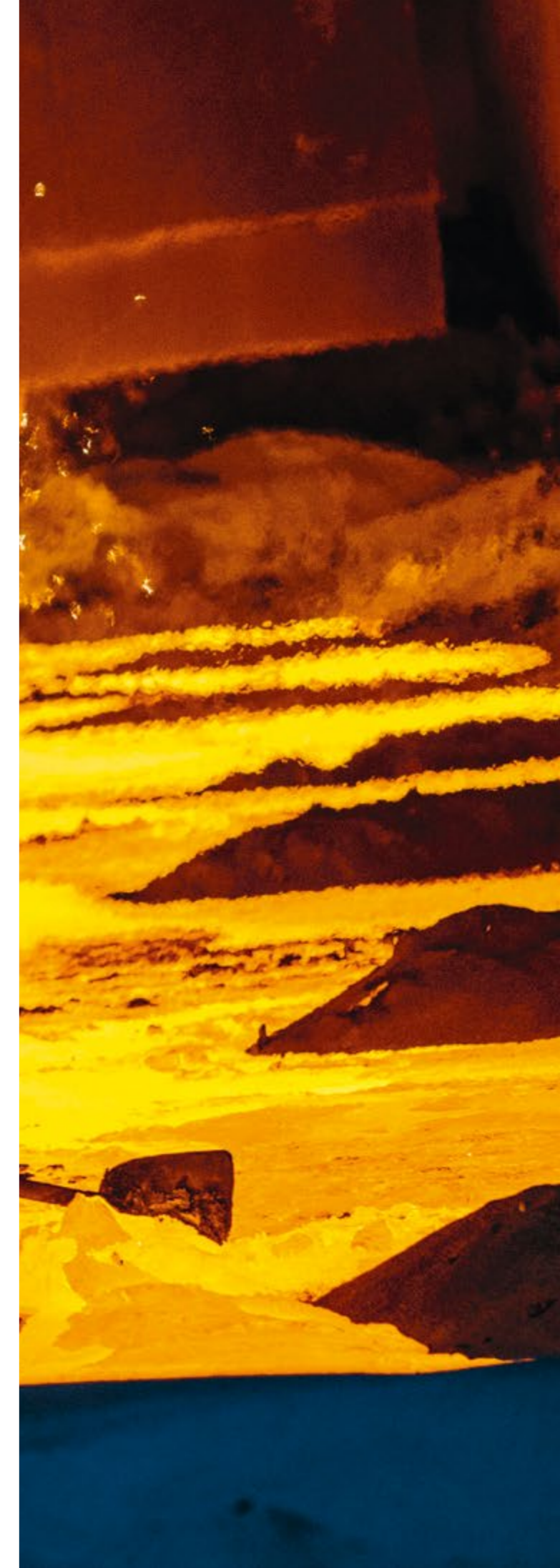
## LOOKING AHEAD BY OPTIMISING OUR RESOURCES

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**LOOKING AHEAD** means consolidating our position as world #2 in manganese ores and #1 in refined manganese alloys. The Manganese division confirmed its standing in 2017 by setting a new record for ore production and shipment. And it means looking to the future of mining in Gabon by preparing the gradual transition to a new mining plateau from 2020.

**LOOKING AHEAD** means keeping up SLN's recovery to restore the competitiveness of the world's #1 high-purity ferronickel producer for the long term in a highly competitive market. It also means laying down the bases for a win-win business model for mining the Weda Bay nickel deposit in Indonesia.

**LOOKING AHEAD**, for the Alloys division, means continuing to optimise processes to improve service, retain customers and win market share. And it means innovating with circular economy loops, in titanium for example, as well as developing in the promising powder metallurgy sector.



# IN 2017 WE SET A PRODUCTION RECORD

**F**AVOURABLE WINDS  
After hitting a trough in 2016, manganese ore prices recovered in 2017. The Manganese division achieved great results, boosting the Group's overall performance. The Division first took full advantage of the healthy trends in manganese ore prices. Prices remained at an all-time high, rising from 4.30 USD/dmtu on average in 2016 to 5.97 USD/dmtu in late 2017 (Mn CRU CIF China 44%). This vitality results directly from record production for carbon steel in 2017, driven by construction and infrastructure programs in China and the rest of the world. This increase, reflecting a vibrant global economy, absorbed excess inventory and the ore supply from South African and Australian producers.

## RECORD PRODUCTION IN GABON

With more than 4 million tons of ore mined and shipped to Owendo terminal

in Gabon, the Manganese division achieved its ambitious target while setting an all-time record. Built on operating excellence in mining, rail transport and port operations, this historic tonnage comes with another achievement on safety. With a lost-time accident rate (TF1) of 0.6, COMILOG is now a front-rank company in its sector for safety. This result, which comes under the Safety Essentials program, needs to be shored up.

## SETRAG ON TARGET

A COMILOG subsidiary, SETRAG operates the Transgabonais railway across Gabon from Owendo in the suburbs of Libreville Franceville in Haut-Ogooué province. Carrying passengers, timber and ore, the Transgabonais is a vital economic artery for Gabon. To improve flows and safety, SETRAG started modernising the 648 km of tracks. The 8-year project, jointly funded by the Gabonese state and

SETRAG, consists of replacing almost 1 million crossties and shoring up the tracks. More than 40,000 crossties have been changed since the project began in September 2017. In parallel, SETRAG is working to improve its operating performance, leading to higher transport volumes.

## SUCCESSFUL YEAR FOR MANGANESE ALLOYS

2017 was also a great year for the Group's manganese alloy production activity, which is divided between ERAMET Norway's three plants, the Marietta, Ohio site in the USA, Dunkerque in France and, as of 2016, C2M in Moanda, Gabon. The Group increased its total production of manganese alloys by 2% in 2017, from 702 to 716 thousand tons in a highly favourable context, driven by record prices and a tight supply/demand balance throughout the year.

