

# FOCUSING ON THE NEW NORM

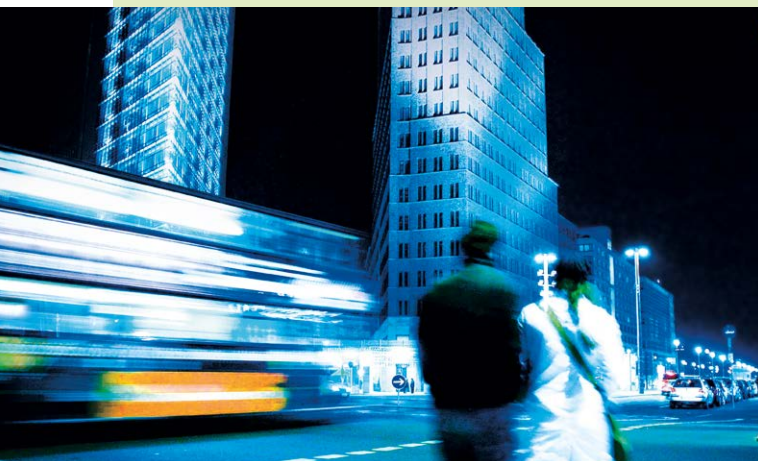
Annual Report 2022

 **armacell**<sup>®</sup>  
MAKING A DIFFERENCE AROUND THE WORLD

## ABOUT US


Ever since Armacell invented flexible elastomeric foams for equipment insulation, we have been developing innovative and safe thermal and mechanical solutions that create sustainable value for our customers and make a difference around the world. As a multi-material, multi-product company, we operate two main businesses: Advanced Insulation and Engineered Foams. Our focus is on insulation materials that enhance the energy efficiency of technical equipment, high-performance foams for acoustic and lightweight applications, recycled PET products, next-generation aerogel technology and passive fire protection systems.





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FOCUSING ON THE NEW NORM

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»» 2022 was a year when saving energy became the number one objective in many countries. At Armacell, we exist to enable energy efficiency, and our energy-saving solutions for technical equipment have become more important than ever. For us, it was a year of exciting acquisitions and innovative product launches that have broadened our portfolio and taken us into new, fast-growing markets.

FOCUSING ON THE NEW NORM is how Armacell is leading the way in a rapidly changing world.

A handwritten signature in blue ink, appearing to read 'Patrick Mathieu'.

**Patrick Mathieu**  
President and CEO  
Armacell Group



# FOCUSING ON THE NEW NORM

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2022 was a challenging year on many fronts. We saw a new norm emerging in our business environment and private lives. In changing times, we know how important it is to ramp up our resilience and focus on new opportunities for us and our customers.

Our commitment to enhancing energy efficiency around the world remains unchanged, and Armacell products are required more than ever – for our customers and end users. Our focus on the new norm led us to expand our portfolio, accelerate our M&A activities, boost innovation and consolidate some operations. The outcome is a stronger company.



THE WAY WE WORK

# ACCUMULATED EXPERTISE

- ① **FAST KNOW-HOW TRANSFER**
- ② **CONTINUOUS RESEARCH & DEVELOPMENT**
- ③ **CO-ENGINEERING AND TEAMWORK**
- ④ **HIGHEST QUALITY STANDARDS**
- ⑤ **EFFICIENT CUSTOMER TRAINING**
- ⑥ **VALUE-ADDING SERVICES**
- ⑦ **LOCAL FOOTPRINT AND LOGISTICS**
- ⑧ **SUSTAINABLE SOLUTIONS**

Our technical know-how is based on decades of experience in the flexible insulation market and the multi-disciplined expertise of our highly qualified global workforce. It finds its expression in the broad portfolio of products, services and system solutions we offer in a wide range of fields. The way we work is how we apply our expertise to deliver added value to our customers and end-users all over the world.

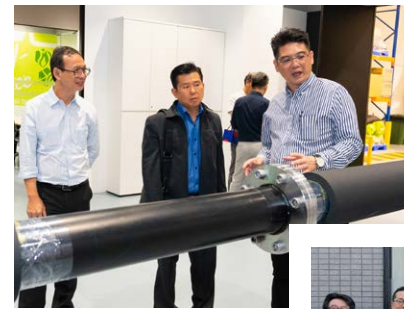
# CUSTOMER CENTRICITY

## 1 New experience and training centre in **Singapore**

The **ArmaLive** centre in Singapore has transformed the APAC regional head office into a hub of customer-centric activity, housing an interactive customer experience centre with a dedicated training facility and the Arma CS Solutions fabrication workshop. As the first insulation company in the ASEAN market to offer such a unique experience, ArmaLive engages the customers in a different way, helping us to stand out from the competition.

The experience centre showcases the depth of experience Armacell has with insulation and how the company has evolved to become a global multi-material and solutions leader. Visitors can compare the performance of our solutions against other materials. The training facility also enables installers, contractors and engineers to understand insulation better, learn about best practices to install reliably performing systems, shorten installation times, generate less waste and improve workmanship.

**Arma CS Solutions**, our new joint venture, supports customers with the design and fabrication of customised insulation and protection solutions, including multi-layer flexible insulation jackets and covers, insulation panels and fabric expansion joints and compensators. In addition to creating prototypes, the fabrication workshop offers precision cutting, templating and fabrication services to help customers expedite their projects and address their present-day challenges.



Interactive customer experience in Singapore.

## 2 Moving closer to customers' needs in **Japan**

By acquiring the engineering business of **SpiderPlus & Co.**, a company that has successfully worked with ArmaFlex® products for the past 20 years, Armacell has strengthened its position in Japan's thermal insulation market and particularly in its construction and HVAC sectors.

The local technical team also leveraged on our experience to support the creation of a new JIS (Japan Building Code) standard for flexible elastomeric foam insulation products. This will encourage broader uptake of the insulation material, and its increased use will help to improve the working environment at construction sites and enable shorter construction periods.

Together with our **training centre in Tokyo**, the expanded business and engineering team is taking Armacell even closer to customers in Japan. The enhanced portfolio enables the provision of comprehensive insulation solutions covering specification, material supply, expertise and installation services.

By adding engineering expertise to our existing portfolio in Japan, we have created an operational footprint that paves the way for local manufacturing and contributes to having the highest standards in insulation.



Taking our organisation to the next level.

—> » We upskill installers to drive professionalism, workmanship and competitiveness and help customers achieve energy efficiency through the right insulation solutions. «

Liam Douglas, Vice President APAC



# ENERGY EFFICIENCY

The acquisition of **two leading European players in the pre-insulated pipe market** – IZOLIR in July 2022 and Austroflex in October 2022 – has extended Armacell's product portfolio, expertise and manufacturing capabilities to serve the fast-growing flexible pre-insulated pipe market.

Pre-insulated pipes are, for example, one of the technical prerequisites for energy-efficient local district heating systems, in which renewable energy sources such as solar power, geothermal and waste heat are increasingly replacing gas-powered heating systems. As the market for district heating and cooling systems is forecast to double in size by 2030, the demand for pre-insulated pipes will grow accordingly.

A record number of heat pumps are being installed in new or thermally renovated buildings. Armacell's technical equipment insulation solutions are playing a key role in making the installation of heat pumps technically feasible and energetically sensible.

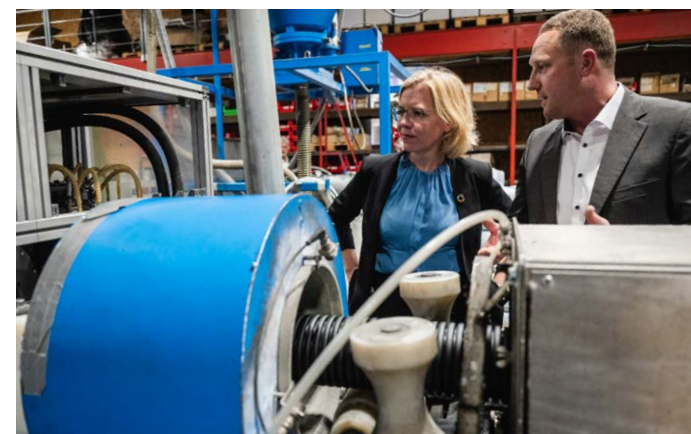
These two acquisitions will make Armacell a significant player in the high-growth market for both flexible and rigid pre-insulated pipe systems. They also underline Armacell's commitment to delivering technical equipment insulation solutions that noticeably enhance energy efficiency.



Guillermo Huguen, Armacell's Chief Strategic Development Officer, and Marijana Matic, General Manager of A.D. IZOLIR.



Aerial view of the Gödersdorf plant, Austria.



Leonore Gewessler, the Austrian Minister for Climate Protection, Environment, Mobility, Innovation and Technology and Stefan Aichholzer, Managing Director of Austroflex.

—> » The synergy of these solutions allows us to target the district heating market through a diverse product portfolio. «

Guillermo Huguen, Chief Strategic Development Officer

## Pre-insulated pipes from **Serbia** and **Austria**

**1** **A.D. IZOLIR**, a leading Serbian manufacturer with more than 35 years of experience in the field of pre-insulated steel pipes, is also a major producer of heat-shrinkable joints in Europe and a market leader in Serbia and other countries of South-East Europe. The acquisition of IZOLIR has extended Armacell's footprint in Europe, brought in new production capacities and allows the company to expand into new geographies.

**2** **Austroflex Rohr-Isoliersysteme GmbH**, a leading manufacturer of flexible pre-insulated pipe systems and thermal solar pipe systems in Austria, has brought sizeable manufacturing capacities and an experienced workforce into the Armacell Group. Its innovative and largely customised insulation solutions are mainly found in district heating, sanitary and potable water systems, solar energy applications and technical installations.



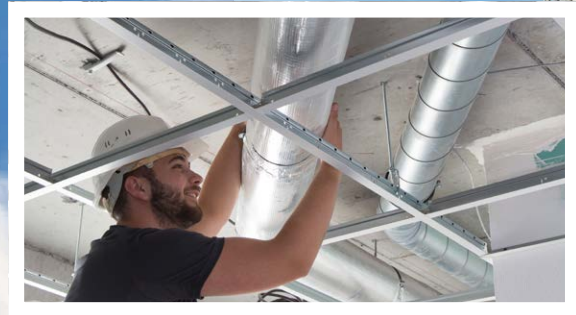


# ICONIC ACOUSTIC PERFORMANCE

**PROJECT:** The 140-metre Mennica Legacy Tower is an iconic eye-catching feature of the Warsaw skyline. With more than 65,000 m<sup>2</sup> of rental space and 45 office floors, it is an impressive testimony to the scale and complexity of how buildings are designed and built today.

