



# BASF Factbook

Information for investors and analysts

Published May 2023



We create chemistry

## Cautionary note regarding forward-looking statements

This publication contains forward-looking statements. These statements are based on current estimates and projections of the Board of Executive Directors and currently available information. Forward-looking statements are not guarantees of the future developments and results outlined therein. These are dependent on a number of factors; they involve various risks and uncertainties; and they are based on assumptions that may not prove to be accurate. Such risk factors include those discussed in Opportunities and Risks on pages 157 to 167 of the BASF Report 2022. BASF does not assume any obligation to update the forward-looking statements contained in this publication above and beyond the legal requirements.

## Data

Due to rounding, individual figures may not add up exactly to the totals shown and percentages may not correspond exactly to the figures shown.



### White biotechnology as an element in BASF's toolbox

White biotechnology – also known as industrial biotechnology – uses microorganisms and enzymes to produce chemical and biochemical products. Some products such as enzymes or complicated active ingredients are only accessible via white biotechnology and cannot be manufactured by chemical synthesis. The first steps in process development for new substances take place in the fermentation laboratory in Ludwigshafen, Germany. The production volume is increased gradually, starting with fermenters with a volume of just a few liters. Lab technicians Yvonne Liebner and Torsten Renz are operating a five-liter bioreactor.

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# BASF Group

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# At a Glance

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. Around 111,500 employees contribute to the BASF Group's success worldwide. Our business is divided into the Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions segments.

## Verbund concept

applied to production, technologies, market, digitalization

## With companies in 91 countries

we contribute to our customers' success

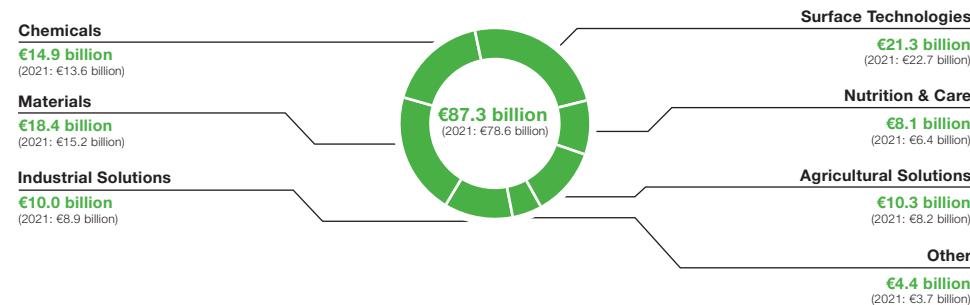
## Broad portfolio

6 segments, 11 operating divisions, 71 strategic business units

## Organizational structure

for customer proximity, competitiveness and profitable growth

### Sales by segment and Other in 2022



### Key figures

Million €

		2018	2019	2020	2021	2022
Sales		60,220 <sup>1</sup>	59,316	59,149	78,598	87,327
Income from operations before depreciation, amortization and special items		9,271 <sup>1</sup>	8,324 <sup>2</sup>	7,435	11,348	10,762
Income from operations before depreciation and amortization (EBITDA)		8,970 <sup>1</sup>	8,185 <sup>2</sup>	6,494	11,355	10,748
Income from operations (EBIT) before special items		6,281 <sup>1</sup>	4,643 <sup>2</sup>	3,560	7,768	6,878
Income from operations (EBIT)		5,974 <sup>1</sup>	4,201 <sup>2</sup>	-191	7,677	6,548
Net income		4,707	8,421	-1,060	5,523	-627
Return on capital employed (ROCE)	%	12.0 <sup>1</sup>	7.7	1.7	13.7 <sup>3</sup>	10.0
Earnings per share (EPS)	€	5.12	9.17	-1.15	6.01	-0.70
Adjusted earnings per share (EPS)	€	5.87	4.00	3.21	6.76	6.96
Dividend per share	€	3.20	3.30	3.30	3.40	3.40
Dividend yield <sup>4</sup>	%	5.30	4.90	5.10	5.50	7.33
Cash flows from operating activities		7,939	7,474	5,413	7,245	7,709
Free cash flow		4,045	3,650	2,284	3,713	3,333

<sup>1</sup> Figures for 2018 were restated with the presentation of the construction chemicals activities as discontinued operations.

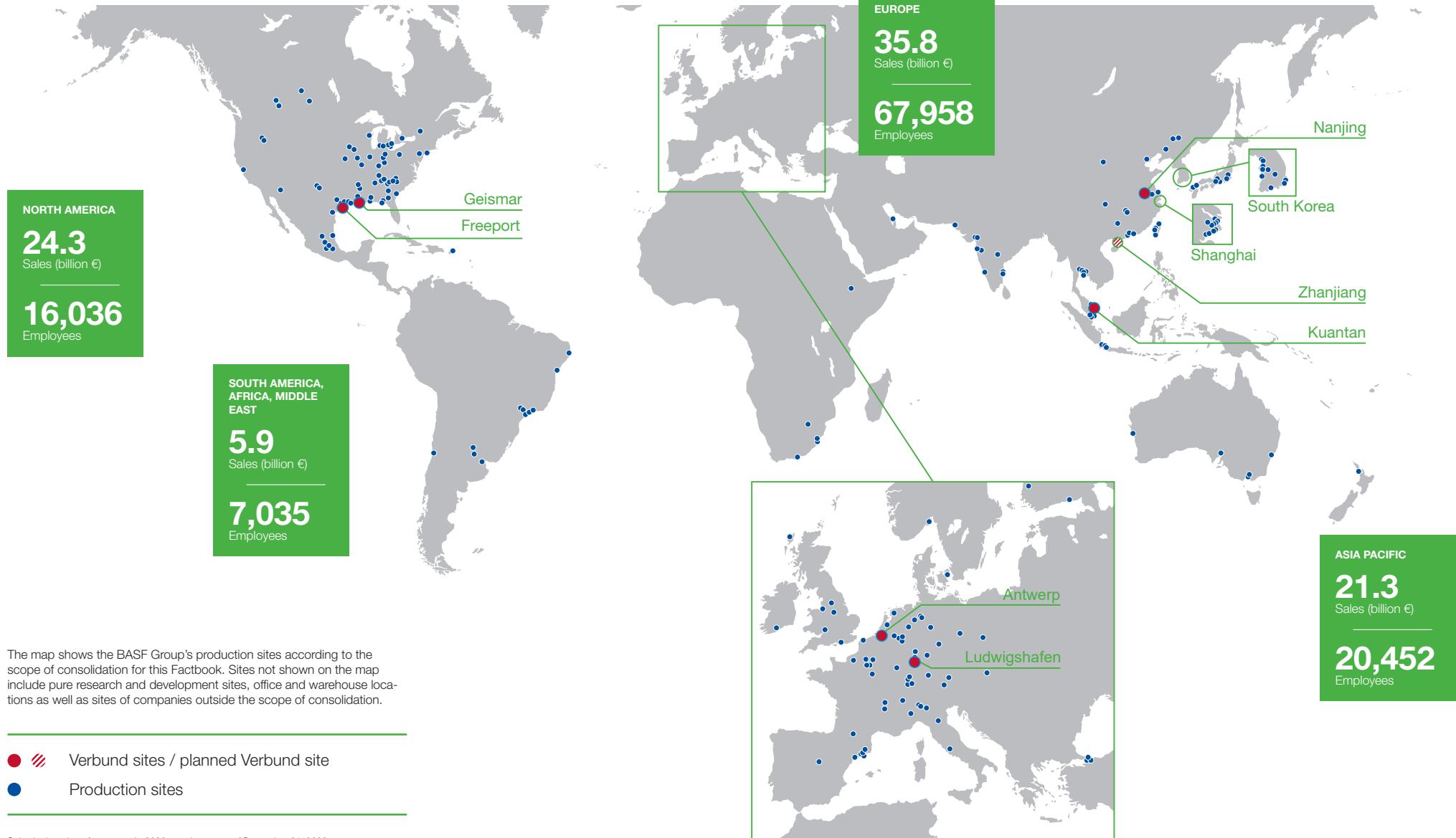
<sup>2</sup> Figures for 2019 were restated to reflect the reclassification of income from non-integral companies accounted for using the equity method to net income from shareholdings.

<sup>3</sup> The polyolefins and styrenics businesses of the joint venture BASF-YPG Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division as of January 1, 2022.