## TIZIR: POSITIVE INCOME IN FIRST YEAR

A joint venture by ERAMET and Mineral Deposits Limited, TiZir mines a mineral sand concession on the coast of Senegal to produce zirconium, leucoxene ilmenite and rutile. The ilmenite is mostly processed into titanium dioxide slag and high-purity cast iron in the Tyssedal, Norway plant. In a favourable environment, 2017 was a good year for TiZir, which posted 225 MUSD in total turnover, up 40% from 2016. The activity achieved positive results, driven by favourable trends in titaniferous raw materials and zirconium in 2017.

## PREPARING FOR THE FUTURE BY EXTENDING COMILOG'S PRODUCTION

After achieving its 4 million ton target, COMILOG is setting a new course with the aim of increasing its ore production by over 30%. This involves switching mining activities from Bangombé plateau, which is nearing the end of its lifespan, to Okouma plateau, which provides for several decades of manganese ore mining. Under the project, facilities should be gradually transferred from 2020. ●

## PHILIPPE VECTEN

Deputy CEO, in charge of the Nickel and Manganese divisions (until March 31<sup>st</sup>, 2018)

“  
BUILDING ON  
OUR SUCCESSES  
IN 2017, TO PLAN  
AHEAD WE'RE  
INVENTING THE NEXT  
STAGE IN LINE WITH  
OUR CAPACITY  
INCREASE PLAN FOR  
COMILOG TO STRIVE  
FOR EXCELLENCE  
IN EVERY FIELD AND  
PREPARE FOR ORE  
MINING IN GABON  
OVER THE COMING  
DECADES.”



## #2

world producer  
of high-grade  
manganese ore

## #2

world producer  
of manganese alloys

## #1

world producer of  
refined manganese alloys

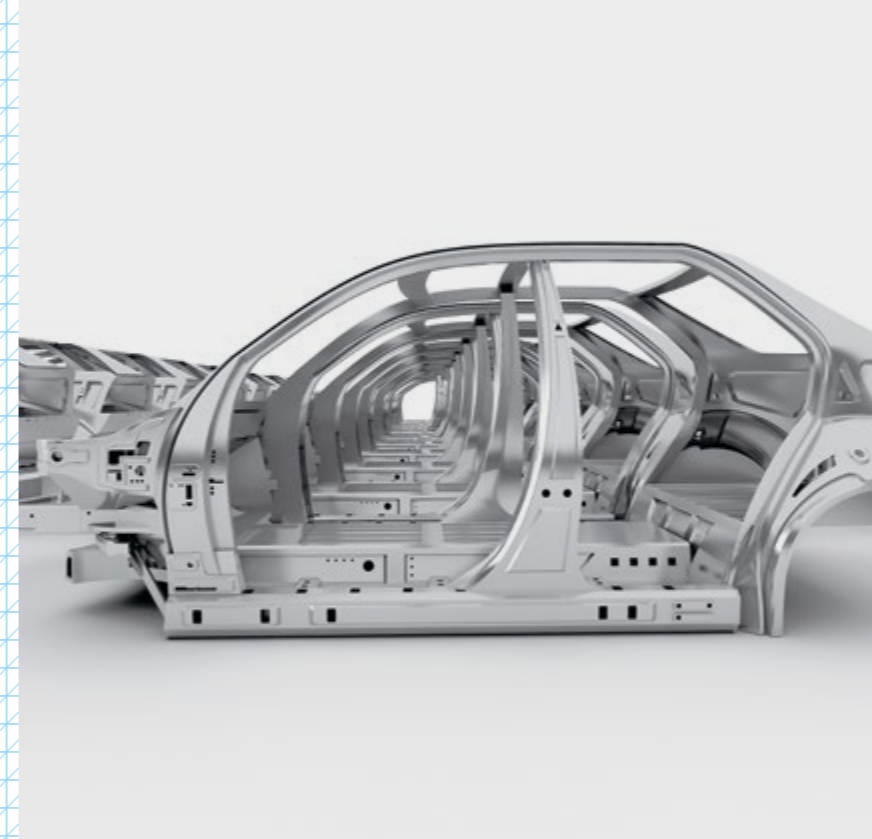


# MANGANESE MARKETS AND APPLICATIONS

ERAMET mines and processes manganese ore. This is used in the alloys that are essential components of steel, giving it strength. These steels are the raw material for the automotive, rail, construction and many other industries. Manganese is also used extensively in the chemicals industry to make batteries, fertilisers, electronic components or paint pigments.

## TRANSPORT

The transport industry values manganese for its strength. This is true of the rails that can withstand the weight of trains and distortion risks, as well as vehicle structures and critical engine parts in the automotive sector.



## ELECTRIC VEHICLES & BATTERIES

The main raw material for alkaline batteries, manganese is also used to make cathodes, a major component of lithium-ion batteries.



## CONSTRUCTION

90% of the ore produced is intended for inclusion in carbon steel, which forms rebars for reinforced concrete, for example. As with other applications, 7 kg is needed to make 1 ton of steel. Manganese gives these products strength and stiffness.

## AGRICULTURE AND FINE CHEMICALS

Manganese is found as a trace element in nature. The field and agriculture industries use it for dietary supplements and fertilisers. It's also used in the fine chemicals sector to make pigments and metal surface treatments.





**ERAMET NORWAY**  
Lifting operations in casting zone, Porsgrunn



**SETRAG OWENDO (GABON)**  
Maintenance in Rolling Stock Department workshops



**GRANDE CÔTE OPÉRATIONS (SENEGAL)**  
Mining mineral sands by continuous dredging



**COMILOG MOANDA (GABON)**  
Mining facilities on Bangombé plateau

# WE'RE KEEPING UP OUR EFFORTS TO RESTORE OUR COMPETITIVENESS

**A HEALTHIER MARKET**  
After falling to an all-time low in early 2016, nickel prices began a slow upturn that continued into 2017, although LME prices remained low, averaging 4.73 USD/lb. This situation results from vibrant global demand for stainless steel, which set a record in 2017 (5.7% production increase from 2016), driven by the recovery of China's economy (+ 6.9% GDP growth in 2017) and its steel industry. Demand was still strong excluding stainless steel, particularly due to the booming battery market. However, inventories are still very high and supply continues to grow, with the ramp-up of Indonesian Nickel Pig Iron (NPI) producers and the easing of Indonesia's ban on nickel exports. The market therefore remains uncertain.