→ Location: Warsaw, Poland

**SOLUTION:** As a quieter workplace boosts employee satisfaction and increases workplace effectiveness, ArmaComfort™ AB Alu Plus was installed to ensure better noise reduction with thinner wall thicknesses and anti-condensation insulation for sewage pipes, ventilation ducts and air-conditioning devices.



3,200 m<sup>2</sup>

of ArmaComfort™  
AB Alu Plus installed





# A BIG WIN FOR ENERGY SAVINGS



**PROJECT:** University of Nebraska Lincoln – North Stadium expansion. This mammoth project includes HVAC and plumbing systems for new locker rooms, medical facilities, offices and mechanical rooms. The biggest challenge was to save energy on pipes, ducts and tanks through a durable insulation product.

→ Location: Lincoln (NE), USA

**SOLUTION:** Using AP/ArmaFlex closed-cell insulation, easy-to-install solutions proved to be the smart choice for immediate energy savings. ArmaFlex® also comes with Microban® antimicrobial protection to resist mould and mildew growth and is GREENGUARD® Gold Certified to low emission standards.

**3,000** LINEAR FEET

of pipe, cold and hot water tanks and ducts insulated with AP/ArmaFlex

# INSULATING CHINA'S LARGEST REFINERY

**PROJECT:** The €10 billion Shenghong Refining & Chemical Integration refinery has an annual processing capacity of 16 million tonnes for refining oil, 1.1 million tonnes for ethylene production and 2.8 million tonnes for aromatics production. Armacell provided the insulation for the cold pipes on the pipe racks.

→ Location: Lianyungang City, China

**SOLUTION:** The Armacell Energy team in China met an almost impossible deadline by installing 15,000 m<sup>3</sup> of ArmaFlex® LT and ArmaFlex® LTD products (including 20,000 tins of 520 adhesive). What's more, this satisfied customer has awarded Armacell the contract for phase 2 of the project.



## 15,000 m<sup>3</sup>

of ArmaFlex® LT and  
ArmaFlex® LTD installed

# INNOVATIVE RECYCLING TECHNOLOGY

**PROJECT:** The Pulse is a high-end circular building where people live, work and enjoy their leisure. The complex consists of two towers with a connecting plinth that will become the city's first high-rise urban forest. This concept zeroes in on energy and material waste, using recycled or easily recyclable materials.

→ Location: Amsterdam, The Netherlands

**SOLUTION:** ArmaPET® Eco50 and Duplicor® provide the best bio-based, fire-resistant and circular solution in the building industry, replacing conventional materials with recycled materials. We designed single-piece façade elements as lightweight and energy-saving solutions for this high-rise building.



12,000 m<sup>2</sup>

of façade featuring bio-based composite and recycled PET foam core

# FIRE SAFETY

APPROVED AND TESTED



4,000 fire casualties a year in the EU

Fire ratings up to 240 minutes

5 large-scale + 9 small-scale fire tests since 2021

## THE CHALLENGE

How can you reduce the risk to people and property in the event of a fire and give occupants and emergency responders more time to escape or enter a building?

## THE ANSWER

- // ArmaProtect™ firestop products provide fire-safe conditions in an emergency. They minimise the risk of fire and smoke spreading to adjacent fire compartments, thus reducing damage and saving lives.
- // The comprehensive ArmaProtect™ product range comprises intumescent firestop wraps and collars, ablative coated firestop boards, cementitious firestop mortar and firestop sealants.
- // In addition to passive fire protection, our products and solutions play a key role in improving fire safety in residential, commercial and industrial buildings and transport vehicles such as high-speed trains.



Installing fire-stopping solutions.

**Our PFP products provide fire-safe circumstances in the event of a fire emergency**

- // Fire compartmentation – containing a fire within a limited area and keeping escape routes free of smoke – is key to a holistic fire safety approach. Passive fire protection (PFP) systems from our one-stop shop make effective compartmentation possible.
- // Our ArmaProtect™ firestop products comply with global fire safety regulations such as EN13501-2 and UL1479 for fire ratings up to 240 minutes.
- // ASTM C1728-compliant ArmaGel® HTF is our next-generation aerogel blanket combining thermal insulation and PFP for the energy sector. Fully fire tested in accordance with UL1709, it can be used for applications with service temperatures up to +650°C (1,200°F).



# ACOUSTIC COMFORT

REGULATED NOISE



## THE CHALLENGE

What can be done to reduce excessive noise? It impacts 76% of the world's population, disturbs sleep, affects hearing and lowers productivity.

## THE ANSWER

- // High-quality acoustic insulation is needed to tackle the second-biggest environmental factor impacting human health worldwide (after air pollution).
- // Effective acoustic control solutions protect people from the effects of noise, make more productive work possible and improve the quality of life at home and while travelling.
- // It is important to correctly identify the noise sources, understand how they spread and insulate the different types of sound. That is where Armacell's acoustic experts come in – with technical know-how and product solutions.



Installing acoustic solutions.

76% of people affected by noise nuisance

1 in 20 affected by hearing loss

Up to 30 dB less noise with ArmaComfort™

Armacell knows how to control noise – for the comfort of silence

- // Tested and certified by recognised institutes, our products satisfy – and in many cases exceed – the requirements of the main standards on noise control.
- // ArmaComfort™ acoustic solutions reduce noise through superior sound absorption. ArmaSound® Industrial Systems combine thermal insulation with effective acoustic control solutions for energy and industrial applications.
- // Though thinner and lighter than conventional systems, ArmaGel® aerogel insulation blankets combined with ArmaSound® Industrial Systems provide better acoustic insulation.



# DISTRICT HEATING

## GREENER ENERGY



### THE CHALLENGE

How can we tackle global warming? How can we reduce the use of the fossil fuels oil and gas in heating systems?

### THE ANSWER

- // District heating systems fuelled, for example, by solar power or biomass are an energy-efficient means of reducing our fossil fuel dependency.
- // The European market for pre-insulated flexible pipes is expected to double its current volume by 2030. Solar thermal energy and heat pumps are also an important component of district heating networks.
- // Armacell entered this fast-expanding sector in 2022 and stands to become a major player in this market.



Strengthening Armacell's offering for the renewable energy transition.

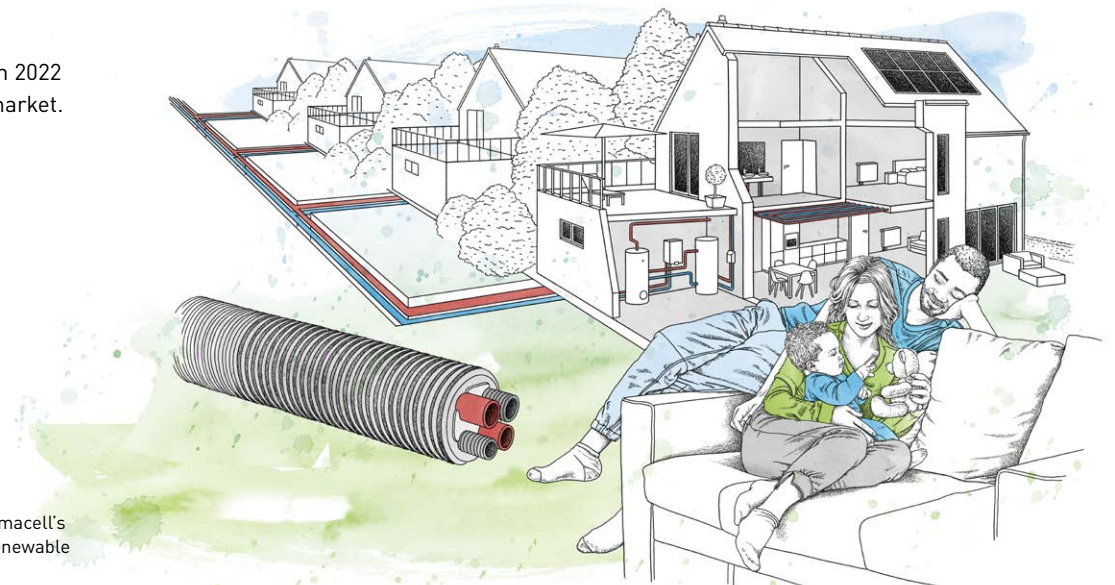
Heating/cooling accounts for **50%** of EU energy consumption

Pre-insulated pipes market projected to reach **USD 10.2 bn** by 2024

**200%** increase in installed heat pumps by 2025

### Armacell pre-insulated pipes minimise remote energy losses

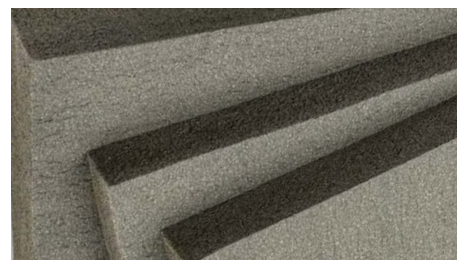
- // Our customers can benefit from both non-flexible pipes connecting the energy source to the substation and flexible pipes connecting the substation to commercial or residential buildings.
- // District energy systems include highly insulated underground thermal piping networks that transmit steam or hot water to heat and cool multiple buildings and improve their energy efficiency.
- // Pre-insulated pipes are the technical prerequisite for district heating and cooling networks as well as specific applications such as biogas-fuelled heat and power cogeneration or industrial process pipelines.