The figure has been adjusted accordingly. Overall, the adjustments improved the BASF Group's ROCE for 2021 by 0.2 percentage points to 13.7%. For more information, see [bASF.com/q12022](#).

<sup>4</sup> Based on year-end share price

## Regional footprint 2022



# Management

## Board of Executive Directors of BASF SE

Responsibilities as of May 1, 2023

**Dr. Martin Brudermüller**

Chairman of the Board of Executive Directors

62 years old, 35 years at BASF

Responsibilities:

Corporate Legal, Compliance & Insurance; Corporate Development; Corporate Communications & Government Relations; Corporate Human Resources; Corporate Investor Relations; Senior Project Net Zero Accelerator

**Dr. Dirk Elvermann**

Chief Financial Officer  
and Chief Digital Officer

51 years old, 20 years at BASF

Responsibilities:

Corporate Finance; Corporate Audit; Corporate Taxes & Duties; Global Business Services; Global Digital Services; Global Procurement

**Michael Heinz**

59 years old, 39 years at BASF

Responsibilities:

Care Chemicals; Nutrition & Health; Agricultural Solutions; North America; South America

**Dr. Markus Kamieth**

52 years old, 24 years at BASF

Responsibilities:

Dispersions & Resins; Performance Chemicals; Catalysts; Coatings; Greater China; South & East Asia, ASEAN & Australia/New Zealand; Megaprojects Asia

**Dr. Stephan Kothrade**

56 years old, 28 years at BASF

Responsibilities:

Petrochemicals; Intermediates; Performance Materials; Monomers; Europe

**Dr. Melanie Maas-Brunner**

Chief Technology Officer,  
Industrial Relations Director

54 years old, 26 years at BASF

Responsibilities:

Corporate Environmental Protection, Health, Safety & Quality; European Site & Verbund Management; Global Engineering Services; Group Research

## Supervisory Board of BASF SE

### Shareholder representatives

**Dr. Kurt Bock**  
Chairman of the Supervisory Board of BASF SE;  
Former Chairman of the Board of Executive Directors of BASF SE

**Prof. Dr. Thomas Carell**  
Professor of Organic Chemistry at LMU Munich

**Prof. Dr. Stefan Asenkerschbaumer**  
Vice Chairman of the Supervisory Board of BASF SE; Chairman of the Supervisory Board of Robert Bosch GmbH and Managing Partner of Robert Bosch Industrietreuhand KG

**Dame Alison J. Carnwath DBE**  
Senior Advisor Evercore Partners

**Liming Chen**  
World Economic Forum Greater China Chair  
**Alessandra Genco**  
Chief Financial Officer of Leonardo SpA

### Employee representatives

**Sinischa Horvat**  
Vice Chairman of the Supervisory Board of BASF SE; Chairman of the BASF Works Councils Ludwigshafen Site and Europe, and of BASF's Group Works Council

**Natalie Mühlenfeld**  
District Manager of the Mining, Chemical and Energy Industries Union (IG BCE) for the Düsseldorf district

**Tatjana Diether**  
Deputy Chairwoman of the Works Council of BASF SE, Ludwigshafen Site, and member of the BASF Works Council Europe

**Michael Vassiliadis**  
Chairman of the Mining, Chemical and Energy Industries Union (IG BCE)

**André Matta**  
Member of the BASF Works Councils Ludwigshafen Site and Europe

**Peter Zaman**  
Deputy Secretary of the Works Council of BASF Antwerpen N.V.

 For further information, please refer to [bASF.com/share/supervisory-board](http://bASF.com/share/supervisory-board)

### Two-tier management system of BASF SE

#### Board of Executive Directors

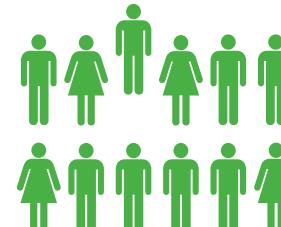


**6 members**  
appointed by the Supervisory Board

**Chair**  
appointed by the Supervisory Board

- appoints the Board of Executive Directors
- monitors the Board of Executive Directors
- advises the Board of Executive Directors
- reports to Supervisory Board

#### Supervisory Board



**12 members**  
6 shareholder representatives elected by the Annual Shareholders' Meeting and 6 employee representatives  
**Chair**  
elected by the Supervisory Board

The Supervisory Board works hand in hand with the Board of Executive Directors to ensure long-term succession planning for the composition of the Board of Executive Directors. BASF aims to fill most Board positions with leaders from within the company. It is the task of the Board of Executive Directors to propose a sufficient number of suitable individuals to the Supervisory Board.

The aim is to enable the Supervisory Board to ensure a reasonable level of diversity with respect to education and professional experience, cultural background, international representation, gender and age when appointing members of the Board of Executive Directors. Irrespective of these individual criteria, a holistic approach will ultimately determine a person's suitability for appointment to the Board of Executive Directors of BASF SE.

 For more information on the competence profiles, diversity concept and composition goals, see [BASF Report 2022, page 170](#) onward.

# BASF Verbund

**Our unique Verbund concept is one of BASF's greatest strengths. The driving principle of the Verbund concept is to add value through the efficient use of resources. At our Verbund sites, production plants, energy and material flows, logistics, and site infrastructure are all integrated.**

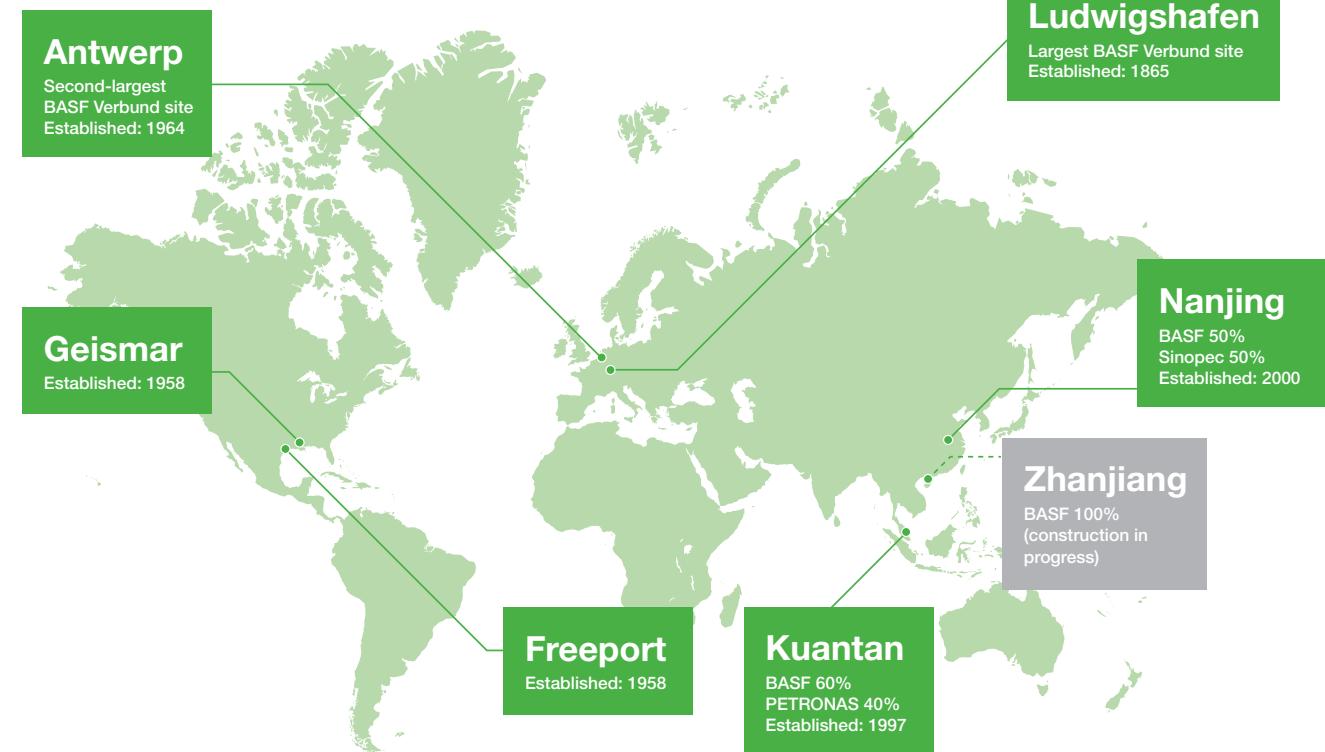
BASF currently operates six Verbund sites worldwide: two in Europe, two in North America and two in Asia. Our Verbund site in Ludwigshafen, Germany, is the world's largest chemical complex owned by a single company that was developed as an integrated network. We are building a seventh Verbund site in Zhanjiang, in the Chinese province of Guangdong (see page 28).