## SIGNIFICANT PROGRESS AT SLN

SLN successfully completed its performance plan, which aimed to cut its production costs by 25% over the 2016-2017 period. All personnel rallied round the challenge of reducing SLN's cash cost from 6 USD in 2015 to 4.50 USD/lb by the end of 2017. The result was achieved through work on productivity at both mine and plant, a focus on machine maintenance and reliability, the launch of digital transformation, and many other actions.

## THE CHALLENGE REMAINS

The 2017 target was achieved, but SLN is aiming farther to resume sustainable high performance. This ambition, carried by the new 2020 performance plan, starts in 2018 with the aim of bringing

## KLEBER SILVA

Deputy CEO in charge of ERAMET Nickel and ERAMET Manganese  
(As of April 1<sup>st</sup>, 2018)

“ WE SHOULD SALUTE SLN'S EFFORTS. THE RESULTS SHOW THE WAY TO GO. MORE THAN EVER, THE BATTLE CONTINUES FOR A LASTING RETURN TO PROFITABILITY. ”

SLN's cash cost down to 4 USD/lb. From productivity efforts to improving the plant's energy costs, the new plan is based on a sound ambition: overhauling SLN's organisation and management model to move closer to the best in terms of competitiveness and safeguard the long-term future of New Caledonia's foremost mining player.

## WEDA BAY: NEW PARTNERSHIP IN IMPLEMENTATION PROCESS

Located in Indonesia's Northern Moluccas archipelago, Weda Bay is one of the world's biggest nickel deposits. Acquired by ERAMET in 2006, it holds more than 9 million tons of nickel content. In February 2017, ERAMET's Board of Directors approved the terms of a framework agreement with the Chinese steelmaking group Tsingshan, the world #1 producer of stainless steel, to benefitiate this asset. The goal is to produce nickel pig iron at competitive prices through a pyrometallurgical process. This would diversify and broaden the Group's offering on the ferronickel market. ERAMET will hold 43% and the Tsingshan group 57% of this venture.

## SANDOUVILLE: A DIFFICULT RAMP-UP

Since June 2017, ERAMET's Sandouville, France plant has been supplied from a new European source of matte under a long-term agreement. With a complex multimetallic composition, this matte is very different from the New Caledonian product, requiring changes to the plant's processes. In this context, the ramp-up has remained difficult since the startup in midyear, with lower operating rates. Rated production capacity is 15,000 tons per year of high-purity nickel for cutting-edge industries, particularly for the electronics and battery markets. ●



# #1

world producer  
of high-grade ferronickel

# 1

of the global producers  
of high-purity nickel salts

# 644M€

turnover

## NICKEL MARKETS AND APPLICATIONS

ERAMET mines nickel and transforms it into ferronickel. The Group also produces nickel metal and very high-purity nickel salts from nickel matte. The biggest market for nickel is stainless steel. Stainless steel is valued for its hygienic qualities and found in a great many everyday objects. Nickel superalloys and alloys meet the demands of cutting-edge industries like the oil, gas and nuclear sectors.



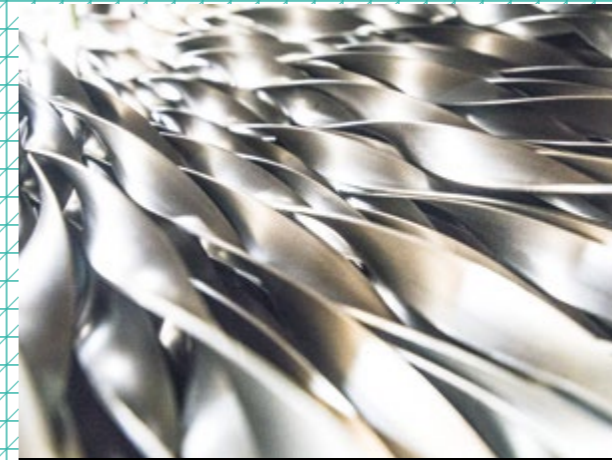
### MOBILE ENERGY

Nickel is not only vital for mobile phone batteries, but also for their electrical functioning. It plays an essential role in their circuits, especially in condensers.



### ELECTRIC CARS AND BATTERIES

Nickel is a key component of batteries for the booming hybrid and electric vehicle market. Nickel demand is now supported by this sector's excellent prospects.



### CHEMICALS AND NICKEL-PLATING

Nickel-plating has long been used to protect surfaces and objects. It's a very common process in decoration and jewellery.

### MEDICAL EQUIPMENT

Nickel alloys are used in many medical prostheses for their unequalled strength. Nickel stainless steels are also used to make medical tools.



### EVERYDAY OBJECTS

Stainless steel's resistance to corrosion gives it excellent hygienic qualities. It's extensively used to make household goods (sinks, cutlery, pans, dishes, etc.) and appliances (washing machines, kitchen equipment). In the construction sector, it is also very common in decorative architectural items for lifts, guardrails and street furniture. For these applications, stainless steel is chosen for its visual appeal (gloss), low maintenance costs and long lifespan.