# A UNIQUE HERITAGE AND PRODUCT PORTFOLIO

**Our high-performance products and solutions are delivering value-enhancing answers that meet the differing demands of residential, commercial, industrial, transport, energy and sports & leisure destination end markets. Answers that are developed in close collaboration with our customers worldwide. The outcome is a diverse portfolio comprising fit-for-purpose products and made-to-measure solutions.**

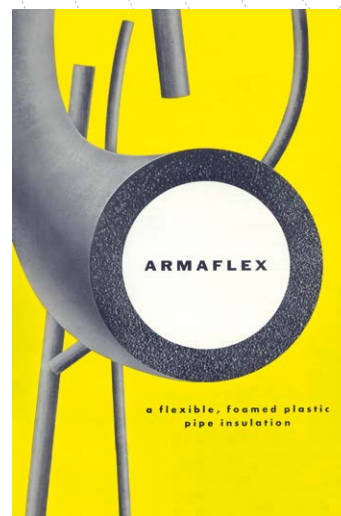
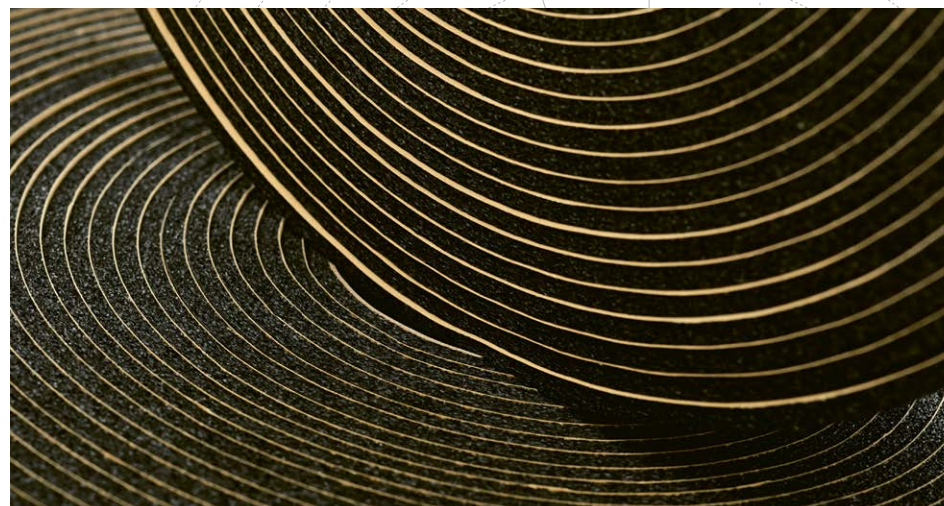
A single pioneering product set the Armacell wheels in motion: ArmaFlex®. The invention of the world's first flexible elastomeric foam for equipment insulation by Armstrong, Armacell's predecessor company, was a revolutionary step forward in the insulation industry. The first patent protecting the innovative ArmaFlex® technology was published in the United States in 1958 and was followed by many more in subsequent decades. ArmaFlex® is also a registered trademark in more than 50 countries worldwide, with the earliest dating back to 1957, and our portfolio of patent families covering various aspects of our product offerings is equally extensive. That is why we pursue a policy of effective patent and trademark management, which includes taking action against any infringements.



ArmaFlex® is manufactured across the Armacell world, customised to local requirements and often combined with other products into hybrid solutions. Only where an insulation product features the ArmaFlex® registered trademark from Armacell can you be sure of enjoying the unique ArmaFlex® properties.

The world's first flexible insulation material has maintained its market-leading position for nearly 70 years because we invest in enhancing those properties and extending our range of products to cover more and more applications. Our commitment to this ArmaFlex® heritage ensures you can trust our entire product portfolio.

ArmaFlex® – manufactured across the Armacell world and customised to local requirements.



Vintage ArmaFlex® poster (1950s USA).



# TRUSTED ARMACELL BRANDS

Ever since the invention of ArmaFlex®, the world's first flexible elastomeric foam for equipment insulation, we have been expanding our portfolio of thermal, acoustic and mechanical solutions.

Categorised into ten family brands, they comprise insulation materials for technical equipment, high-performance foams for high-tech and light-weight applications, next-generation aerogel blanket technology, and passive fire protection systems.

Our products go 'Beyond Better' to save energy, reduce noise, increase comfort and safety, prevent moisture ingress, thermal losses and corrosion under insulation.



Our high-performance products and solutions are delivering the value-enhancing answers markets are demanding.



## ArmaFlex®

All closed-cell insulation materials based on elastomeric foam

## ArmaComfort™

All insulation products for sound attenuation

## ArmaFix™

All mounting and fixing solutions

## ArmaLight™

All polyethylene-based materials

## ArmaProtect™

All fire protection solutions

## ArmaClad™

All cladding solutions

## ArmaComp™

All component foams

## ArmaGel®

All products based on aerogel technology

## ArmaPET®

All PET-based foams

## ArmaSound®

All industrial acoustic solutions (incl. energy)



# CORPORATE STRATEGY

# PERFORMANCE

ENABLING ENERGY EFFICIENCY FOR EQUIPMENT WORLDWIDE

27 PLANTS IN 19 COUNTRIES

3,390  
EMPLOYEES  
WORLDWIDE

23%

APAC

30%

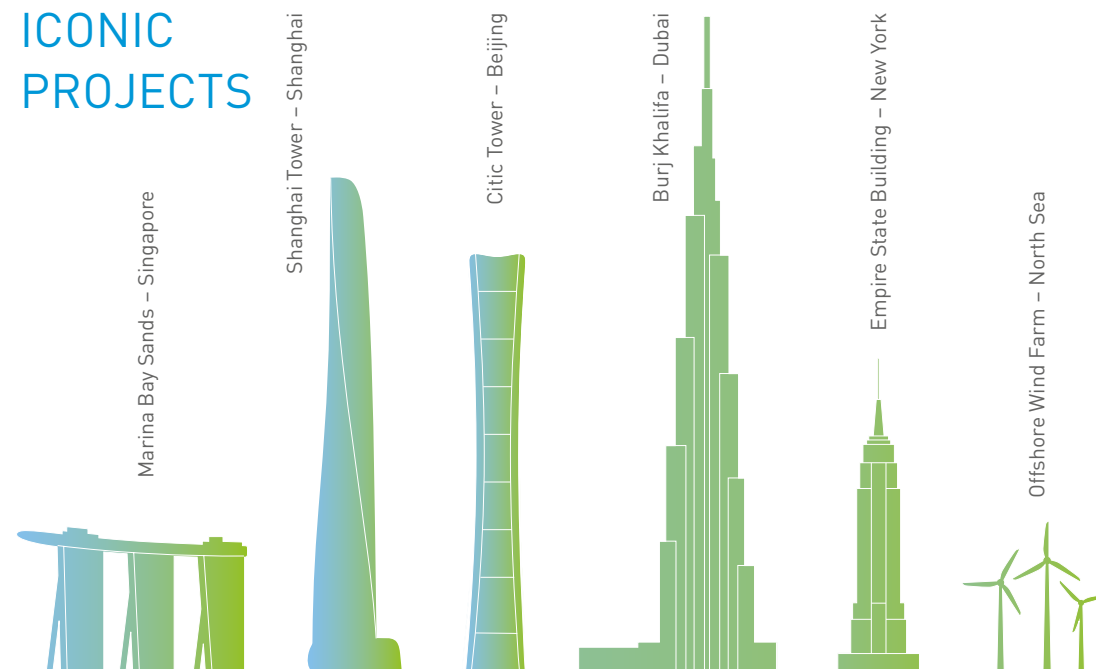
AMERICAS

47%

EMEA

70+  
NATIONALITIES

## ICONIC PROJECTS



€806m

TOTAL NET SALES

€631m NET SALES ADVANCED INSULATION    €175m NET SALES ENGINEERED FOAMS

€121m

ADJUSTED EBITDA



### CORPORATE STRATEGY

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### CORPORATE RESPONSIBILITY

### FINANCIAL RESULTS

## LETTER FROM THE CEO

## DEAR FRIENDS OF THE COMPANY,

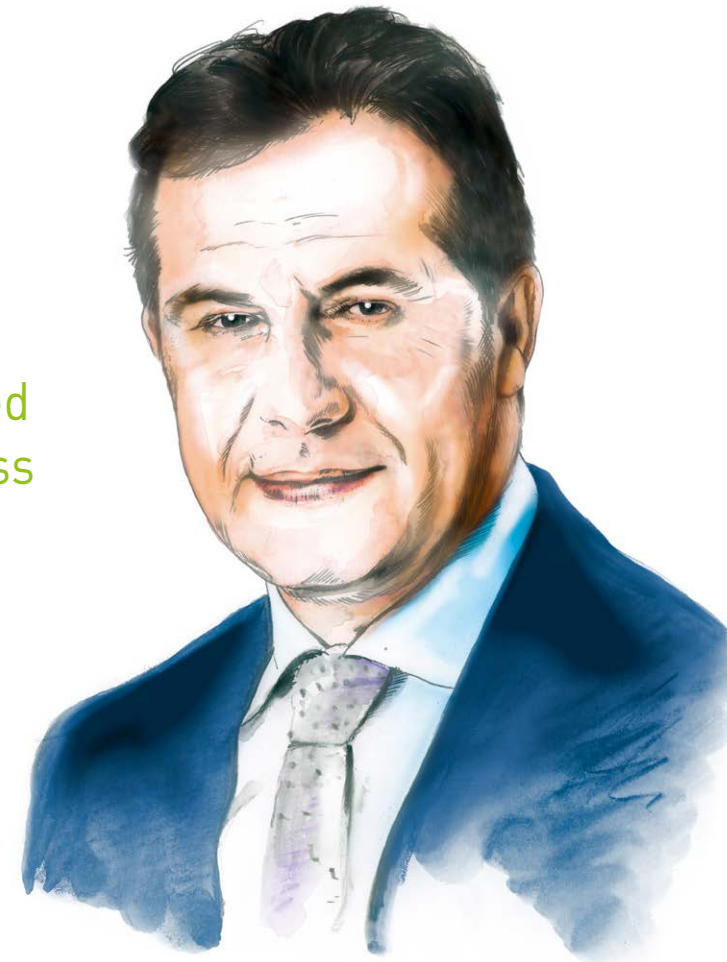
**FOCUSING ON THE NEW NORM** – the theme of our 2022 annual report is an apt comment on a complex year of fundamental change. For each of us individually and for Armacell as a company. The war in Europe triggered an economic tsunami nobody would have envisaged at the start of the year: massive increases in energy and commodity prices, sharply rising cost of living, inflation at highs not seen for decades, interest rate hikes, and recessionary trends. Once again, Armacell was impacted by high transport and energy costs as well as ongoing supply chain disruptions.

**Expansion on several fronts**

Over the 12 months under review, there was still plenty of good news for our company. We entered the market for pre-insulated pipes by acquiring two technical leaders, Austroflex in Austria and IZOLIR in Serbia. This gives us access to the energy-efficient and fast-growing district heating market. In Japan, we acquired the engineering business of SpiderPlus, a manufacturer and supplier of thermal insulation solutions for piping and duct work, and Arma CS Solutions, our new joint venture in Singapore, serves the regional construction and HVAC industries.

—> »In 2022, we again confirmed the strength of our business model.«

Besides accelerating our M&A activities, we continued to pursue Armacell's growth strategy by launching new innovative products and green technology solutions. Recent examples include ArmaPET® Eco50, the first polymeric insulation material based on recycled PET, and ArmaGel® HTL, an innovative aerogel insulation solution designed to prevent corrosion under insulation. Additional investments in new strategic initiatives such as our passive fire protection and acoustics ranges, as well as the accelerated digitalisation of our operating processes, are all milestones on our path to sustaining our company's growth.



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## CORPORATE RESPONSIBILITY

## FINANCIAL RESULTS

## LETTER FROM THE CEO

**Business performance**

In the financial year ending 31 December 2022, our net sales rose by 19.1% to €806.0 million, up from €676.6 million in 2021. Our adjusted EBITDA in 2022 was €120.7 million; our adjusted EBITDA margin 15.0%. The net sales figures recorded by our business units were as follows: Advanced Insulation EMEA €289.1 million (+15.3%), Advanced Insulation AMERICAS €207.8 million (+26.1%), Advanced Insulation APAC €134.3 million (+21.0%) and Engineered Foams €174.9 million (+16.5%). The price increases necessary to compensate for inflation, along with the new products mentioned above and the sterling efforts of our sales teams, were the main reasons for the significant topline growth in 2022.