The Verbund system creates efficient value chains that extend from basic chemicals all the way to consumer products. In this system, chemical processes make use of energy more efficiently, achieve higher product yields and conserve resources. By-products of one process are used as starting materials for other processes. This saves raw materials and energy, avoids emissions, lowers logistics costs and leverages synergies. BASF operates 233 additional production sites worldwide, but the six Verbund sites produce more than 50% of our volumes. This is a testament to the importance and strength of the Verbund concept within BASF.

## Strong sustainability performance

The Verbund creates opportunities to reduce emissions, waste and resource consumption. Around half of the Verbund advantages stem from wastewater, steam and electricity savings compared to BASF's non-Verbund sites as well as compared to publicly available data on industry cost averages. The remaining 50% of the savings are achieved in logistics and material handling due to our chemical integration (using pipelines instead of filling and transporting via truck/railway/ship). These benefits make the Verbund sites our most

## BASF Verbund sites worldwide



efficient sites. Value chains in integrated Verbund structures can be steered efficiently to conserve resources and reduce CO<sub>2</sub> emissions.

In 2022, we covered more than 54% of BASF Group's electricity demand with our own gas and steam turbines in our highly efficient combined heat and power plants. Compared with separate generation of steam and electricity, we saved 12.0 million MWh of fossil fuels in 2022 and avoided 2.4 million metric tons of carbon emissions. In 2022, internally generated power in the BASF Group had a carbon footprint of around 0.25 metric tons of CO<sub>2</sub> per MWh of electricity and was below the national grid factor at most BASF Group locations.

The Verbund system is also key to the carbon-optimized supply of energy at our sites: Waste heat from one plant's production process is used as energy in other plants. The Verbund saved around 19.0 million MWh in 2022, which translates to 3.8 million metric tons less CO<sub>2</sub> released into the environment.

With combined power and steam generation as well as our optimized Energy Verbund, we were thus able to avoid a total of 6.2 million metric tons of carbon emissions in 2022.

## Verbund effects beyond production

The Verbund has several additional dimensions that all contribute across the businesses to strengthen BASF's portfolio and to create value. By managing our value chains, we ensure the competitive and flexible supply of key raw materials and products to all segments. We have strong technological competence in production processes as well as in research, product development and our customers' applications. This know-how is available in our operating divisions and through our Group Research division. Digitalization is an integral part of our business, and we harvest the benefits of the vast amount of data generated across BASF. Using and connecting this data intelligently, we can increase the efficiency of our processes and provide many new opportunities to create additional value for our customers. By combining the specific expertise of each business into a broad offering, we want to be the preferred supplier for our customers in the different markets.

## Examples from our Technology Verbund

### Expertise in catalysis

Developing and using chemical catalysts that accelerate and increase the efficiency of chemical reactions has been a core competence of BASF since the first large-scale synthesis of ammonia in 1913. Today, catalysis is employed in almost every value chain at BASF. Catalysts are required to make more than 90% of our products in an efficient and sustainable way.

BASF is the global leader in catalyst production for chemical processes and refinery applications. The know-how to develop, manufacture and employ catalysts for these different applications is bundled in the Group Research division, creating significant synergies across the company. For example, the principles by which carriers and precious metals interact to eliminate impurities in raw materials also apply to emissions catalysts that destroy compounds such as nitrous oxides in the cleanup of industrial off-gases.

### Production

- 6.2 million metric tons of CO<sub>2</sub> emissions avoided globally in 2022
- Integration enables drop-in solutions for bio-based and recycled feedstock for low-carbon products

### Value Chains

- Ensure competitive supply of key raw materials and products to all segments while avoiding CO<sub>2</sub> emissions

## Verbund



### Technologies

- Leverage technological advantages and innovation across all segments
- Unique expertise in developing and integrating new, low-emission technologies

### Digitalization

- Harvest the advantages offered by digitalization across BASF, for example, in R&D and by calculating product carbon footprints

### Markets

- Create customer relevance through size and broad portfolio

### Verbund flexibility and adaptability

Despite its complexity, the Production Verbund can respond flexibly to fluctuating demand and changing markets. The Verbund Simulator is a proprietary tool that helps us optimize the Verbund. Within the Verbund, each business unit must create value for BASF. Therefore, we apply an internal market-based transfer pricing system that avoids cross-subsidization and provides transparency as we actively manage and optimize our value chains.

The flexibility that BASF has in adapting its Verbund structures is demonstrated by the measures to improve competitiveness that were announced on February 24, 2023: We will close plants in the TDI complex and in the ammonia and adipic acid value chains in Ludwigshafen while ensuring the profitability of downstream businesses. The planned measures will reduce fixed costs by more than €200 million per year when implemented by the end of 2026.

### White biotechnology and fermentation technologies

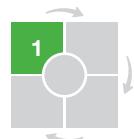
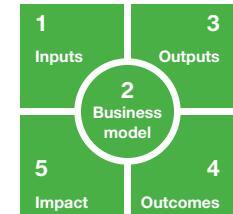
Future growth in many of our markets will be driven by trends like growing consumer demand for natural and organic ingredients and their traceability. As innovation will be the key driver here, we are working on approaches beyond the existing solutions with research and development in white biotechnology and fermentation technologies.

# How We Create Value

The following overview shows how we create value for our stakeholders.  
It is modeled on the framework of the International Integrated Reporting Council (IIRC).



Discover the interactive  
How We Create Value graphic  
in the BASF Online Report at  
[bASF.com/how-we-create-value](http://bASF.com/how-we-create-value)



We use a wide range of  
resources to implement our  
customer-focused strategy.

## Inputs

Financial	Innovation	Operations	Environment	Employees	Partnerships
Our aim is to ensure solvency at all times, limit financial risks and optimize the cost of capital.	We develop innovative solutions for and with our customers to expand our leading position.	Safety, quality and reliability are key to excellence in our production and plant operations.	We use natural resources to manufacture products and solutions with high value added for our customers.	Everything we do is based on the expertise, knowledge, motivation and conduct of our employees.	Trust-based relationships are crucial to our license to operate and our reputation.
48.4% Equity ratio	~10,000 R&D employees	€4.1 billion Capex	1.2 million metric tons Renewable raw materials	111,481 Employees around the world	>70,000 Suppliers

## Business model

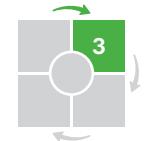
Corporate purpose	Our targets	How we operate
We create chemistry for a sustainable future	<ul style="list-style-type: none"> <li>■ Profitable growth</li> <li>■ Effective climate protection</li> <li>■ Product portfolio geared to innovation and sustainability</li> <li>■ Responsible procurement</li> <li>■ Resource-efficient and safe production</li> <li>■ Employee engagement and diversity</li> </ul>	<ul style="list-style-type: none"> <li>■ Our customers are at the core of our strategy. We have a global, customer-focused presence and strive to achieve a leading position in our markets and business areas.</li> <li>■ We build on a broad and diversified investor base.</li> <li>■ Sustainability and innovation are at the heart of everything we do and a driver for growth and value.</li> <li>■ BASF's Verbund structure is the backbone of our efficient and reliable production.</li> <li>■ Our segments address customer needs with differentiated solutions and business strategies.</li> <li>■ Safety is always our number one priority.</li> <li>■ Effective corporate governance ensures responsible conduct.</li> <li>■ We value our employees and stakeholders and treat them with respect.</li> </ul>



We implement our  
corporate purpose.

## Outputs

 Financial	 Innovation	 Operations	 Environment	 Employees	 Partnerships
€6.9 billion EBIT before special items	~1,000 New patents worldwide	~45,000 Sales products	>1,000 Mass-balanced products based on alternative raw materials	81% Engagement index according to 2022 employee survey	1,042 Suppliers screened through Together for Sustainability
€3.0 billion Dividend payment to shareholders	~€12 billion Sales of products launched in the past five years	6.2 million metric tons CO <sub>2</sub> avoided by the Verbund and combined heat and power generation	79% Water demand recirculated	27.2% Women in leadership positions	~60 Strategic customer networks



We focus on material sustainability topics and evaluate the opportunities and risks of our actions.