**SLN (NEW CALEDONIA)**  
 Unloading ore at the Doniambo plant



**SLN (NEW CALEDONIA)**  
 Core drilling



**ERAMET SANDOUILLE (FRANCE)**



**SLN (NEW CALEDONIA)**  
 Mining operations in Thio



**SLN (NEW CALEDONIA)**  
 Doniambo plant in Nouméa

# DAY AFTER DAY, WORKSHOP BY WORKSHOP, WE STRIVE TO OPTIMISE OUR PROCESSES AND SERVICE QUALITY

42

#2

world producer  
of high-power  
forged and closed  
die-forged parts

## A CONTRASTING YEAR FOR THE ALLOYS DIVISION

The Division's turnover increased 15%. Current operating income totalled 32 M€, up 19% from 2016 with very different trends between activities. Aubert & Duval, which achieves more than two-thirds of its turnover with the aerospace sector, made 38 M€ current operating income in 2017, down 21% from 2016 due to operating difficulties and productivity that was well below its improvement targets. Erasteel's current operating income improved by 15 M€ in 2017 to total -6 M€. This is due to the success of the industrial reorganisation, productivity, and product portfolio reenergisation project, as well as the favourable impact of material prices. Conversely,

ramp-up difficulties in the battery and catalyst recycling activity weighed on results.

## CIRCULAR ECONOMY: RESPONSIBLE POSITIONING

In 2017, the Division continued its strategy of building a position in the circular economy. EcoTitanium, Europe's first producer of aviation-grade titanium from recycled materials, was inaugurated in Saint-Georges-de-Mons (Puy-de-Dôme, France) in September. 48 M€ was invested in the facility by UKAD, a joint venture by Aubert & Duval and the Kazakh company UKTMP, a global leader in titanium sponge production. EcoTitanium has three shareholders: UKAD (43.5%), a joint venture by Aubert & Duval (an ERAMET

group subsidiary) and UKTMP International, the French State through the PIA investment program operated by ADEME (41.3%), and the bank Caisse Régionale de Crédit Agricole Centre France (15.2%), through its investing subsidiary CACF Développement. It will create at least 60 highly qualified jobs, as well as inferred jobs.

The EcoTitanium plant remelts titanium alloy ingots from titanium cuttings and scrap collected from the major aircraft manufacturers and their subcontractors. It gives the European aerospace industry a new, sustainable supply channel that is independent of American and Russian suppliers for this strategic raw material.

## POWDER METALLURGY: EXPERTISE FOR THE FUTURE

In 2017, the Division broadened its industrial footprint in powder metallurgy, a sector driven by the growth in additive manufacturing. In May, a new powder atomising tower came on stream at Aubert & Duval's Les Ancizes, France site. The new facility will ramp up in 2018. It is currently in the qualification phase to produce superalloy powders for aircraft manufacturer customers. The Alloys division has many strengths in this field, where it intends to develop rapidly: recognised R&D expertise, front-rank industrial capacities and

sound knowledge of the main principals (aerospace, energy, defence, automotive, etc.). In addition to the powder atomising tower inaugurated at Les Ancizes, the Alloys division already produces different superalloy powder ranges at Aubert & Duval Irun, Spain and Erasteel sites in Sweden. Building on these assets, it is able to increase its production capacities to meet its customers' future needs in the highly strategic 3D printing field.

## NEW PROSPECTS FOR ERASTEEL

A subsidiary of the Alloys division, Erasteel operates on the highly competitive market of high speed steels, which are used for cutting tools and other applications. After several years of difficulties and market share losses, the activity has started to turn around. Its plan to win back business has led to higher turnover and sharply improved productivity. Erasteel owes these results to its dynamic sales teams, new grades developed by its R&D and, more generally, its ability to challenge itself. ●

43

## JÉRÔME FABRE

Deputy CEO in charge of the Alloys division,  
Chairman of Aubert & Duval and Erasteel

“

SAFETY AND  
CUSTOMER  
SATISFACTION  
ARE AT THE CENTRE  
OF ALL OUR  
PRIORITIES.”

—



1

of the world leaders  
in gas-atomised  
powder metallurgy

# ALLOYS MARKETS AND APPLICATIONS

The Alloys division designs and makes metallurgical parts and advanced alloys in the form of bars, forged and closed die-forged parts, powders, etc. to withstand extreme thermal-mechanical conditions in sectors such as aerospace, energy, medical and tooling.



## AEROSPACE

Aubert & Duval supplies the aircraft manufacturing sector with high-performance steels, superalloys and aluminium or titanium alloys. These materials, valued for their extreme resistance to mechanical stress, high temperatures and corrosion, are used to design critical parts in aircraft structures (e.g. landing gear) and engines (e.g. turbine shafts). Titanium is also used by the space industry to guarantee the airtightness of propellant gas tanks on satellite launchers.

## TOOLING

Aubert & Duval and Erasteel produce tool steels. Erasteel especially makes high speed steels, special high-performance steels that offer great hardness at temperatures up to 500°C and high wear resistance, thanks to alloying elements like tungsten, molybdenum, vanadium and chrome. These steels are used in many tooling applications, including cutting, gear shaping, saw blades, plastics conversion and cold metalworking.



## ENERGY

Aubert & Duval supplies critical closed die-forged parts for the production of gas or steam land turbines, as well as long parts with highly resistant materials to the high pressures, corrosion and extreme temperatures entailed in very deep offshore drilling, or for the nuclear industry.

## ATOMISED POWDERS

Aubert & Duval and Erasteel produce gas-atomised powders for multiple industrial applications, such as additive manufacturing (3D printing). The powders are used to make complex metal parts in one operation and to create prototypes.

## DEFENCE

Aubert & Duval produces high-performance metal parts for industry and defence including submarines and fighter planes like the Rafale. It also makes forged and closed die-forged high-performance steel parts for armoured vehicles and artillery.



## MEDICAL

Aubert & Duval designs cobalt-based steels and alloys and austenitic stainless steel (containing chrome and nickel) for the production of surgical instruments, prostheses and implants.

## SPECIALTIES

Aubert & Duval supplies manufacturers in the automotive and marine transport sectors with steels for valves and diesel engine injector parts, as well as for motor racing (Formula 1, WRC rallies, motorcycle Grand Prix).