→ » We continued to invest in innovative products and green technology solutions. «

**Medium-term project pipeline**

Recent geopolitical developments combined with the need to mitigate climate change are boosting the demand for equipment to enhance energy efficiency. Investments in the liquid natural gas (LNG) infrastructure are surging in response to the demand for gas in Europe and Asia. The insulation requirements can be met by our aerogel and elastomeric foam solutions. The wind power market is expected to resume growth, and our ArmaPET® products for wind turbines will benefit from this trend as a better-performing replacement for balsa wood. We also expect a significant increase in the demand for heat pumps instead of gas-powered, hot water and heating systems in new and thermally renovated buildings. With solar thermal energy an important factor in the expanding district heating market, we expect our business to grow there, too.

**Consolidation programme**

To preserve our profitability and further improve service levels to our customers, we launched a comprehensive fixed cost programme and measures to optimise the Group's manufacturing footprint. The latter will involve consolidating some of our operations in Europe and North America to regroup our expertise in bigger plants and to improve our support and efficiency through more specialised competence centres.

At the same time, we will be maintaining a network of sites across key markets to provide our customers with an even better service. The outcome will be a stronger company that can profitably participate in post-recession growth.

On behalf of the Executive Management Team, I should like to express our sincere gratitude to our customers and business partners for their continuing trust in Armacell, and to all our employees – particularly in these difficult times – for their ongoing commitment to 'making a difference around the world'.

Yours sincerely,



**Patrick Mathieu**  
President and CEO  
Armacell Group

**CORPORATE STRATEGY**

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**CORPORATE RESPONSIBILITY****FINANCIAL RESULTS**

## EXECUTIVE MANAGEMENT TEAM

Armacell's executive team comprises ten highly experienced international managers representing six nationalities and a diverse set of skills. Their common purpose is to drive the company's future growth by fostering innovation, encouraging commitment and promoting entrepreneurship.



**Adrian Yeandle**

Chief Legal & Compliance Officer

Manages the legal and compliance affairs within the Armacell Group, ensuring that our operations comply with applicable laws and internal regulations.

**Roberto Mengoli**

Chief Technology Officer

Safeguards and monitors the highest possible quality and safety standards by systematically optimising structures, processes and tools throughout Armacell.

**Sophie Ancelin<sup>1</sup>**

Chief Human Resources Officer

Fosters the talents of 3,000+ employees to enable Armacell's global growth and leads all training, talent acquisition and career development activities.

**Wim Van Acker<sup>1</sup>**

Chief Financial Officer

Develops Armacell's strategic choices through capital structure optimisation, management of financial resources, taxation and risk, and efficient capital utilisation.

**Guillaume Huguen<sup>1</sup>**

Chief Strategic Development Officer

Leverages his deep understanding of our industry, implements Armacell's external growth strategy, and heads corporate communications, innovation and global purchasing.

**Patrick Mathieu<sup>2</sup>**

Chief Executive Officer

Sets and executes Armacell's strategy in making the company a truly global leader in advanced material technologies and energy efficiency around the world.

**Ciro Ahumada**

Vice President AMERICAS

Energises the synergies from multiple acquisitions in North and South America to deliver profitable, high-quality product solutions.

**Liam Douglas**

Vice President APAC

Strives to strengthen Armacell's position and set up the Asia Pacific region for additional growth through a wide range of tailored solutions.

**Bart Janssen**

Vice President Engineered Foams & Energy

Drives the development of the PET, Component Foams and Energy businesses, with a strong focus on nurturing the sustainability of product lifecycles.

**Malte Witt**

Vice President EMEA & Chief Marketing Officer

Grows Armacell's position and market shares in EMEA, enables a customer-centric culture and adds value through sales & marketing excellence programmes.

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**CORPORATE RESPONSIBILITY**

**FINANCIAL RESULTS**

<sup>1</sup> Member of the Management Board  
<sup>2</sup> Chairman of the Management Board

Our vision is to position Armacell as the global leader in providing innovative, technical insulation solutions and components to save energy and make a difference around the world.



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CORPORATE RESPONSIBILITY

FINANCIAL RESULTS

## STRATEGY

At Armacell, we continuously invest in strategic projects and focus on creating sustainable value for our highly diversified global customer base. We have a long track record of growth, superior profitability and cash generation orchestrated by a proven management team who have positioned Armacell as the trusted partner in the energy conservation market.

**GROWTH**

- // Operating in the €12 billion global equipment insulation market
- // Multi-pillar growth strategy
- // Organic long-term growth rate of insulation business at approximately 5% p.a.
- // Total growth target of approximately 10% p.a. (including inorganic growth)

**RESILIENCE**

- // Strategic development at the heart of six global megatrends
- // Broad range of end markets
- // Diversification across equipment verticals
- // Resilient through economic cycles
- // Asset- and capital-light business model
- // New opportunities from growing environmental awareness

**MULTI-MATERIAL**

- // Successful track record of expanding into adjacent technical insulation sectors
- // Extension of temperature range and application horizon
- // Broadening of core insulation business, including rPET and aerogel
- // Addressable market size more than doubled during the past investment period

**INNOVATION**

- // Recognised as an industry and technology leader
- // Driving industry-leading solutions and new technologies
- // Dedicated teams continuously develop IP portfolio
- // 300+ patents across 50 patent families

**EXCELLENCE**

- // World-class standards and pioneering technologies protecting market leadership
- // Energy-efficient solutions
- // Reliable, certified product performance and extended lifetime
- // Operating efficiency and execution excellence
- // Governed by the World-class Armacell Mindset (WAM)

**FINANCIAL STRENGTH**

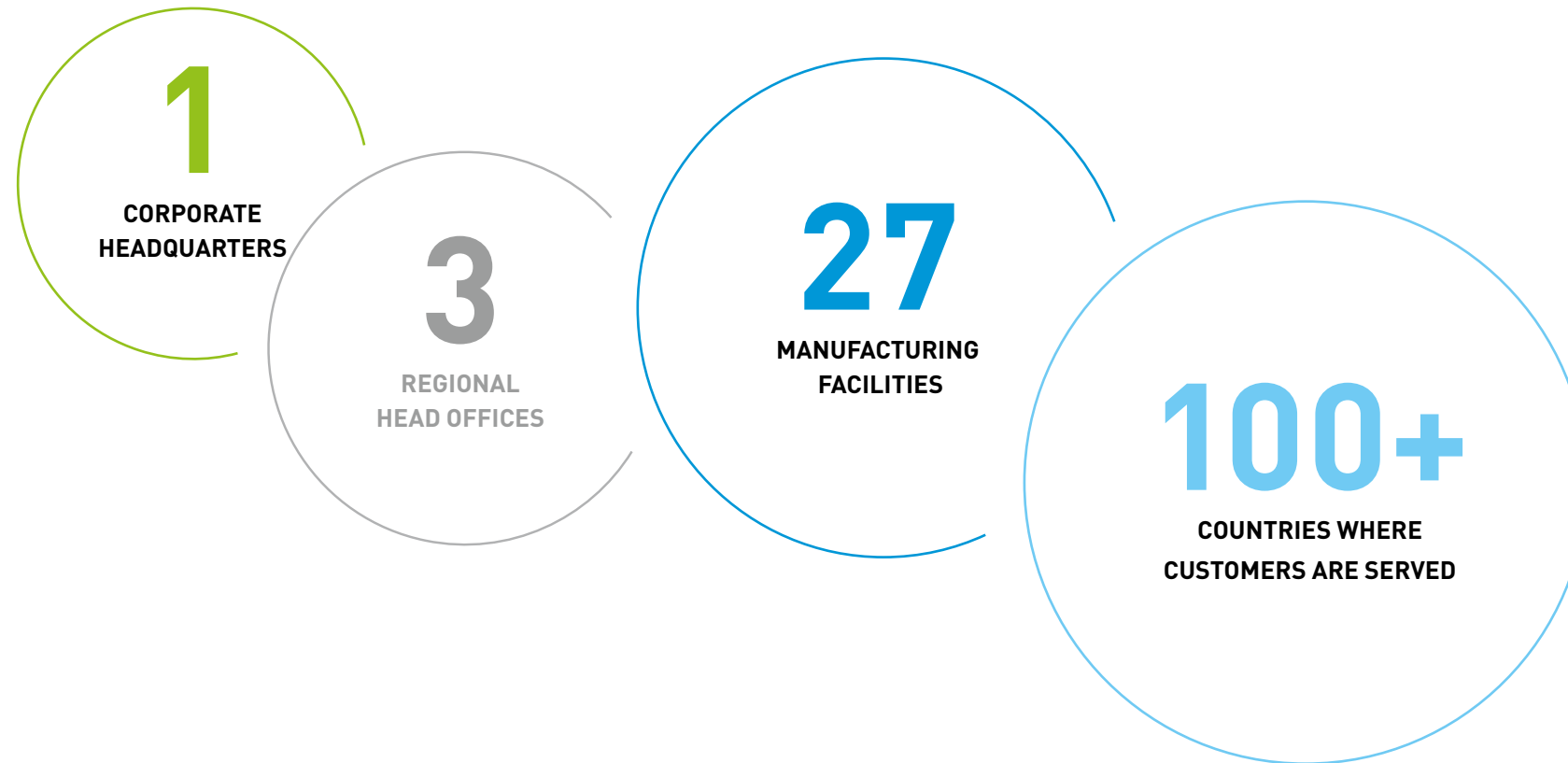
- // Armacell's financial strategy drives dynamic growth
- // Best-in-class profitability levels (low capital intensity, high cash conversion)
- // Optimal use of raw materials, natural resources and energy
- // Maximum operational efficiency and low production costs

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**CORPORATE RESPONSIBILITY****FINANCIAL RESULTS**

## GLOBAL PRESENCE

**Global presence, local focus**

Armacell is a globally operating company managed from its corporate headquarters in Luxembourg and from regional head offices in Germany, the USA and Singapore. Multiple national teams ensure the appropriate local focus. In countries where Armacell does not have its own facilities, sales offices and distributors extend the Group's presence to ensure a truly global network. Armacell customises its products locally at 27 manufacturing facilities in 19 countries to guarantee a customer-centric product portfolio. In 2022, the global manufacturing network was extended through the addition of new facilities in Japan, Singapore, Serbia and Austria.