## Outcomes<sup>1</sup>

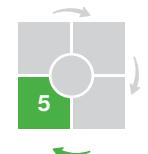
 Economic	 Environmental	 Social
<p>We make positive contributions by</p> <ul style="list-style-type: none"> <li>■ Driving forward growth, progress and value creation</li> <li>■ Strengthening our customers' competitiveness and innovative strength</li> <li>■ Accelerating the digital transformation of the industry</li> <li>■ Offering our investors an attractive dividend yield</li> </ul> <p>Potential negative impacts</p> <ul style="list-style-type: none"> <li>■ Weaker growth stimulus as a result of the slowing economy, the war in Ukraine, the coronavirus pandemic and global trade conflicts</li> <li>■ A weaker share performance</li> </ul> <p>Our countermeasures</p> <ul style="list-style-type: none"> <li>■ Disciplined implementation of our corporate strategy</li> <li>■ Systematic cost management</li> <li>■ Active portfolio management</li> <li>■ Optimizing the cost of capital</li> </ul>	<p>We make positive contributions by creating products that</p> <ul style="list-style-type: none"> <li>■ Contribute to climate protection</li> <li>■ Conserve resources, avoid waste and strengthen circularity</li> <li>■ Pave the way for climate-smart mobility</li> <li>■ Are environmentally friendly and safe to use</li> </ul> <p>Negative impacts</p> <ul style="list-style-type: none"> <li>■ The emission of CO<sub>2</sub> and other gases that affect the climate</li> <li>■ Resource consumption and non-recyclable waste</li> <li>■ Potential misuse or spillage of products</li> </ul> <p>Our countermeasures</p> <ul style="list-style-type: none"> <li>■ Carbon management</li> <li>■ Circular Economy Program</li> <li>■ Sustainable water and energy management</li> <li>■ Responsible Care® management (including product stewardship)</li> </ul>	<p>We make positive contributions because we</p> <ul style="list-style-type: none"> <li>■ Offer products that improve people's quality of life</li> <li>■ Provide attractive jobs and promote diversity</li> <li>■ Pay taxes and competitive wages and salaries</li> <li>■ Promote integration and help overcome social challenges</li> </ul> <p>Potential negative impacts</p> <ul style="list-style-type: none"> <li>■ Risk of violation of labor, environmental and social standards in the production of the raw materials we procure</li> <li>■ Personnel adjustments</li> </ul> <p>Our countermeasures</p> <ul style="list-style-type: none"> <li>■ Careful selection, evaluation and development of suppliers</li> <li>■ Projects to improve sustainability in the supply chains</li> <li>■ Compliance Program and Code of Conduct</li> <li>■ Employee training programs</li> </ul>



We aim to increase our positive contributions, minimize negative impacts and carefully assess conflicting goals.

## Impact

We achieve long-term business success by creating value for our shareholders, our company, the environment and society



<sup>1</sup> The outcomes category shows examples of positive contributions as well as negative impacts and the measures we take to mitigate them.

# Strategy

## Corporate strategy

**Chemistry is our passion. We want to be the most attractive partner for our customers to overcome challenges that can be solved with chemistry. Our customers are at the center of everything we do. With our products and technologies, our innovative and entrepreneurial spirit and the power of our Verbund integration, we want to grow profitably while creating value for society and the environment. This is our goal, which is embedded in our corporate purpose: We create chemistry for a sustainable future.**

Humankind is facing enormous challenges. The climate is changing, natural resources are becoming scarcer, pressure on ecosystems is increasing, and our growing world population needs to be fed. More and more urgently, solutions are needed for a sustainable future. Chemistry plays a key role here. In almost all areas of life, it can pave the way to greater sustainability with innovative products and technologies and accelerate the necessary transformation.

Our mission and motivation is to grow profitably and make a positive contribution to society and the environment. For example, BASF's solutions help to protect the climate, avoid or recycle waste, use resources more efficiently, produce healthy and affordable food, and enable climate-smart mobility.

At the same time, we are undergoing profound changes. We need to transform our company, as we have done repeatedly in the more than 150-year history of BASF. This time, we are moving toward climate neutrality and the circular economy. In doing so, we must successfully navigate long-term policy decisions like the European Green Deal, overcome the consequences of current geopolitical conflicts such as the war in Ukraine, and drive forward digitalization. All of this requires a clear vision as well as a high degree of creativity and flexibility.

## Global trends provide opportunities for growth in the chemical industry

### Population growth:

**+22%**  
2022 to 2050

Driven by the emerging markets

### Digitalization:

**660**  
zettabytes in 2030

Rapid growth in volume of data

### China the largest chemical market:

**~55%**  
by 2030

Share of global chemical market

### Climate change:

**-70%**  
by 2050

Required reduction of global greenhouse gas emissions to achieve the 2°C goal

### Circular economy:

**~200**  
million metric tons per year

Non-recycled plastic waste worldwide

### Electromobility:

**~22%**  
per year 2022 to 2030

Growing demand for battery materials

Both long-term trends and short-term developments in an environment characterized by volatility and uncertainty are challenging for the chemical industry. At the same time, they also open up numerous opportunities for new business areas and innovative products.

We want to lead the way in the chemical industry and responsibly shape the change – with ambitious targets and a clear roadmap: We are gradually switching our energy and raw material supplies from fossil to renewable sources. We are adapting our Verbund structure to the new circumstances as the basis for resource-efficient, safe and reliable production. We are developing new, pioneering carbon-free production and low-carbon production processes for our

Sources: U.N., IEA, Conversio, UBS Foresight, BASF

products. We are accelerating our innovation processes and deepening cooperation with customers, suppliers and other partners to develop high-performance products with a lower carbon footprint. We are developing recycling technologies for various waste streams to strengthen the circular economy. We are harnessing the many opportunities of digitalization across all areas of the company. We are systematically aligning our portfolio with growth areas and future technologies and are integrating sustainability into our value chains even more strongly. We create a working environment in which our employees can thrive and contribute to BASF's long-term success.

## Status of Target Achievement in 2022<sup>1</sup>

### Profitable growth

Achieve a <b>return on capital employed (ROCE)</b> considerably above the cost of capital percentage every year	2022 target	2022 status	SDG
>9%	<b>&gt;9%</b>	<b>10.0%</b>	 
Grow <b>sales volumes</b> faster than global chemical production every year	>2.2%	-7.0%	 
Increase <b>EBITDA before special items</b> by 3% to 5% per year	3%-5%	-5.2%	 
Increase the <b>dividend per share</b> every year based on a strong free cash flow	>€3.40	€3.40	 

### Effective climate protection

Reduce our <b>absolute CO<sub>2</sub> emissions</b> <sup>2</sup> by 25% by 2030 (baseline: 2018)	2030 target	2022 status	SDG
16.4 million metric tons	<b>16.4 million metric tons</b>	<b>18.4 million metric tons</b>	

### Responsible procurement

Cover 90% of our relevant spend with <b>sustainability evaluations</b> by 2025	2025 target	2022 status	SDG
Have 80% of our suppliers improve their <b>sustainability performance</b> upon re-evaluation	90%	85%	 

### Resource efficiency and safe production

Reduce worldwide <b>process safety incidents</b> per 200,000 working hours to ≤0.1 by 2025 <sup>3</sup>	2025 target	2022 status	SDG
Reduce the worldwide <b>lost-time injury rate</b> per 200,000 working hours to ≤0.1 by 2025 <sup>3</sup>	≤0.1	0.3	 

Introduce **sustainable water management** at our production sites in water stress areas and at our Verbund sites by 2030

2030 target	2022 status	SDG
100%	61.6%	 

### Employee engagement and diversity

2030 target	2022 status	SDG
30%	27.2%	

More than 80% of our **employees** feel that at BASF, they can thrive and perform at their best

2022 target	2022 status	SDG
>80%	81% <sup>4</sup>	

Most important key performance indicators

<sup>1</sup> Targets as published in the BASF Report 2022. The objective of these targets is to steer our business into a sustainable future and, at the same time, contribute to the implementation of the United Nations' Sustainable Development Goals (SDGs).