**AUBERT & DUVAL ISSOIRE (FRANCE)**

Control cabin for the automatic 3,000-ton press that produces forged blanks of aluminium alloy aircraft parts

**ERASTEEL CHAMPAGNOLE (FRANCE)**

Heat treatment furnace



**AUBERT & DUVAL LES ANCIZES (FRANCE)**

Atomisation control (on atomising tower)

**AUBERT & DUVAL PAMIER (FRANCE)**

Measuring surface roughness after machining



**INTERFORGE (FRANCE)**

Stamping engine parts after closed die-forging





# 03

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## LOOKING AHEAD BY INVESTING SUSTAINABLY

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**LOOKING AHEAD** means acting as good corporate citizens, putting Corporate Social Responsibility at the heart of our strategy. It means seeing our CSR approach as an integral part of our performance, attractiveness and acceptability.

**LOOKING AHEAD** means considering employees as the enterprise's most valuable resource while striving for high-quality industrial relations and developing skills. It means supporting them in transition periods and keeping them healthy and safe at work.

**LOOKING AHEAD** means staying competitive to be profitable over the long term. In 2017, our effective operating performance programs, together with higher ore prices, led to a clear upturn in our results and reduced our debt.



# CSR WE ACT AS GOOD CORPORATE CITIZENS

50

## A STRATEGIC COMMITMENT TO CSR

Corporate Social

Responsibility (CSR) is a crucial factor in the performance and development of an industrial and mining group with long-term presence in almost 20 countries.

CSR involves sites being well integrated into their host territories and a trusting relationship with all stakeholders. The Group has long been implementing a continuous improvement process to centre its activities on CSR. ERAMET draws on its Ethics charter and Sustainable Development policy, which both set the course for its social responsibility. These reference texts led the Group to structure its CSR process around four pillars: employees (particularly health, safety, people development,

industrial relations), environment (risk management, footprint reduction) and energy, products (responsible management and development opportunities) and, finally, ethical compliance and stakeholder relations.

### FOCUS ON RISK MANAGEMENT

Every year our stakeholders voice greater expectations in terms of CSR, converging in the demand for a reasonable diligence process based on identifying and controlling risks. The new regulatory environment in France (Sapin II and Duty of Vigilance laws), Europe and globally led ERAMET in 2017 to bolster its risk mapping on ethics and CSR. These risks, whether industrial, environmental or concerning human rights, health or corruption, are assessed for the Group's activities and for

the participants in its value chain. These mappings build the Group's knowledge of its CSR issues. ERAMET's first vigilance plan transparently sets out the human rights, health/safety and environmental risks and the related control measures.

### GREATER VIGILANCE IN THE VALUE CHAIN

ERAMET's social responsibility cannot be considered without taking the Group's value chain into account. Greater vigilance is applied to practices with third parties, particularly suppliers, subcontractors and customers. The Group has structured its purchasing and sales processes by formalising and setting priorities appraisal processes for their ethical and CSR performance. ERAMET also strives to make CSR a transformation lever

benefiting its customers, through innovation for energy transition, for example.

### OPERATING IMPLEMENTATION MONITORED FROM THE VERY TOP

The Divisions implement the whole ethical and CSR process on operating sites through policies, roadmaps or specific standards. These lead to the definition of relevant multiannual goals for each business and activity in the Group, as well as the resulting action plans. To drive correct operating implementation, in 2017 the Group strengthened its organisation under the compliance program headed by the Group Ethics Officer. A network of Ethical Compliance Managers was formalised and more than 2,000 Group

managers completed online training on ERAMET's ethics charter. Another highlight of 2017 was the tightening of the system for tracking recommendations from site EHS audits. The Group's performance on ethics and CSR is regularly managed by the Group's Executive Committee and ERAMET's Board of Directors, particularly through two of its committees, the Strategic & CSR Committee and the Audit, Risk and Ethics Committee. ●



SLN (New Caledonia) - Water management works in Thio

## CATHERINE TISSOT-COLLE

Executive Vice-President of Communications & Sustainable Development

“

ERAMET HAS RENEWED ITS AMBITION ON SOCIAL AND ENVIRONMENTAL RESPONSIBILITY TO ASSERT ITS GOOD CITIZENSHIP AND SAFEGUARD ITS PERFORMANCE AND ATTRACTIVENESS OVER THE LONG TERM.”

—

51



# HR WE FOCUS ON THE QUALITY OF INDUSTRIAL RELATIONS



## MICHEL CARNEC

Executive Vice-President of Human Resources, Health, Safety & Security

“EMPLOYEES ARE THE MAIN DRIVERS OF ERAMET’S PERFORMANCE. PEOPLE MAKE THE DIFFERENCE AND WILL CONTINUE TO DO SO TOMORROW.”

## FOCUSING ON THE QUALITY OF INDUSTRIAL RELATIONS

The challenges facing ERAMET call for unfailing unity to focus all the company’s strengths on a single goal: operating excellence and competitiveness. That means constructive, high-quality industrial dialogue between executive management and personnel representation bodies, and great investment by management in explaining, reassuring and smoothing any obstacles to change. In that spirit, ERAMET’s management and trade unions signed an agreement in March 2017 on collective negotiating mechanisms in mainland France. The goal is to define clear, consistent rules on industrial dialogue

to strengthen its momentum over the long term in the Group and make it a key factor in ERAMET’s future performance.

### SUPPORTING THE GROUP’S TRANSFORMATION

In 2017, Christel Bories launched ERAMET’s transformation through the NeWays program. This new impetus is like an energy booster for the Group. In addition to the competitiveness plans under way, our subsidiaries propose new actions in line with this momentum, including benchmarking studies to appraise ourselves in relation to the best competitors, and more horizontal organisations to increase

responsiveness and agility. ERAMET’s success depends on all employees buying into these changes. So Human Resources are keen to support these strategic orientations. This involves training to explain the principles of the transformation and provide tools for its implementation, as well as multiple actions on the ground. For instance, these include developing skills at the C2M plant in Gabon to support its ramp-up. At SLN, HR actions support the SLN 2020 plan, which involves work time increases and an organisational overhaul. In this case, discussions with employee representation bodies were essential in reaching agreement on the number of working hours at the plant and the optimisation of SLN’s management model.