Four product innovation centres spread across the world ensure a steady supply of pioneering innovations to meet customer and market requirements. We operate centres of excellence for flexible elastomeric foams in Münster, Germany and in Mebane (NC), USA, and for polyethylene foam products in Środa Śląska, Poland. The expertise in PET technology is centred in Thimister, Belgium, and the aerogel insulation blankets technology in Cheonan, South Korea. With its regionally diversified production footprint, Armacell has long been a pioneer in exploring new geographies and is particularly focused on expanding into fast-growing markets.

## CORPORATE STRATEGY

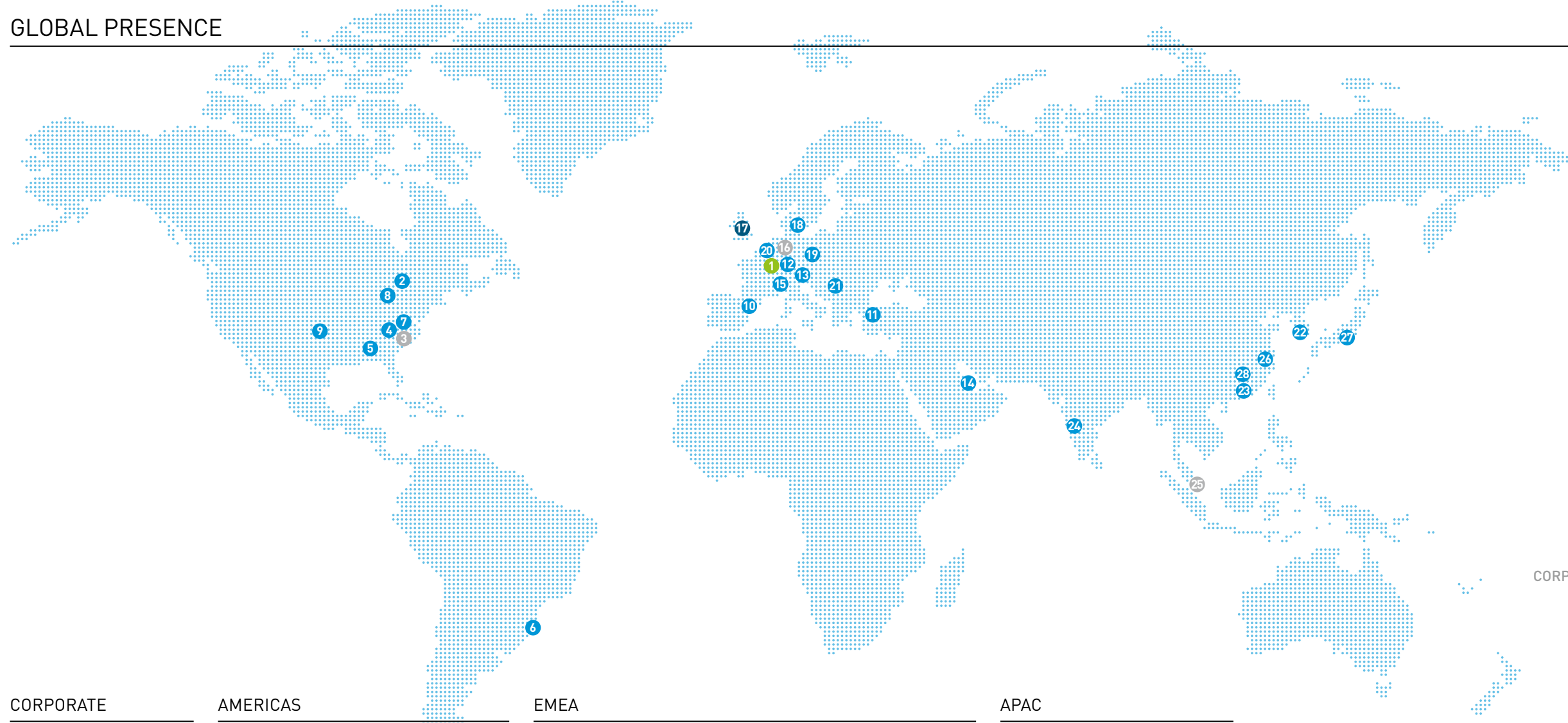
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## CORPORATE RESPONSIBILITY

## FINANCIAL RESULTS



GLOBAL PRESENCE



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CORPORATE RESPONSIBILITY

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CORPORATE

1 LUXEMBOURG - LUX  
(Global headquarters)

AMERICAS

- 2 BRAMPTON - CAN
- 3 CHAPEL HILL, NC - USA
- 4 CONOVER, NC - USA
- 5 DALLAS, GA - USA
- 6 FLORIANÓPOLIS - BRA
- 7 MEBANE, NC - USA
- 8 SPENCER, WV - USA
- 9 YUKON, OK - USA

EMEA

- 10 BEGUR - ESP
- 11 BURSA - TUR
- 12 FRIESENHOFEN - GER
- 13 GÖDERSDORF - AUT
- 14 HIDD - BHR
- 15 LEINI - ITA
- 16 MÜNSTER - GER
- 17 OLDHAM - GBR

APAC

- 18 ØLSTYKKE - DNK
- 19 ŚRODA ŚLĄSKA - POL
- 20 THIMISTER - BEL
- 21 ZRENJANIN - SRB
- 22 CHEONAN - KOR
- 23 PANYU - CHN
- 24 PUNE - IND
- 25 SINGAPORE - SGP
- 26 SUZHOU - CHN
- 27 TOKYO - JPN
- 28 YINGDE - CHN

● Regional head office

● Manufacturing facility

● Distribution centre

# CORPORATE RESPONSIBILITY

## ESG FUNDAMENTALS

Sustainability lies at the heart of our business strategy and innovation efforts. In addition, key Environmental, Social and Governance (ESG) goals are embedded in our operations and everyday work, allowing us to create sustainable value and long-lasting solutions for our diverse customer base.

### Our commitments

In order to achieve Armacell's ESG vision, we have built four strategic pillars of action and concentrated our efforts on optimising the environmental impact of our operations and value chains, enhancing our governance and strengthening our social mission.

### Sustainable future

As we advance in our journey, we recognise that every stakeholder involved in the way we do business plays an active role in our sustainability efforts and thus contributes to our ambitions for the future. We intend to engage regularly with our employees, suppliers, customers, local communities, policy makers and government bodies alike, to create longstanding partnerships and together build a more sustainable world.



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FINANCIAL RESULTS

## KEY FOCUS AREAS IN 2022



### Investing in our People



// **Armacell has a culture of inclusion, fairness and safe working conditions.**

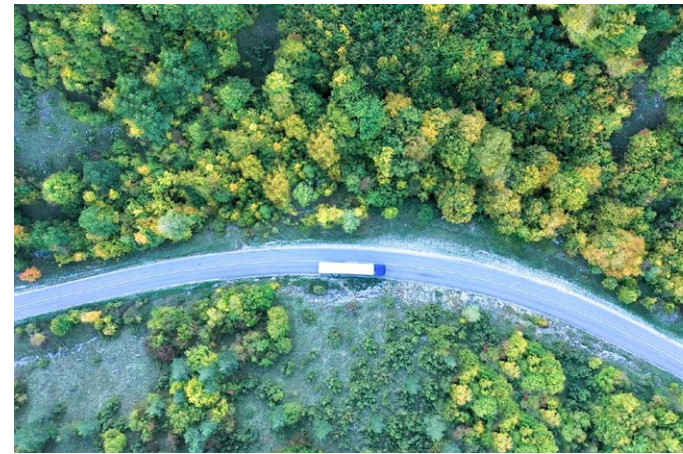
We believe trust-based teamwork and collaboration pave the way for our success.

We regularly host events and initiatives to celebrate our employees' achievements and the global Armacell family, to foster strong links with local communities, as well as to ensure our work is carried out in a safe and healthy manner.

Twice a year, during the Global Armacell Safety Day, local manufacturing teams revisit safety protocols and discuss current health and safety performance at the plant and global levels alike. Participants can share ideas and suggest new ways to increase awareness of potential risks. The event contributes to identifying improvement areas in our internal processes and structures, supporting Armacell's 'zero accidents' mindset.



### Enabling Governance



// **Responsible and ethical conduct is fundamental to the way we do business at Armacell.**

Employees and external stakeholders alike may report any violations of the law or the Code of Conduct, as well as any illegal business, practices on our whistle-blowing portal – accessible via our corporate website. The reports submitted through this secure platform are anonymous and handled strictly confidentially.

To enforce high supplier standards, we have developed the Armacell Supplier Code of Conduct and self-assessment form in which we request our raw materials suppliers to implement policies in the areas of human rights, safety and environmental management.

As part of our due diligence, we further carry out on-site audits of selected suppliers based on their business size and profile, location and geographical distribution.



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## KEY FOCUS AREAS IN 2022



### Protecting our Planet



// Saving resources and enhancing energy efficiency are among the environmental objectives Armacell pursues.

As a global leader in high-performance insulation materials, we are particularly concentrating on aspects of relevance to climate, energy consumption and carbon emissions. In 2022, we focused our efforts to support a greater adoption of renewable energies for our manufacturing needs and invested in long-term initiatives.

Today, roof-installed panels in Thimister, Belgium, cover up to 10% of the plant's total energy consumption, while at our Austrian plant, solar panels provide nearly 80% of the total energy needed. In addition, around 45% of the energy sourced by our Indian production site in Pune comes from renewable sources.



### Furthering Sustainable Growth



// At Armacell, we focus on creating sustainable value for our highly diversified customer base.

Our patented ArmaPrene™ technology offers the highest fire standard in flexible insulation and complies with international green building standards. Through ArmaProtect™, we offer a wide range of firestop systems that reduce the propagation of fire and smoke to adjacent fire compartments, increasing safety and saving lives. These passive fire protection solutions are certified to the highest international standards applicable.

ArmaPET® Eco50 is the first polymeric insulation material based on 100% recycled PET with a CE certification. Offering an outstanding environmental profile and compliance with stringent building construction requirements, this product helps tackle global plastic pollution and supports further recyclability at the end of its life cycle.



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## BUILDING A SUSTAINABLE FUTURE FOR EVERYONE

The United Nations' 17 **Sustainable Development Goals (SDGs)** are the blueprint to achieve a better and more sustainable future for everybody. They address global challenges and call on individuals, companies and organisations to play their part in achieving these global goals by 2030.

**At Armacell, we are particularly committed to five SDGs that are intrinsically linked to our business.**



For more than 15 years, we have also been supporting the United Nations Global Compact (UNGC) initiative and aligning our strategies and operations to its Ten Principles to meet fundamental responsibilities in the areas of human rights, labour, environment and anti-corruption.



More information about sustainability is available on our website: [www.armacell.com/sustainability](http://www.armacell.com/sustainability)



### SAFE WORKPLACE

A decent job is a safe job. Armacell's Health & Safety Policy and its promotion of a zero-accident mindset help employees to go home from work safe and healthy.