<sup>2</sup> Scope 1 and Scope 2 (excluding the sale of energy to third parties, including offsetting). The target includes other greenhouse gases according to the Greenhouse Gas Protocol, which are converted into CO<sub>2</sub> equivalents (CO<sub>2</sub>e).

<sup>3</sup> We will update the safety targets and report according to a new system in 2023.

<sup>4</sup> We regularly calculate the employee engagement level. The most recent survey was conducted in 2022.

## Our strategic action areas

BASF's strategic orientation is founded on a comprehensive analysis of our markets, competitors and the economic environment. We continuously monitor global trends and short-term developments and anticipate the resulting opportunities and risks. The following six strategic action areas enable us to focus on our customers while strengthening our leading position in a competitive environment.

### Innovation

Innovation is the bedrock of our success. BASF is a leader in the chemical industry, with around 10,000 employees in research and development and annual R&D spending of around €2.3 billion. We want to focus our research activities especially on areas with a high demand for innovations, in particular agriculture, battery materials, polymer technologies as well as catalytic and biotechnological methods. In addition, we are expanding our cooperation with customers, universities, research institutions and external partners.

### Sustainability

We believe that the economy, environment and society are inextricably linked and interrelated. We want to create value in all three areas with our products, solutions and technologies. We pledged our commitment to sustainability in 1994 and since then have systematically aligned our actions with the principles of sustainability. We want to further strengthen our position as a pioneer for sustainable solutions. We see sustainability as an integral part of our strategy as well as our targets, steering processes and business models. In doing so, our aim is to be a responsible and attractive partner for our customers, develop new growth areas and lay the foundation for the long-term success of our company. Our approach covers the entire value chain – from the responsible procurement of our raw materials and safety and resource efficiency in production to sustainable solutions for our customers.

### Production

Our core business is the production and processing of chemicals. Our strength lies in the Verbund and its integrated value chains. This enables us to achieve efficient, reliable and CO<sub>2</sub>-optimized production. We can thus leverage synergies in the development and application of new technologies and the use of digital solutions. At the same time, the Verbund is the foundation for meeting the increasingly diverse needs of our customers with a differentiated offering. Our comprehensive product portfolio ranges from basic chemicals to custom system solutions. Our strategy is to be close to our customers: We produce locally for local markets. Our global production footprint contributes to the regional diversification of our sales and earnings distribution, making it part of our risk management.

### Digitalization

We want to leverage the diverse growth potential of digitalization, seize the associated opportunities to the benefit of our customers and strengthen our competitiveness. To achieve this, we promote digital skills among our employees, cooperate with partners and make digital technologies and ways of working an integral part of our business. Digitalizing our plants and systematically analyzing data enables us to further automate processes and in this way, manage the capacity, availability and efficiency of our plants in line with market conditions. The combination of products, services and digital offerings also creates new business models and advantages for our customers, such as in agriculture or the personal care industry.

### Portfolio

We are orienting our portfolio even more strongly toward innovation-driven growth areas with high Verbund synergies. Following major acquisitions (battery materials, engineering plastics, farming solutions) and divestitures (pigments, construction chemicals, paper and water chemicals) in recent years, we continued on this course in 2022 with divestitures and division-specific partnerships. At the same time, we are strengthening the basis for our organic growth with investments. The major growth projects for the coming years are our new Verbund site in Zhanjiang, China, and the expansion of our battery materials business.

### People

Our employees are key to BASF's success. That is why we believe in the importance of an attractive total offer package and an inspiring working environment that fosters employees' individual talents and enables them and their teams to perform at their best. We are pursuing three action areas to drive our high-performance organization: empowerment, differentiation and simplification. We value diversity in people, opinions and experience as being crucial to creativity and innovation.

## Good to know



## Our customers in focus

BASF supplies products and services to around 82,000 customers<sup>1</sup> from almost all sectors and countries around the world. Our customers are mainly global and small and medium-sized companies but also include end consumers. We are continually refining our organizational structure so that our operating divisions can flexibly address specific market and customer requirements and differentiate themselves from the competition. The operating divisions pursue different business strategies – from cost leadership in basic chemicals to tailored system solutions for specific customer applications. Above and beyond this, we are intensifying cooperation with our customers to jointly leverage innovation and growth potential. For instance, we have established around 60 strategic customer networks to address the needs of our most important customers even better and more quickly.

## Customer focus

In 2022, we once again received awards from a number of highly satisfied customers.

### Selected awards

- General Motors: Supplier of the Year
- Henkel Consumer Brands: Sustainability Award
- Abbott: Matterhorn Award for Pharma Solutions

## Quality Management System

Our Quality Management System comprises our Environment, Health, Safety and Quality (EHSQ) policy as well as further standards, guidelines and processes for quality management along the value chain. Our Quality Management System is risk-based, process-oriented and focused on customer satisfaction. Its mandatory elements are set out in a Corporate Requirement. These include core processes such as nonconformance management, the procedure for product recalls, change management and the performance of internal audits. Local implementation of the central requirements defined by the Environmental Protection, Health, Safety & Quality unit in the Corporate Center is the responsibility of our business units and sites.

Based on our customers' requirements, quality management at our production sites is generally certified according to external international standards such as ISO 9001, GMP, FAMI QS or IATF 16949.

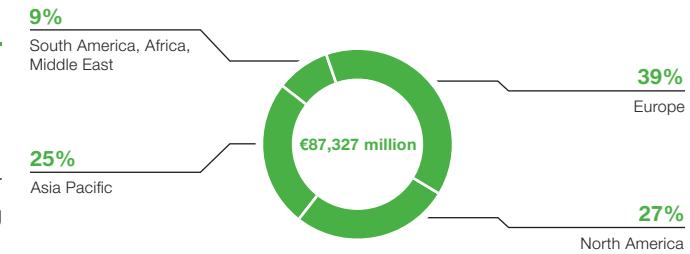
## BASF sales by industry 2022

Direct customers

>20%	Chemicals and plastics   Transportation (respectively)
10%–20%	Agriculture   Consumer goods (respectively)
< 10%	Construction   Electronics   Energy and resources   Health and nutrition (respectively)

## BASF sales by region 2022

Location of customer



<sup>1</sup> The number of customers refers to all external companies (sold-to parties) that had contracts with the BASF Group in the business year concerned in which sales were generated.

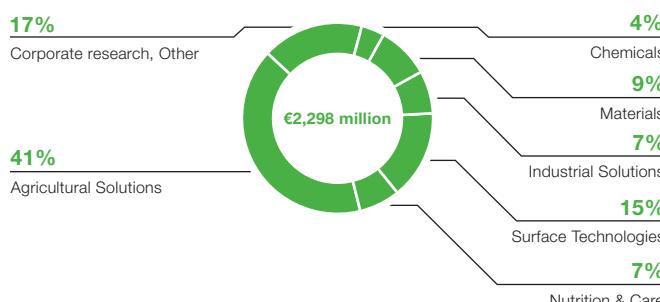
## Innovation

**Innovations based on chemistry play a pivotal role in overcoming the greatest challenges of our time. Our activities are aimed at developing new products, entering new markets and further increasing our productivity. That is why we are working together with our customers on innovative products and processes for a more sustainable future.**

Innovation has always been the key to BASF's success. The knowledge and skills of our highly qualified employees are our most valuable resource here and the source of our innovative strength. We had approximately 10,000 employees involved in research and development worldwide in 2022.

Our research and development expenses amounted to €2,298 million in 2022 (2021: €2,216 million). Research and development activities in our operating divisions, which are mainly application and customer-related, accounted for 83%. Corporate research, in which we bundle cross-divisional and long-term topics, was responsible for 17% of these expenses.

**Research and development expenses by segment 2022**



Our innovation focus is on developing new products and solutions that help our customers achieve their sustainability goals. By helping them to reduce their carbon footprint, use resources more efficiently,

or manufacture products in a more environmentally friendly way and to recycle them, we ensure our long-term competitiveness and, at the same time, play a role in breaking the link between growth and the consumption of limited resources.

In 2022, we generated sales of around €12 billion with products launched on the market in the past five years that stemmed from research and development activities. In the long term, we aim to further increase sales and earnings with new and improved products – especially with products that make a substantial sustainability contribution in the value chain.