### KEEPING UP THE HIGHEST SAFETY STANDARDS

Our ability to run our activities perfectly safely is an essential condition of our operating excellence. We owe this to our employees, subcontractors and all our partners. In 2017, we stepped up the rollout of the Group reference matrix for Essential Safety Requirements. It sets the framework for 14 critical activities (working at heights, in confined spaces, machine/pedestrian cohabitation etc.) with clear, simple rules to be followed without exception. In parallel, we’re developing our prevention strategy by banking on managers being present in the workshop through safety interactions. This technique consists of seeing first-hand,

on site, what operators’ safety conditions really are. It’s an opportunity to start dialogue with them and discuss what is going well and any shortfalls observed. The aim is to raise awareness and generate changes in behaviour through dialogue. More than 1,500 managers were trained in the approach in 2017. All these efforts came to fruition as the Group recorded a 24% decrease in accidents with or without lost time in 2017. ●



# SOCIAL AND ENVIRONMENTAL INDICATORS

## HUMAN RESOURCES

### Registered employees by status and by region as of 31/12/2017

	FRANCE	EUROPE EXC. FRANCE	AMERICAS	AFRICA	ASIA	PACIFIC	TOTAL
Workers	2 503	834	147	1 687	118	1 319	6 608
Supervisors	1 767	236	42	1 492	107	565	4 209
Managers	779	148	61	567	73	145	1 773
Total	<b>5 049</b>	<b>1 218</b>	<b>250</b>	<b>3 746</b>	<b>298</b>	<b>2 029</b>	<b>12 590</b>
% managers	15%	12%	24%	15%	24%	7%	14%

### Registered employees by Division and by region as of 31/12/2017

	FRANCE	EUROPE EXC. FRANCE	AMERICAS	AFRICA	ASIA	PACIFIC	TOTAL
Holding company	347	8	60	0	25	0	440
Nickel	197	0	0	0	94	2 029	2 320
Manganese	131	704	157	3 746	71	0	4 809
Alloys	4 374	506	33	0	108	0	5 021
Total	<b>5 049</b>	<b>1 218</b>	<b>250</b>	<b>3 746</b>	<b>298</b>	<b>2 029</b>	<b>12 590</b>

TRAINING	FRANCE	EUROPE EXC. FRANCE	AMERICAS	AFRICA	ASIA	PACIFIC	TOTAL
Training hours	145 404	13 825	11 536	146 074	4 508	52 932	374 279
Hours per employee	28.8	11.4	46.1	39.0	15.1	26.1	29.7

## SAFETY<sup>(1)</sup>

SUBJECT	DEFINITIONS	VALUE 2017	TREND OVER 1 YEAR
Frequency rate 1 (TF1)	Number of lost-time accidents per million hours worked.	<b>4.6</b>	-17% pro-forma <sup>(2)</sup>
Severity rate (TG)	Number of lost days (in addition to the day of the accident) resulting from lost-time accidents per thousand hours worked.	<b>0.28</b>	-31% pro-forma <sup>(2)</sup>
Frequency rate 2 (TF2)	Number of declared accidents with or without lost time, per million hours worked.	<b>10.3</b>	-24% pro-forma <sup>(2)</sup>

## ENVIRONMENT

SUBJECT	DEFINITIONS	RESULTS 2017	TREND
Operating permit	Number of operating permits obtained at Group sites.	<b>115</b>	<b>Decrease</b> Optimisation by environmental authorities of number of texts applicable to sites (several texts combined into one).
Environmental reporting	Percentage of sites included in environmental reporting.	<b>100%</b>	<b>Stability and consolidation</b> of reporting.
Certification of sites	Percentage of industrial and mining sites that have obtained ISO 14001 certification.	<b>81%</b>	<b>Stability.</b>
Mining site remediation	Aggregate remediated hectares over all our mining sites.	<b>286 ha</b>	More than 700 ha over 3 years.
Air emissions	Number of channelled air emission treatment facilities.	<b>256</b>	More than <b>20 additional facilities</b> at equivalent Group structure.

## ENERGY

SUBJECT	DEFINITIONS	RESULTS 2017	TREND
Energy consumption	Energy consumption (electricity, gas, heavy fuel oil, coal, etc.).	<b>16.6 TWh</b>	<b>Apparent stability.</b> However, the decrease relating to the sale of ERACHEM was offset by other units' increase in activity, particularly in Gabon.
Energy efficiency process	Number of sites that developed the energy saving process in 2017 according to ISO 50001 standard principles.	<b>25 sites</b>	Start of a structured process at COMILOG (4 sites) and SLN (1 site). <b>The 1<sup>st</sup> site in the Alloys division obtained ISO 50001 certification.</b>
Carbon footprint Scope 1 and 2	Volume in millions of tons of CO <sub>2</sub> emitted by all Group sites.	<b>4.29 Mt</b>	<b>Stable</b> overall since 2010.

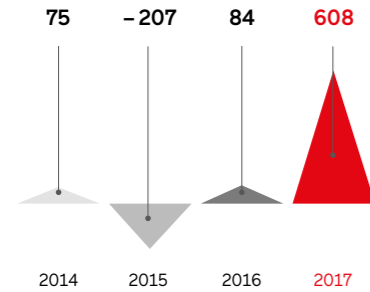
(1) Statistics take agency workers into account.

(2) Withdrawal of manganese chemicals, Somivab and Eurotungstène powders as of January 1<sup>st</sup>, 2017, and recycling in the USA in April 2017. 2016 pro forma 2017 totals 5.5 TF1, 13.6 TF2 and 0.40 TG.