### INNOVATIVE TECHNOLOGY

We develop and market innovative products and solutions that conserve energy and enable lightweighting solutions in the automotive, rail and wind energy industries.



### PRESERVING RESOURCES

We are committed to delivering sustainable value through low-impact and durable performance products, adopting a responsible use of resources in our sourcing and production.



### HIGHER ENERGY EFFICIENCY

By enhancing energy efficiency and lowering CO<sub>2</sub> emissions in a wide range of industries, our products enable a more effective global response to climate change.



### LESS PLASTIC POLLUTION

Plastic debris are polluting the world's oceans. Our structured PET foams are made entirely of recycled plastic bottles, which may otherwise have ended up in lakes, rivers or seas.



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# FINANCIAL RESULTS

## FINANCIAL HIGHLIGHTS 2022

- // Net sales rose by 19% to €806 million by the end of 2022
- // Adjusted EBITDA at €121 million, resulting in an adjusted EBITDA margin of 15%
- // High level of investment to advance product portfolio and manufacturing performance
- // Price increases and other mitigating actions to compensate for inflation
- // Continued M&A activity in APAC and EMEA regions

## CORPORATE RATINGS



## KEY FINANCIAL FIGURES

in € million	2018	2019 <sup>7</sup>	2020	2021	2022 <sup>8</sup>
<b>Income statement<sup>1</sup></b>					
Net sales	610.3	644.4	590.5	676.6	806.0
Adjusted EBITDA <sup>2</sup>	106.0	133.5	119.6	116.8	120.7
Adjusted EBITDA margin	17.4%	20.7%	20.2%	17.3%	15.0%
Adjusted EBITA <sup>3</sup>	86.4	102.7	87.5	80.9	77.0
Adjusted EBITA margin	14.2%	15.9%	14.8%	12.0%	9.6%
Adjusted EBIT <sup>4</sup>	48.2	65.8	48.6	42.1	35.5
Adjusted EBIT margin	7.9%	10.2%	8.2%	6.2%	4.4%
<b>Cash flow<sup>1</sup></b>					
Adjusted cash flow from operating activities <sup>5</sup>	94.3	129.1	100.6	70.8	131.1
Investments (excluding acquisitions)	46.0	44.3	44.2	41.4	41.5
Adjusted free cash flow <sup>6</sup>	48.9	85.6	57.9	30.5	91.2
<b>Balance sheet<sup>1</sup></b>					
Current assets	252.8	265.2	268.4	286.5	316.8
Non-current assets	978.9	1,020.6	1,437.4	1,347.1	1,219.1
Current liabilities	184.6	1,272.7	185.3	214.7	298.3
Non-current liabilities and equity	1,047.1	13.1	1,520.5	1,418.9	1,237.7
<b>Net debt – excluding shareholder loans<sup>1</sup></b>					
Equity (including shareholder loans)	253.4	249.5	530.1	455.2	296.8
Net debt	623.3	621.4	736.2	752.5	792.8

## NOTES

<sup>1</sup> Consolidated financial statements for 2020 were prepared for Neptune Holdco and included ten months of Armacell Group activities in 2020.

<sup>2</sup> Adjusted for non-recurring items.

<sup>3</sup> Adjusted for non-recurring items and asset impairments.

<sup>4</sup> Adjusted for impairment loss on goodwill in 2021.

<sup>5</sup> Adjusted for non-recurring items, depreciation and interest expenses on lease in 2019.

<sup>6</sup> Adjusted for depreciation and lease interest expenses in 2019.

<sup>7</sup> IFRS 16 applied since 1 January 2019.

<sup>8</sup> Excluding impact from hyperinflation in Türkiye.



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## REPORTING STRUCTURE

On 4 December 2019, private equity funds managed by PAI Partners S.A.S. and KIRKBI Invest A/S, shareholders of Neptune Holdco S.à r.l., agreed to acquire Armacell Holdco S.à r.l., a limited liability company registered in Luxembourg and shareholder of Armacell International S.A. (hereafter also referred to as 'Armacell' or 'Armacell Group'). The transaction was closed on 28 February 2020. The Armacell Group's fiscal year starts on 1 January and ends on 31 December of each year.

The Armacell Group is organised into two business divisions: Advanced Insulation and Engineered Foams.

### ADVANCED INSULATION

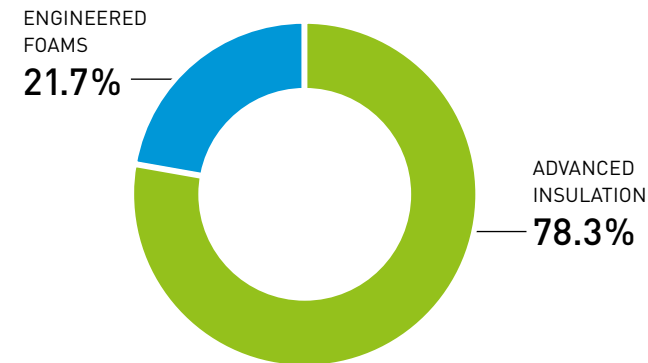
The Advanced Insulation (AI) division provides flexible foam insulation solutions to insulate technical equipment used for the transportation of energy. The typical applications include HVAC, heating and plumbing, refrigeration, industrial, energy, commercial and residential infrastructure, acoustics as well as passive fire protection. The principal value creation of the AI division is the co-design of energy-efficient installations. It is managed across three regions: Europe, the Middle East and Africa (EMEA), North and South America (AMERICAS), and Asia Pacific (APAC).

### ENGINEERED FOAMS

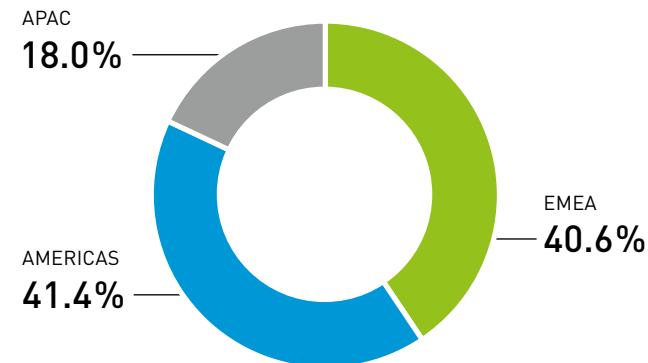
The Engineered Foams (EF) division develops and produces custom-made, high-performance and lightweight foams used across a broad range of end markets, including wind energy, transportation, infrastructure, industrial application and sports and leisure. Its portfolio consists of environmentally friendly, structural PET foam cores and component foam solutions, i.e. engineered elastomeric and polyethylene foams as well as cross-linked polyolefin foams. The principal value creation of the EF division is the customisation of the physical properties of semi-finished and finished components sold to converters and OEMs.



### NET SALES BY BUSINESS DIVISION



### NET SALES BY REGION



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## GROUP PERFORMANCE

### NET SALES AND PROFIT

In 2022, Armacell achieved total **net sales** of €806.0 million, an increase of 19.1% on 2021 (€676.6 million), excluding the impact from hyperinflation in Türkiye. This performance was driven by sales price increases implemented to compensate for higher input costs, additional sales from M&A activities, as well as favourable FX developments. Growth was partially offset by lower volumes (mainly in H1) due to a general market slowdown and customers reducing inventory, a temporary slowdown in the wind blade industry, as well as continued supply chain disruptions and Covid-19 effects in certain geographies.

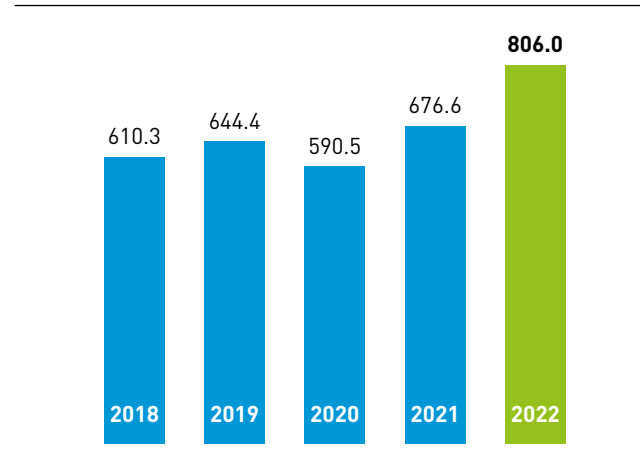
Armacell generated an adjusted **EBITDA** of €120.7 million, which was €3.9 million higher than in 2021 (€116.8 million). The adjusted EBITDA margin was 15.0% (2021: 17.3%). The better EBITDA performance was mainly driven by M&A activities as well as further efficiency gains and partially offset by the impact of lower volumes and investments in new business developments. The adjusted **EBITA** was €77.0 million (2021: €80.9 million).

### INVESTMENTS AND CASH FLOW

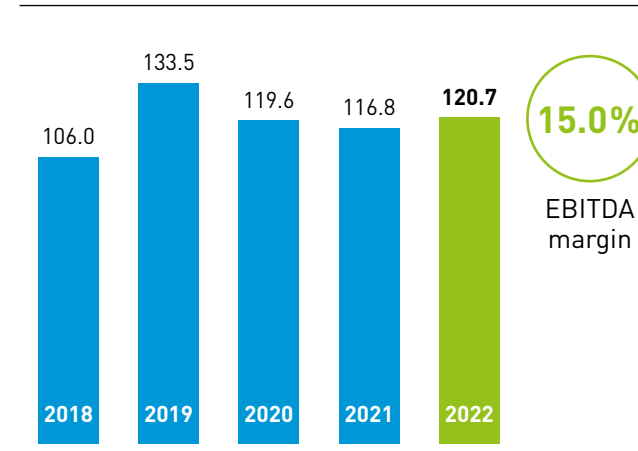
In 2022, Armacell continued to generate a strong operational **cash flow** and had cash on hand of €61.6 million at the end of 2022 (2021: €63.5 million). The adjusted free cash flow amounted to €131.1 million (2021: €70.8 million).

Besides the cash position and the strong cash flow, the most important source of liquidity was the **revolving credit facility** of €110 million or equivalent in other currencies. This was unchanged from 2021. This revolving credit facility was used to fund the recent acquisitions and €41.8 million was drawn as of 31 December 2022 (2021: €2.7 million).

NET SALES in € million



Adjusted EBITDA in € million



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## GROUP PERFORMANCE

**BALANCE SHEET**

As of 31 December 2022, Armacell's total assets were €1,535.9 million (2021: €1,633.6 million).