We reorganized our global research activities in 2022 to further strengthen our innovation performance and respond to our customers' industry-specific requirements even better and more quickly. Business and application-driven research units that were previously part of the research divisions were integrated into the operating divisions, aligning them even more closely with the needs of our customers. This further shortens the time to market for new products and accelerates BASF's organic growth.

We have bundled research activities relevant to several operating divisions – such as chemical synthesis, process development, biotechnology, catalysis, analytics and digitalization – in a central research division, Group Research. This new research division supports all operating divisions and drives forward projects that address major sustainability topics like reducing emissions from chemical processes and products, energy efficiency or recycling technologies. The unit is globally positioned with research centers in Europe, North America and Asia Pacific. Together with the research and development units in our operating divisions, Group Research forms the core of our global Know-How Verbund.

We continue to use corporate funding to finance research of broad relevance to the BASF Group that goes beyond the industry-specific focus of the individual operating divisions. We strengthen existing research focus areas and develop new technologies that are of

central significance for our business units and their customers, such as digital tools, polymer technologies, catalyst processes or biotechnological methods.

We promote creative research approaches and drive forward the development of new business areas. For example, we are developing innovative coating technologies and materials that make innovative surfaces and functions possible. Functional films can be used to reduce the frictional resistance of surfaces or improve UV protection and weather resistance, for example.

As part of our Carbon Management R&D Program, we are carrying out intensive research into pioneering low-carbon production processes for basic chemicals such as hydrogen. This will enable us to offer our customers products with a lower carbon footprint in the future.

For more information on low-carbon production processes, see [page 23](#)

The number and quality of our patents also attest to our power of innovation and long-term competitiveness. In 2022, we filed 1,013 new patents worldwide, of which 39.2% were for innovations with a particular focus on sustainability. The Patent Asset Index, a method that compares patent portfolios, once again ranked us among the leading companies in the chemical industry in 2022.

## Global network

Our global network of top universities, research institutes and companies forms an important part of our Know-How Verbund. It gives us direct access to external scientific expertise, talented minds from various disciplines as well as new technologies. Our academic research alliances bundle partnerships with several research groups in a region or with a specific research focus.

For more information on our academic research alliances, see [BASF Report 2022, page 50](#)

## Good to know



### Driving sustainability with microorganisms

With its broad technological expertise, BASF is well positioned to develop innovative solutions for a sustainable future. One of our key technologies is white biotechnology. White biotechnology enables us to produce a wide range of products using a variety of feedstocks in an efficient, resource-conserving and flexible manner: biopolymers, essential ingredients for human and animal nutrition, crop protection products, flavors and fragrances, or ingredients for cosmetics. We also produce enzymes from fungi and bacteria for use in detergents. One example is BASF's protein-cleaving enzyme Lavergy® Pro, which removes tough stains even at low temperatures and in short wash cycles, thus saving energy and water.

Microorganisms are not just used to manufacture products but at the end of the product life cycle as well. We are working to understand how microorganisms metabolize complex organic

compounds into energy, water, carbon dioxide and biomass. A fundamental understanding of such biological processes is needed to use this natural method and develop biodegradable products. In addition, digital tools are an important component of the research work to predict the properties and biodegradability of molecules and materials at a very early stage of product development, enabling their structures to be adapted accordingly. This is important for products that end up in wastewater treatment plants at the end of their life cycles, such as cosmetics, laundry detergents and dishwashing products. Another example is our certified biodegradable biopolymer ecovio®. This can be used to produce mulch films that can be plowed under after use in the field to be completely metabolized by microorganisms.

## Growth opportunity battery materials and recycling

BASF is the largest chemicals supplier to the transportation industry, with more than 20% of sales to this market in 2022 and leading market positions in OEM coatings, engineering plastics and mobile emissions catalysts. In battery materials, BASF is developing tailor-made high-performance cathode active materials (CAM) in close collaboration with its customers to enable the industry transformation toward e-mobility. We complement our portfolio with recycling offerings and, as a CAM producer, are uniquely positioned to offer our customers closed-loop metal recycling solutions. BASF's unmatched access to OEMs and their suppliers enables an early understanding of market needs, leading to product development from a well-established position in key CAM technologies like NCA (nickel cobalt aluminum) and NCM (nickel cobalt manganese). Our portfolio addresses various customer requirements and ranges from cost-efficient manganese-rich solutions to high-performance high- and ultra-high nickel products, as well as high-performance LMO (lithium manganese oxide) and high-voltage LCO (lithium cobalt oxide) products.

CAM is a very dynamic market driven by battery performance, safety and cost requirements, which are all key parameters for the demand of battery electric vehicles. Chemistry-driven innovation is one of the biggest levers to improve energy density, reliability and safety and reduce the cost of batteries for electric vehicles (EVs). We anticipate annual production of more than 48 million EVs by 2030. Driven by the high growth in e-mobility applications, the compounded annual growth rate for global CAM demand is expected to be about 24% until 2030. As a result, the overall demand for CAM could reach over 7,700 kilotonnes, representing a value of over €150 billion, depending on base metal price developments. BASF has the required financial strength and is committed to driving the expansion of a global, cost-competitive asset footprint.

BASF's battery materials and recycling business units generated sales of well over €1 billion in 2022 thanks to growing volumes and favorable metals prices. With increasing amounts of production scrap and used batteries, recycling will grow in importance. We offer CAM based on recycled metals as a closed-loop solution and based on responsibly sourced primary metals from mining operations. As the most economical and energy-efficient path with the lowest CO<sub>2</sub> footprint, closed-loop solutions will increase in importance during the next decade and will continuously grow to reduce the need for primary metals.

BASF has contracted the required base metal raw material supply for its European CAM investments and is working on the integration of a precursor (PCAM) production site in Harjavalta, Finland.<sup>1</sup> In addition, BASF has announced a collaboration with Eramet in Indonesia to evaluate the potential to build a high-pressure acid leaching (HPAL) refinery as a source of nickel and cobalt intermediates, which are critical base metal raw materials for the lithium-ion battery value chain.

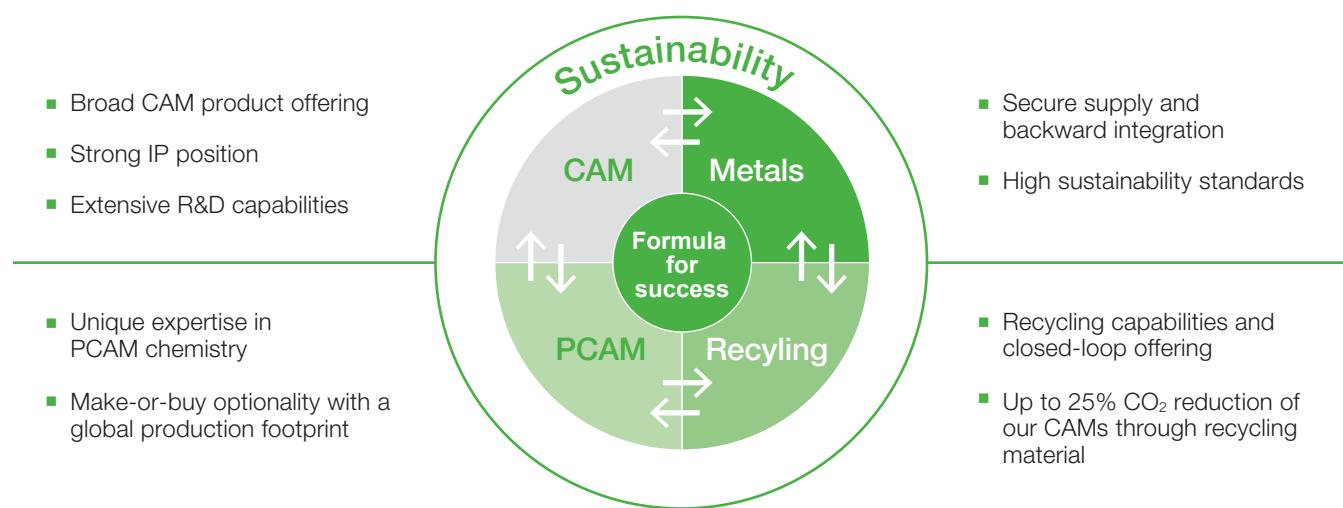
In 2020, BASF selected Schwarzeide, Germany, for CAM production in Europe,<sup>2</sup> enabling the supply of cathode active material for approximately 20 GWh cell capacity per year. The Schwarzeide production plant uses an industry-leading energy mix with a low CO<sub>2</sub> footprint. Commissioning began at the end of 2022.