# THE GROUP'S RESULTS

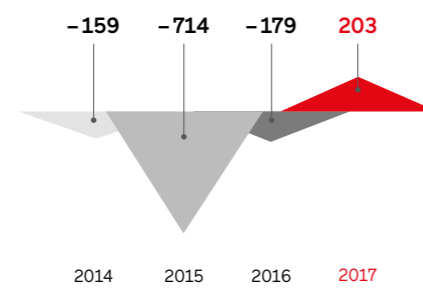
## CONSOLIDATED FINANCIAL STATEMENTS <sup>(1)</sup>

### Current operating income (€ millions)



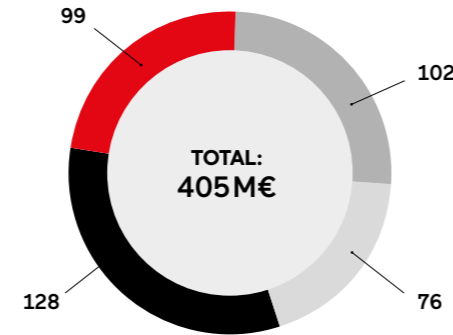
The Group's current operating income grew sharply to 608M€.

### Net income, Group share (€ millions)



Net income, Group share, was positive at 203M€.

### Cost reduction and productivity improvement (€ millions)



Implementation of the productivity plan at SLN (Nickel division) also came to fruition with a 21% reduction in its cash cost in 2017<sup>(2)</sup> compared with the 2016 average.

## Sharp growth in 2017 results

The ERAMET group recorded very good results for 2017, starting with turnover, which grew 22% compared with 2016 to 3,652M€.

The Group's current operating income rose sharply to 608M€, mainly driven by highly favourable trends in manganese prices, but also by 99M€ in productivity gains (out of a total of 405M€ achieved in 2014-2017, in line with the increased target).

The Group's share of net income is positive at 203M€, compared with a 179M€ loss for 2016.

Capital expenditure totalled 230M€, up approximately 6% compared with the low levels in 2016.

Net debt stood at 376M€ at 31 December 2017, versus 836M€ at end-2016. Free cash-flow, which has been positive over the past three semesters, amounted to 476M€ in 2017. It includes a non-recurring effect of 25M€ linked to disposal of the Group's headquarters situated in the Tour Montparnasse. Relocation of the Group's headquarters in Paris is scheduled for June 2018.

The net debt-to-equity ratio was 19% at the end of 2017.

The average maturity of debt, of which 81% is at a fixed rate (exc. RCF), was extended

through several operations. In September, ERAMET successfully closed a 500M€ bond issue, maturing in February 2024. The issue was widely taken up by a diversified of mostly international institutional investors.

The ERAMET group repaid the total draw-down in early 2016 on its RCF, of which 730M€ in 2017 and 250M€ in January 2018. Furthermore, in February 2018, the RCF was extended for 981M€ and a 5-year maturity, i.e. a new due date in 2023.

The ERAMET group's financial liquidity increased significantly to €2.7 billion as of December 31<sup>st</sup>, 2017. Given the growth in the Group's capitalisation and float, ERAMET shares returned to the SBF 120 at the end of the year.

(1) the consolidated data presented is adjusted data from the Group's reporting and includes joint ventures under the proportional method. See consolidated financial statements as of December 31<sup>st</sup>, 2017, available from the Group's website (www.eramet.com).

(2) Cash cost at constant economic conditions (start of 2016).



Find out more in our ERAMET Finance app

# INCOME STATEMENT

## Sharp improvement in EBITDA and current operating income from 2016 to 2017

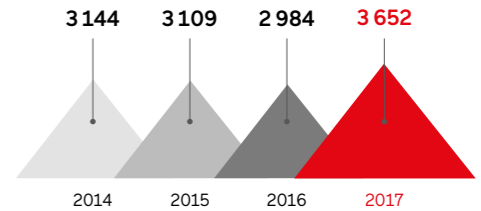
The ERAMET group's turnover rose sharply (22%) from 2016 to 2017. The Manganese division's turnover, which represents 53% of consolidated turnover, increased significantly (33%) over 2017 to 1,919M€, driven by high production of carbon steel, particularly in China, and COMILOG's all-time record production. The Nickel division's turnover totalled 644M€ for the year, an 8% increase compared with the previous year, in a low price environment in 2017. The Alloys division's turnover

rose 15% to 1,087M€ in 2017, reflecting growth in sales by the aerospace, energy and high speed steel sectors in particular.

The sharp improvement in the Group's EBITDA and current operating income from 2016 to 2017 is mainly due to the highly favourable trends in manganese prices, but also by 99M€ in productivity gains (i.e. a total of 405M€ achieved in 2014-2017, for a target increased to 400M€).

Operating income factors in the research costs for major projects, restructuring costs and asset depreciation. Net income for the period includes financial income and income tax. The Group's share of net income is positive at 203M€, compared with a 179M€ loss for 2016, after taking into account 25M€ in minority interests in 2017 net income.

### Turnover (€ millions)



Turnover up 22% from 2016 to 3,652M€.