The total **non-current assets** amounted to €1,219.1 million (2021: €1,347.1 million). The decline of 9.5% on the prior year was largely attributable to impairment losses resulting from the increase in long-term interest rates. This was partly offset by an increase in property, plant and equipment, primarily due to higher investments made.

in € million	31 Dec. 2021	31 Dec. 2022
Property, plant and equipment	313.0	336.7
Goodwill	633.1	530.5
Other intangible assets	376.6	331.6
Other non-current assets	24.4	20.3
<b>Non-current assets</b>	<b>1,347.1</b>	<b>1,219.1</b>

As of 31 December 2022, **current assets** of €316.8 million had increased by 10.6% in a year-on-year comparison (2021: €286.5 million). This increase was mainly due to higher inventories and trade receivables, which gained in value due to higher volumes and inflation.

in € million	31 Dec. 2021	31 Dec. 2022
Inventories	102.7	116.7
Trade receivables	87.8	106.3
Cash and cash equivalents	63.5	61.6
Other current assets	32.5	32.2
<b>Current assets</b>	<b>286.5</b>	<b>316.8</b>

At the end of 2022, **non-current liabilities** (excluding the liabilities due to shareholders) amounted to €940.8 million (2021: €963.7 million), a decline of 2.4% on the prior year. This was mainly due to a lower amount of provisions for pensions and similar obligations as a result of higher discount rates and a decrease in deferred tax liabilities.

**Current liabilities** amounted to €298.3 million (2021: €214.7 million), an increase of 38.9% in a year-on-year comparison. This was due to an increase in short-term borrowings compared to the previous year. The short-term liquidity ratio was 56.3% (2021: 70.5%) in relation to the cash and cash equivalents and trade receivables totalling €167.9 million (2021: €151.3 million).

As of 31 December 2022, **equity including shareholder loans** amounted to €296.8 million (2021: €455.2 million).



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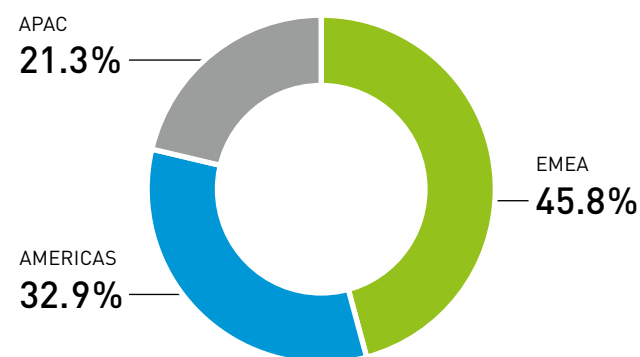
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## SEGMENT PERFORMANCE

### ADVANCED INSULATION

In 2022, the net sales from Armacell's Advanced Insulation (AI) division amounted to €631.1 million (2021: €526.5 million), or 78% of total net sales in 2022 (2021: 78%).

#### NET SALES BY REGION (AI)



→ Net sales (AI)  
€631.1 million

#### Advanced Insulation EMEA

The net sales generated by Advanced Insulation EMEA increased by 15.3% from €250.7 million in 2021 to €289.1 million in 2022. The strong sales development for EMEA was mainly driven by the launch of new products (e.g. passive fire protection portfolio), the contribution from M&A activities, and price increases necessary to compensate for inflation. In Q3 and Q4, Armacell successfully integrated its new acquisitions in Serbia and Austria.

The region continued to focus on renewable energies and the OEM business, which benefitted from the strong demand for heat pumps as well as thermal solar and geothermal installations and the corresponding demand for equipment insulation. Armacell's ArmaPrene™-based product portfolio, its acoustics product range and the newly launched passive fire protection portfolio were well implemented across the region and significantly contributed to the sales performance.

#### KEY FIGURES – AI EMEA

in € million	2020	2021	2022 <sup>1</sup>
Net sales	216.1	250.7	289.1

<sup>1</sup> Excluding impact from hyperinflation in Türkiye.

#### Advanced Insulation AMERICAS

The net sales generated by Advanced Insulation AMERICAS increased by 26.1% from €164.8 million in 2021 to €207.8 million in 2022. The higher sales are explained by sales price increases necessary to offset inflation, the positive impact from the stronger U.S. dollar and improved service levels despite a more challenging environment.

The sales performance in the region was mainly driven by refrigeration, retail and energy segments and only partially offset by the residential segment in the USA and Canada. The business in South America grew above average and benefitted from a strong project focus and demand generation efforts. In addition, locally produced products have not been disrupted by the supply chain issues such as those witnessed in North America.

#### KEY FIGURES – AI AMERICAS

in € million	2020	2021	2022
Net sales	145.9	164.8	207.8



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## SEGMENT PERFORMANCE

**Advanced Insulation APAC**

The net sales generated by Advanced Insulation APAC increased by 21.1% from €110.9 million in 2021 to €134.3 million in 2022. Growth was mainly driven by sales price increases necessary to offset inflation, strong business development, as well as M&A with the acquisition of the SpiderPlus Engineering Division in Japan, as well as Arma CS Solutions, our new joint venture in Singapore.

Overall, the region recovered from a challenging first half of 2022, which was negatively impacted by the Covid lockdowns in China. India confirmed strong results, Japan continued to bring through a good project sales performance, and ASEAN countries continued to show positive results, including strong ArmaGel® sales. The positive trend in South Korea was confirmed in the second half of the year.

**KEY FIGURES – AI APAC**

in € million	2020	2021	2022
Net sales	92.2	110.9	134.3

**ENGINEERED FOAMS**

In 2022, the net sales from Armacell's Engineered Foams (EF) division amounted to €174.9 million (2021: €150.1 million), or 22% of total net sales in 2022 (2021: 22%). The growth of 16.5% was predominantly driven by a solid performance of the Component Foams business.

**KEY FIGURES – EF**

in € million	2020	2021	2022
Net sales	136.3	150.1	174.9

→ Net sales (EF)  
€174.9 million

**Component Foams**

The Component Foams team confirmed its reliable service and quality levels and maintained its offer across all markets – including automotive, sport & leisure and industrial. The focus also remained on the diversification of Armacell's customer base, and various new activities were launched in 2022. The latest initiatives included an enhanced focus on electric vehicles offering acoustic solutions as well as thermal protection for the battery pack and new product launches based on the company's licensed bun foam technology.

**PET**

In 2022, new volumes were generated through Armacell's diversification strategy outside of wind applications. Diversification in the PET business continues to be driven by megatrends such as lightweighting and electrification. With the launch of ArmaPET® Eco50, Armacell combines the structural benefits of recycled material with its thermal insulation properties. ArmaPET® Eco50 obtained the CE marking in Q4, and the company continues to leverage new opportunities in the building and construction industry.



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## OUTLOOK

### Armacell's long-term growth potential remains unchanged.

Markets continue to be driven by the increased requirements for energy efficiency as well as the transition in energy generation.

Governments have taken wide-ranging political decisions favouring the increased use of renewable energies and avoidance of energy waste. The European Union, for example, is committed to reducing CO<sub>2</sub> emissions by 55% by 2030 compared to 1990 levels. As **enhancing energy efficiency and enabling energy savings is Armacell's *raison d'être***, these developments bode well for the future development of the company's business.

Increasing energy-efficiency awareness will have a positive impact on Armacell's business as **insulation materials are seen as the most efficient way to save energy**. The housing renovation sector is bringing new business opportunities for Armacell's insulation products.

Despite governmental support mechanisms in recent months, the average European household is still facing energy costs that are almost twice as high as in 2021. 53% of all European housing is rated as 'low insulation', and a significant amount of renovation work is required to reach state-of-the-art insulation standards. Heat pump deployment will also need to keep growing to reach the RePowerEU's target of 54 million heat pumps by 2030.

In response to Europe's efforts to reduce its dependency on gas imports from Russia, the demand for liquid natural gas (LNG) has risen dramatically. Globally, investments in LNG infrastructure are expected to surge from USD 2 billion in 2021 to USD 42 billion in 2024. Armacell's aerogel and elastomeric foam solutions are capable of meeting multiple insulation requirements in this field, and the company is working closely with energy consultants and oil majors to realise this potential.

The global wind energy market is expected to grow by an average of 5% per year up to 2031, with a marked increase in offshore wind farms. This will have a beneficial effect on Armacell's business as ArmaPET® products are increasingly being used as a substitute for balsa wood in the construction of wind turbine blades.

The acquisition in 2022 of two major manufacturers of pre-insulated pipes, IZOLIR and Austroflex, opens up the fast-growing and energy-efficient pre-insulated pipe market, which is mainly dedicated to district heating applications. The global pre-insulated pipes market size is projected to reach USD 10.2 billion by 2024, with Europe as the largest market in terms of value. Within the next decade, the deployment of district heating and cooling solutions will play a critical role in gradually phasing out fossil fuel-powered heating systems. A recent assessment by Agora Energiewende found that district heating may well enable gas savings of around 125 TWh in Europe as early as 2027.

Besides strategic initiatives for organic growth undertaken in Armacell's Advanced Insulation division, the company also foresees **continuing growth opportunities through the substitution of existing insulation materials** such as mineral wool and rigid foam. Growth opportunities in the Engineered Foams division will be generated by **increased diversification**. Whereas PET demand in the wind turbine and nacelle markets suffered from reduced government subsidies in 2022, Armacell is continuing to enlarge its customer base outside the wind market [e. g. applications for the transport and industrial segments].

In the R&D field, Armacell will continue to **strengthen its position as the technology leader**, while identifying cross-regional opportunities for innovative products and technologies. New recipes are designed to significantly reduce the negative impact of rising raw material prices. In addition, Armacell is investing

in new technologies to expand the temperature range of its products, enlarge its product portfolio and provide customers with one-stop shopping opportunities.

## → Armacell's long-term growth potential remains unchanged.

These efforts will be accompanied by additional improvements in productivity and through **digitalisation initiatives** across the Armacell Group. A substantial investment programme is helping to enhance efficiency, reduce fixed costs and optimise the manufacturing footprint.

The opportunities outlined above are subject to the same inherent uncertainties impacting all estimates that form the basis of corporate strategic planning. Nevertheless, the measures outlined should have a positive effect on Armacell's earnings and financial position. On the basis of the above-mentioned trends and implemented measures and assuming stable currency developments, the Armacell Group's net sales and EBITDA are expected to grow in all segments in 2023.



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## OUTLOOK

## // CONSTRUCTION

In Europe, construction output grew by approximately 3% in 2022. As a result of the war in Ukraine and high inflation rates, growth in the industry is anticipated to slow to 0.2% in 2023. The U.S. construction sector recorded substantial growth in 2022, exceeding 10% overall. Despite supply chain disruptions and a shortage of skilled workers, growth is expected to continue in 2023 thanks to major governmental investment policies. Asia's construction sector is forecast to grow by 1.7% in 2023, with China accounting for over 60% of the market.