In Asia, BASF serves its CAM customers through its joint ventures BASF TODA Battery Materials LLC in Japan (BASF: 66%) and BASF Shanshan Battery Materials Co., Ltd. in China (BASF: 51%), both of which are undergoing expansion. These entities plus the U.S. and European plants make BASF the first company with capacities in all major markets, increasing its annual capacity to around 190,000 metric tons by 2024 with further expansions underway. Future growth plans are being developed in all regions.

In 2023, we plan to start up a prototype recycling plant in Schwarzeide. It will apply proprietary processes from BASF and Tenova Advanced Technologies for hydrometallurgical recycling with leading recovery rates and a low CO<sub>2</sub> footprint. Moreover, BASF plans to start up a commercial-scale battery recycling plant for the production of black mass in 2024. It will mechanically treat end-of-life lithium-ion batteries and scrap from battery production before extracting valuable metals using chemical processes. With both recycling plants, BASF aims to further increase sustainability in the battery value chain – from collecting end-of-life batteries and recovering mineral raw materials to using these in the production of new battery materials.

Around the world, BASF experts are working on innovative cathode active materials for lithium-ion batteries and recycling solutions to meet the growing demand for powerful, reliable and affordable electric vehicles. These efforts will make the battery materials and recycling business a significant earnings contributor to the BASF Group, with expected sales of more than €7 billion and an expected EBITDA before special items margin (excluding metals) above 30% by 2030.

## BASF battery materials – best-in-class CO<sub>2</sub> footprint and closing the loop



**The battery materials and recycling business is set to become one of the key growth engines in BASF's portfolio, establishing a leading and profitable position.**

<sup>1</sup> The investment in Finland is co-financed by Business Finland, the Finnish government organization for innovation funding and trade, travel and investment promotion.

<sup>2</sup> The investment and research activities in Schwarzeide and Ludwigshafen, Germany, receive funding from the German Federal Ministry for Economic Affairs and Climate Action and the Ministry for Economic Affairs, Labor and Energy of the German state of Brandenburg under the IPCEI on Batteries (funding code 16BZF101A/B).

## Sustainability

**We implement our corporate purpose – We create chemistry for a sustainable future – by systematically incorporating sustainability into our strategy, our business and our assessment, steering and compensation systems. We secure our long-term success with products, solutions and technologies that create value added for the environment, society and the economy.**

### Our strategic approach

Sustainability is at the heart of what we do and a driver for growth and value. Analyzing our contributions to sustainability also enables us to manage risks effectively. We pursue a holistic sustainability approach that covers the entire value chain. Based on our corporate strategy, we steer the global sustainability target for climate protection via the most important key performance indicator “absolute CO<sub>2</sub> emissions”<sup>1</sup> (see page 22). In addition to this climate protection target, we have set further sustainability targets, for example, for responsible procurement, resource-efficient and safe production, engaged employees and diversity.

A significant steering tool for the product portfolio, based on the sustainability performance of our products, is the Sustainable Solution Steering method. This rates our products’ applications in the relevant markets and customer industries. If, during reassessment of our portfolio, we identify products with significant sustainability concerns, we classify these as “challenged.” We develop and systematically implement action plans for all products in this category. These include research projects and reformulations to optimize products, or even replacing the product with an alternative. To rigorously align our portfolio with contributions to sustainability, in 2018 we started phasing out all Challenged products within five years of their initial classification as “challenged.” A particular focus in the

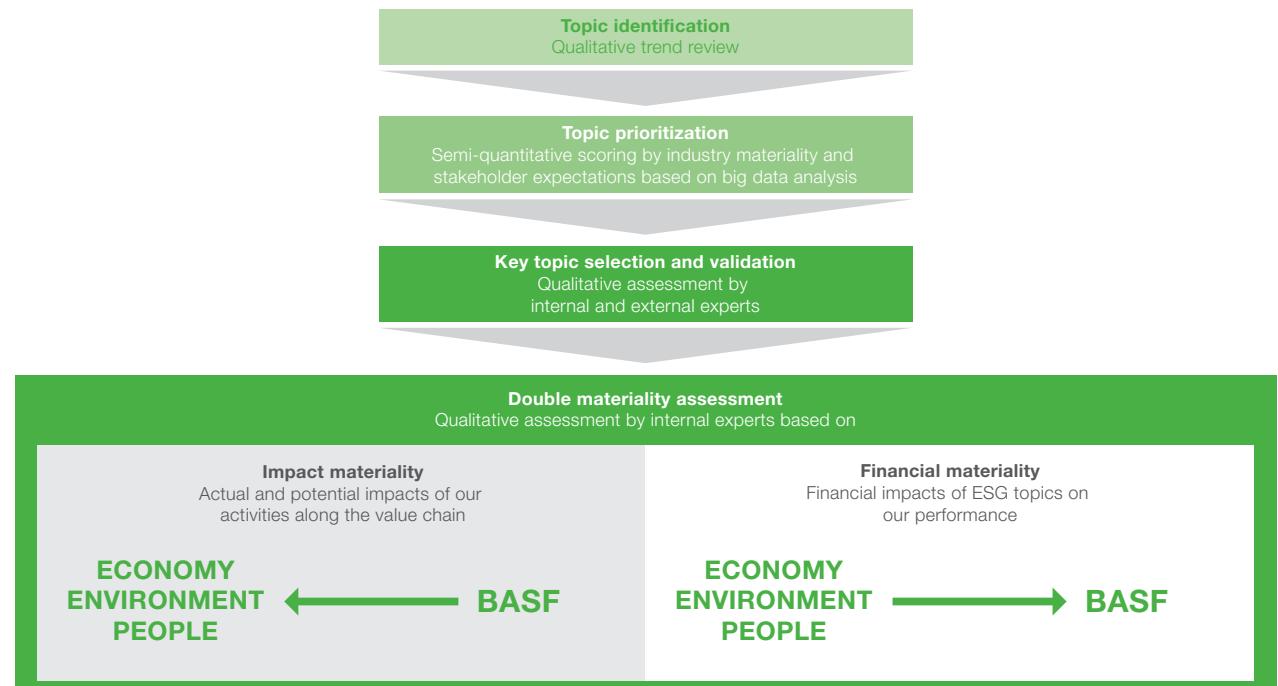
continued development of our product portfolio is on products that make a substantial sustainability contribution in the value chain.

Our target of generating €22 billion in Accelerator sales by 2025, which was based on our corporate strategy, was already achieved in 2021 with sales of €24.1 billion. In order to address the growing sustainability requirements in our markets with innovative solutions, we want to align our product portfolio even more strongly with climate protection, climate neutrality and the circular economy going forward. That is why we are updating our methodology and our product portfolio steering target and will introduce a revised method in 2023.

As a co-founder of the U.N. Global Compact, we contribute to the implementation of the United Nations’ (U.N.) Agenda 2030. Our products, solutions and technologies help to achieve the U.N. Sustainable Development Goals (SDGs), especially SDG 2 (Zero hunger), SDG 5 (Gender equality), SDG 6 (Clean water and sanitation), SDG 7 (Affordable and clean energy), SDG 8 (Decent work and economic growth), SDG 12 (Responsible consumption and production) and SDG 13 (Climate action).

In 2022, we carried out an improved materiality analysis that already focuses on the double materiality required by future regulations.

### Identifying and assessing sustainability topics<sup>2</sup>



<sup>1</sup> Scope 1 and Scope 2 (excluding the sale of energy to third parties, including offsetting). The target includes greenhouse gases according to the Greenhouse Gas Protocol, which are converted into CO<sub>2</sub> equivalents (CO<sub>2</sub>e).

<sup>2</sup> Material within the meaning of section 289c HGB or relevant within the meaning of the Global Reporting Initiative.

This identified sustainability topics on which we have a potentially positive or negative impact through our business activities along the value chain as well as topics that have or could have a positive or negative impact on the company's performance.