# 405 M€

total savings since 2014 on an annual basis

# 608 M€

current operating income for 2017

€ MILLIONS	FY 2017	FY 2016
<b>TURNOVER</b>	<b>3 652</b>	<b>2 984</b>
<b>EBITDA</b>	<b>871</b>	<b>375</b>
Amortisation and depreciation of non-current assets	(250)	(268)
Provisions for liabilities and charges	(13)	(23)
<b>CURRENT OPERATING INCOME</b>	<b>608</b>	<b>84</b>
Impairment of assets	9	(110)
Other operating income and expenses	(50)	(69)
<b>OPERATING INCOME</b>	<b>567</b>	<b>(95)</b>
Financial income	(117)	(79)
Share of income from associates	(1)	(2)
Income tax	(221)	(61)
<b>NET INCOME FOR THE PERIOD</b>	<b>228</b>	<b>(237)</b>
• minority interests	25	(58)
• Group share	<b>203</b>	<b>(179)</b>
Basic earnings per share (euros)	7.67	(6.79)

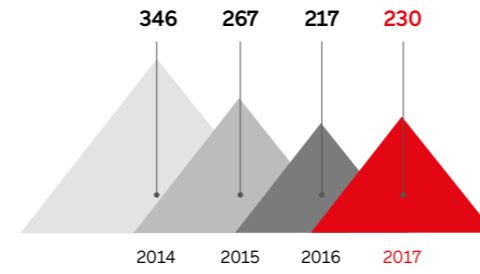
## NET FINANCIAL DEBT VARIATION

The Group's net debt stood at 376M€ on December 31<sup>st</sup>, 2017 compared with 836M€ on December 31<sup>st</sup>, 2016. This change results from the following movements:

- 687M€ in net cash generated by operating activities (121M€ in 2016):
  - +484M€ in cash generated from operations compared with 147M€ in 2016, due to the sharp improvement results in 2017 compared with 2016 (current operating income up 524M€);
  - +203M€ working capital variation;
- -211M€ net cash used in investing activities, of which mainly -230M€ in capital expenditure, up 6% from 2016;
- -12M€ net cash from financing activities;
- -4M€ in exchange rate impact.

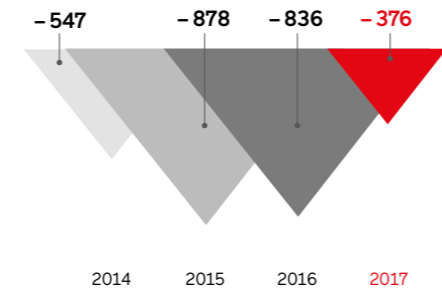
The net debt-to-equity ratio stood at 19% as of December 31<sup>st</sup>, 2017, a substantial decrease from December 31<sup>st</sup>, 2016 (47%).

### Capital expenditure (€ millions)



230M€ in capital expenditure, mainly for the safety and maintenance of production assets.

### Net financial debt (€ millions)



Sharp decrease in debt, from 836M€ at the end of 2016 to 376M€ on December 31<sup>st</sup>, 2017.

€ MILLIONS	FY 2017	FY 2016
<b>OPERATING ACTIVITIES</b>		
EBITDA	871	375
Cash impact of items below EBITDA	(387)	(228)
<b>Cash generated from operations</b>	<b>484</b>	<b>147</b>
Working capital variation	203	(26)
<b>Net cash generated by operating activities (1)</b>	<b>687</b>	<b>121</b>
<b>INVESTING ACTIVITIES</b>		
Capital expenditure	(230)	(217)
Other investing activity flows	19	30
<b>Net cash used in investing activities (2)</b>	<b>(211)</b>	<b>(187)</b>
<b>Net cash used in financing activities</b>	<b>(12)</b>	<b>100</b>
Exchange rate impact	(4)	8
<b>(Increase) / decrease in net financial debt position</b>	<b>460</b>	<b>42</b>
<b>Opening (net financial debt) position</b>	<b>(836)</b>	<b>(878)</b>
<b>Closing (net financial debt) position</b>	<b>(376)</b>	<b>(836)</b>
<b>Free Cash flow (1) + (2)</b>	<b>476</b>	<b>(66)</b>

## BALANCE SHEET

The Group's total assets as of December 31<sup>st</sup>, 2017 stood at 3,269M€, compared with 3,538M€ on December 31<sup>st</sup>, 2016.

This 269M€ decrease mainly results from:

- on one hand, a 108M€ decrease in non-current assets, mostly because asset impairments were greater than capital expenditure and total working capital decreased by 161M€,
- on the other hand, a decrease in net financial debt (-460M€), which was partly offset by an increase in shareholders' equity to 1,980M€ (+204M€), mainly due to income for financial 2017.

# 230 M€

capital expenditure in 2017,  
up 6% from 2016

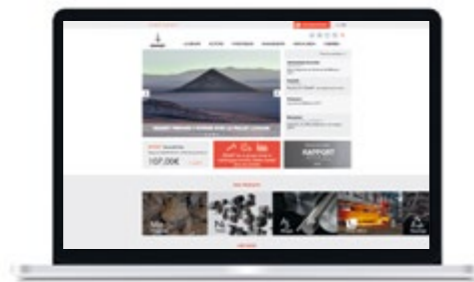
# 2.7 Bn€

financial liquidity  
as of December 31<sup>st</sup>, 2017

€ MILLIONS	31/12/2017	31/12/2016
<b>Non-current assets</b>	<b>2710</b>	<b>2818</b>
Inventories	887	933
Trade receivables	368	333
Trade payables	(391)	(390)
<b>Simplified working capital</b>	<b>864</b>	<b>876</b>
Other working capital items	(305)	(156)
<b>Total working capital</b>	<b>559</b>	<b>720</b>
<b>TOTAL</b>	<b>3269</b>	<b>3538</b>

€ MILLIONS	31/12/2017	31/12/2016
Shareholders' equity - Group share	1694	1515
Shareholders' equity - minority interests	286	261
<b>Shareholders' equity</b>	<b>1980</b>	<b>1776</b>
Cash and cash equivalents and other current financial assets	(2075)	(1698)
Borrowings	2451	2534
<b>Net financial debt</b>	<b>376</b>	<b>836</b>
Net debt-to-equity ratio	19%	47%
<b>Provisions and employee-related liabilities</b>	<b>730</b>	<b>740</b>
<b>Net deferred tax</b>	<b>173</b>	<b>142</b>
<b>Derivatives</b>	<b>10</b>	<b>44</b>
<b>TOTAL</b>	<b>3269</b>	<b>3538</b>

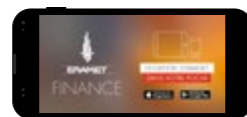




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