## // TRANSPORT

Despite the energy crisis, weaker global demand and ongoing supply chain problems, the automotive industry sold 79 million new vehicles in 2022. Though recording growth, this total was below the pre-pandemic level. While new vehicle sales will remain generally flat, the megatrends of electrification, autonomous driving and lightweighting are offering strong growth opportunities in 2023 and beyond. EV and clean vehicle sales are also expected to grow exponentially in the USA (+61%) and in Europe (+50%).

## // ENERGY

Energy efficiency measures picked up pace across the world in 2022, with spending of approximately USD 560 billion mainly on heating and cooling applications. Global capital expenditure on wind and solar equipment increased by 37%. The EU aims to double its solar capacity until 2025 and China to raise its renewable-energy capacity by 2,400 GW until 2027, the equivalent of its entire currently installed capacity. The U.S. solar market is set to add 29.1 GW of utility-scale photovoltaic capacity (the most ever added in a single year) and 9.4 GW of storage capacity in 2023.



Sources: Automotive World Magazine, Euroconstruct, Euroheat & Power, European Commission, FMI, Global Wind Energy Council, LNG Journal, MarketsandMarkets, McKinsey & Co, The Economist Intelligence Unit, U.S. Energy Information Administration.

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## RISK MANAGEMENT

Armacell is exposed to various risks that are part and parcel of the entrepreneurial nature of the business. In order to identify and mitigate possible risks at the earliest possible stage, Armacell continuously monitors potential sources of risk.

### Industry-specific risks

There are significant barriers to entry in the flexible insulation and technical foam markets. This is particularly true with respect to the initial investment, the required recipe and process know-how, intellectual property, as well as the necessary penetration of distribution channels via a global commercial organisation. The risk that new competitors will enter this high-end market and gain material market shares is considered to be limited.

Furthermore, Armacell offers products developed with the latest technologies based on prevailing industry regulations in premium segments. Hence, the Group is in a position to continuously optimise production costs. Nevertheless, ongoing competitive pressure on prices is still expected, and this risk is managed by continuously focusing on the customers' price, quality, availability and service requirements.

As Armacell is active in businesses that benefit from more stringent environmental laws and regulations, more industry-specific opportunities than industry-specific risks are expected here. Since stricter environmental protection regulations and requirements may well trigger plant modernisation measures in future, this would boost the demand for equipment insulation products and positively impact the Group's earnings.

### Risks related to corporate strategy

In view of Armacell's highly diverse customer base and focus on recurring business from long-term customer relationships, no material risks relating to its corporate strategy are foreseen in 2023. The top ten customers account for less than 20% of net sales.

// The focus continues to be on the **Advanced Insulation** business, in which Armacell is seeking to enlarge its addressable market and develop new opportunities. The expansion into 'hot' or higher temperature applications is based on the development of higher performance foams, new material technologies and system solutions.

// In **Engineered Foams**, Armacell strives to capitalise on the disruptive proposition and substitution potential of PET foams over legacy materials, such as balsa wood and PVC in the wind energy, infrastructure and transportation markets. In Component Foams, the pursuit of lightweight solutions across a variety of applications and industries is likely to drive the use of Armacell's high-performance flexible foam components at the expense of heavier solid-plastic solutions.

To mitigate risks, Armacell has introduced appropriate measures to align production capacity to the expected demand requirements. In addition, Armacell is continuously exploring and developing new and promising market opportunities, such as aerogel-based insulation, acoustic systems and solutions, passive fire protection solutions, and PET foams, where it is pursuing a reinforced diversification strategy.

The Group is continuously assessing its commercial excellence and routes to market, as well as looking for opportunities to extend its geographic reach. The strong geographic diversification makes it more resilient and mitigates any material risks otherwise arising from a concentration on individual markets. Recent acquisitions in Japan, Serbia and Austria have enhanced the Armacell's geographic spread and geopolitical risk mitigation.

### // INNOVATION

Armacell strategically invests in R&D activities to mitigate the risk of margin deterioration due to direct product competition. Since the Group's technology platform is one of its main competitive advantages, additional sales and profitable growth opportunities are expected through increased efforts in this area. This applies to both the continuous development of existing products and the launch of new products with value-added characteristics. Lighter and thinner, Armacell products – combining thermal and acoustic properties – allow customers to substitute legacy materials at a lower overall cost. In recent years, Armacell has increased the percentage of system sales, growing the euro value per metre of equipment insulation technologies sold to the global customer base.



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## RISK MANAGEMENT

### Performance-related risks

Armacell's margins have proved resilient during the financial and economic volatility of recent years. Raw material price pressures are managed through the ongoing multiple-sourcing optimisation of recipes and cost initiatives. The ability of the senior management to implement relatively short-term price increases to pass on higher raw material costs has had an additional attenuating effect.

Competing products generally depend on similar raw materials, with their product prices also determined by the balance of supply and demand. Hence, Armacell is focused on continuously investing in performance optimisation and improving the Group's long-term relative competitiveness to be able to absorb adverse raw material volatility or pass on peak raw material prices to customers.

### IT risks

In line with its manufacturing peers, Armacell is exposed to risks arising from digital disruption of the existing IT infrastructure. The security and continuity of the Group's IT systems and data are ensured by a set of infrastructure and security measures defined and carried out by a global governance body comprised of corporate and local IT teams and in accordance with Group policies and best risk management practices.

In response to a cyber attack in 2020, various new security measures were implemented, and a Cyber Security Policy was published in 2021 to provide guidance to all employees on how to preserve the security of the data and IT infrastructure and mitigate security risks. Led by the Information Security Officer, the Group's security status and defences are continually being reviewed, ad hoc security policies and functions implemented and cybers security training carried out.

### Financial risks

While facing the typical liquidity risks of private equity financing – interest charges and comparatively low equity ratios – Armacell's leverage position is in line with the standard of private equity-owned companies. Armacell has implemented strong cash management processes and tools to ensure it maintains a healthy cash buffer and stays clear of its covenants. Moreover, the financial risks from customer receivables are considered to be low. Besides the revolving credit facility of €110 million, the Group can optionally access new financing sources in the event of acquisitions or investments in the business.

As Armacell operates globally, its trading results are affected by foreign exchange rate volatility. The reported results are impacted by two different kinds of foreign currency risk. Transactional risk arises from transactions denominated in currencies other than the functional currency of the subsidiary. In general, Armacell does not hedge its transactional exposure as the business is, to a large extent, naturally hedged, with local sourcing and selling usually in the same currency. However, some entities source and sell in different currencies, which gives rise to some transactional risks.

Translational risks arise when consolidating the Group results and relate to the exposure from translating the financial statements of subsidiaries using currencies other than the euro as their functional currency. More than 60% of the revenues are generated by entities using the EUR and USD as their functional currency. Other important foreign currencies within the Group are the CNY, CAD, INR and PLN. Armacell's senior management continuously monitors the underlying risks. The Group's decentralised organisation with local production facilities means that transactional risk has less of an impact than translational risk.



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## RISK MANAGEMENT

The total notional amount of bank loans as of 31 December 2022 was €802.9 million (2021: €772.7 million). Most of the bank loans are in euros. To manage its foreign currency exposure, the Group entered into EUR/USD cross-currency swaps totalling €360 million effective 9 January 2022 and expiring after three years.

The Group is exposed to interest rate risks from bank loans with variable interest rates. The main financing is based on an unchanged €710 million term loan with an originally agreed interest rate of Euribor +350 bps and a floor level of 0%. While the margin was reduced to Euribor +325 bps in 2021, the margin rose during the year under review to Euribor +350 bps. The floor level remains unchanged. This loan will mature in 2027.

Armacell has access to a revolving credit facility of €110 million with an originally agreed margin of Euribor +300 bps and a floor level of 0%. After the margin was reduced to Euribor +275 bps in 2021, it rose to Euribor +300 bps in the year under review. The floor level remains unchanged. This revolving credit facility will mature in 2026.

The Group entered into interest rate swaps to the amount of €300 million in the first quarter of 2022. These swaps limit exposure to interest rate rises of more than 0.50% until the end of February 2024. Associated premiums are deferred and paid quarterly in equal instalments.

### Overall risk exposure

At the time of writing, there were no identifiable risks relating to future developments that could endanger the existence of the Armacell Group as a going concern. As Armacell has no special-purpose entities or investment vehicles besides the structured entity that delegates the accounts receivable management, there is no risk that might emanate from such a source. Aggregation of the most significant individual risks is not appropriate as such risks are unlikely to occur simultaneously. The overall risk analysis indicates that Armacell's exposure to risk does not represent any lasting endangerment to the net assets, financial position and result of Group operations. The overall picture shows no underlying change to the previous year's risk situation.



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## CORPORATE GOVERNANCE

### GROUP MANAGEMENT

The decision-making bodies of Armacell International S.A. consist of the individuals listed below. Responsible for the long-term success of the Group, they set the strategic goals, establish standards, and ensure compliance.

#### Supervisory Board

- // Mathieu Paillat (Chairman)
- // Laurent Rivoire
- // Marlène Bazouin (as of 31 October 2022)
- // Jacob Chris Lassen
- // Peter Bason
- // Jørgen Jensen (independent)

#### Audit Committee

- // Peter Bason (Chairman)
- // Mathieu Paillat

#### Remuneration and Nomination Committee

- // Mathieu Paillat (Chairman)
- // Jacob Chris Lassen

#### Sustainability Committee

- // Jacob Chris Lassen (Chairman)
- // Marlène Bazouin

#### Management Board

- // Please refer to page 21

#### Executive Management Team

- // Please refer to page 21

### OWNERSHIP STRUCTURE

Since 28 February 2020, private equity funds managed by PAI Partners have been Armacell's majority shareholder. The remaining shares are held by the holding and investment company KIRKBI and Armacell's senior management team.

#### About PAI Partners

PAI Partners is a pre-eminent private equity firm investing in market-leading companies across the globe, with offices in Paris, London, Luxembourg, Madrid, Milan, Munich, New York and Stockholm. It manages over €26 billion of dedicated buyout funds and, since 1994, has completed 92 investments in 11 countries, representing over €72 billion in transaction value.



PAI has built an outstanding track record through partnering with ambitious management teams where its unique perspective, unrivalled sector experience and long-term vision enable companies to pursue their full potential – and push beyond. [www.paipartners.com](http://www.paipartners.com)



#### About KIRKBI

KIRKBI is the Kirk Kristiansen family's holding and investment company founded to promote a sustainable future for the family ownership of the LEGO® brand through generations. Its strategic activities include 75% ownership of the LEGO Group, 47.5% ownership of Merlin Entertainments and investments in EPIC Games and renewable energy. The company's investment

activities also include significant long-term investments in companies such as ISS, Nilfisk, Falck, Armacell, Välinge and Landis+Gyr, as well as real estate investments in Denmark, Switzerland, Germany and the UK.

[www.kirkbi.com](http://www.kirkbi.com)



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MAKING A DIFFERENCE AROUND THE WORLD