A sustainability aspect is considered material in the sense of double materiality if it has been classified in terms of both impact materiality and financial materiality. Under the Global Reporting Initiative, a sustainability aspect is additionally considered material if it has only been classified as material in terms of impact. On this basis, the following 12 topics were identified as material: waste, climate change adaptation, biodiversity, business ethics, occupational health & safety, climate change mitigation, circularity and resource efficiency, plastic waste, human rights and labor rights, product stewardship, diversity, inclusion & equal work, and water & wastewater.

 For more information on our materiality analysis, see [bASF.com/materiality](https://bASF.com/materiality)

## Our organizational and management structures

Together with decentrally organized specialists, the Corporate Strategy & Sustainability unit in the Corporate Center is responsible for integrating sustainability into core business activities and decision-making processes. The unit is also responsible for the global steering of climate-related matters. Since January 2022, the Net Zero Accelerator unit has been driving forward new and existing projects, focusing on further acceleration and implementation to achieve CO<sub>2</sub> reduction targets worldwide. Both units report to the Chairman of the Board of Executive Directors.

The Board of Executive Directors and the Supervisory Board are regularly briefed on the development of individual sustainability topics. The Board of Executive Directors incorporates the results and recommendations from sustainability evaluations of business processes into its decisions, for example, on proposed investments and acquisitions. It makes decisions with strategic relevance for the Group and monitors the implementation of strategic plans and target achievement.

In 2022, BASF appointed a Chief Human Rights Officer to further embed human rights aspects in decision-making processes. He reports directly to the Chairman of the Board of Executive Directors.

## Measuring sustainable value added

We are aware that our business activities can have both positive and negative impacts on the environment and society. We aim to increase our positive contributions and minimize the negative impacts of our business activities. To achieve this, we need to measure how our actions and our products impact the environment and society.

We already have many years of experience in this area from evaluating our products and processes using methods such as Eco-Efficiency Analyses, the SEEbalance® Socio-Eco-Efficiency Analysis, our Sustainable Solution Steering portfolio analysis, BASF's corporate carbon footprint or the calculation of product carbon footprints. However, there are no standards for measuring and reporting on companies' overall impact that cover economic, environmental and social aspects of business activities along the value chain. This is why we developed the Value to Society method in 2013 together with external experts. We are a founding member of the Value Balancing Alliance e.V. (VBA) and have contributed our knowledge and experience to this cross-industry initiative. We support the development of an accounting and reporting standard that makes the contribution of companies to society transparent and comparable.

## Our stakeholder management

We are in ongoing exchange with our stakeholders through a variety of formats. This helps us to even better understand what matters to societal groups, what they expect of us and which measures we can pursue in order to establish and maintain trust, build partnerships, and increase public acceptance of and the sustainability of our business activities.

We already established an external, independent Stakeholder Advisory Council (SAC) in 2013 and the Human Rights Advisory Council (HRAC) in 2020. In the SAC, which is led by the Chairman of the Board of Executive Directors, international experts from academia and society contribute their perspectives to discussions with BASF's Board of Executive Directors. The HRAC is an advisory body comprising external human rights specialists and internal experts. It helps us critically reflect on our positions and address potential for improvement.

We have a particular responsibility toward our sites' neighbors. We promote open exchange between residents and our site management and strengthen trust in our activities with established community advisory panels. Our globally binding requirements for community advisory panels are based on the grievance mechanism standards in the United Nations' Guiding Principles on Business and Human Rights.

Our political advocacy is conducted in accordance with transparent guidelines and our publicly stated positions. The same applies to our activities in associations. Our Industry Associations Review compares the energy and climate protection positions of BASF and the most important associations of which we are a member, with explanations on our approach.

 For more information on our stakeholder activities, see [bASF.com/stakeholder-engagement](https://bASF.com/stakeholder-engagement)

For more information on the Stakeholder Advisory Council, see [bASF.com/en/stakeholder-advisory-council](https://bASF.com/en/stakeholder-advisory-council)

For more information on the Human Rights Advisory Council, see [bASF.com/human-rights-council](https://bASF.com/human-rights-council)

For more information on our guidelines for responsible lobbying, see [bASF.com/guidelines\\_political\\_communication](https://bASF.com/guidelines_political_communication)

For more information on the Industry Associations Review, see [bASF.com/corporategovernance](https://bASF.com/corporategovernance)

## Energy and climate protection

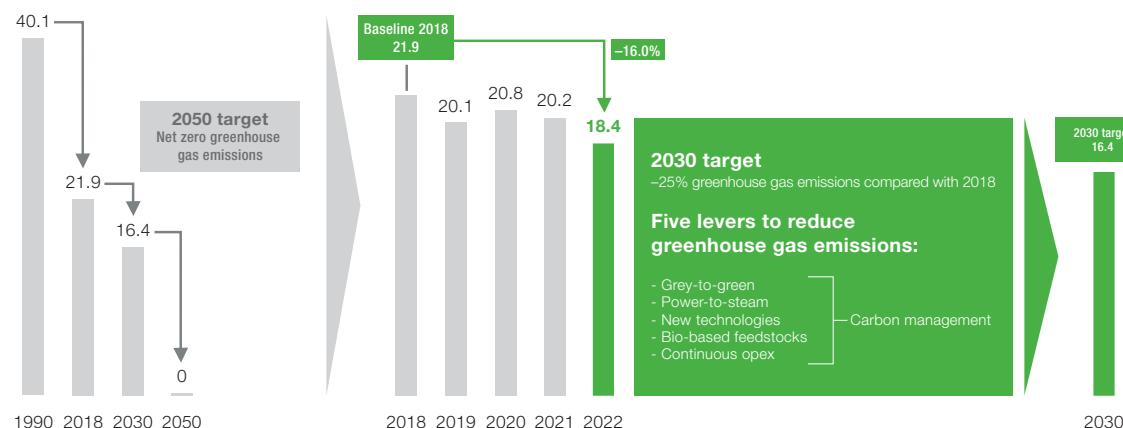
Climate change is the greatest challenge of the 21st century. Swift and resolute action is needed to ensure that the targets agreed in the Paris Climate Agreement can be achieved. We stand by this responsibility. In many areas, products and innovations based on chemistry are the key to a climate-neutral future – from insulation foams for energy-efficient buildings, lightweight construction components and battery materials for e-mobility to sustainable agriculture.

At the same time, we are working intensively to significantly reduce the carbon footprint of our production and thus of our products. Our carbon management focuses on five levers to reduce greenhouse gas emissions and demand for fossil fuel:

- **Grey-to-green:** We are increasingly meeting our electricity needs from renewable sources.
- **Power-to-steam:** In the future, we will increasingly rely on electrical steam generation and in this way, also tap previously unused waste heat potential.

### Schematic overview: Development of the BASF Group's greenhouse gas emissions (Scope 1 and 2)<sup>1</sup>

Million metric tons of CO<sub>2</sub> equivalents



- **New technologies:** We are developing completely new carbon-free and low-carbon processes and technologies for climate-smart chemistry.
- **Bio-based feedstocks:** We are increasingly replacing fossil resources with alternative raw materials.
- **Continuous opex:** Our operational excellence activities continually improve the energy and process efficiency of our plants.

We only consider external offsetting as a temporary measure if our activities do not make the desired contribution to reducing emissions.

For more information on climate protection and carbon management, see [bASF.com/climate\\_protection](http://bASF.com/climate_protection)

### Global targets

Compared with the 2018 baseline, we want to reduce absolute greenhouse gas emissions from our production sites and our energy purchased by 25% by 2030<sup>1</sup> – while growing production volumes in parallel. Compared with 1990, this would translate into a reduction of around 60%. Our long-term goal is net zero greenhouse gas

emissions by 2050.<sup>1</sup> We are intensely pursuing our climate protection targets with investments of up to €4 billion by 2030. We expect that the investments in our transformation toward net zero will account for around €400 million per year on average between 2023 and 2027 and will then increase toward 2030.

### 2030 and 2050 targets

**-25%**

Reduction in our absolute greenhouse gas emissions by 2030 compared with 2018 (Scope 1 and 2)<sup>1</sup>

**Net zero**

Greenhouse gas emissions by 2050 (Scope 1 and 2)<sup>1</sup>

In 2022, the BASF Group's emissions under these targets amounted to 18.4 million metric tons of CO<sub>2</sub> equivalents (2021: 20.2 million metric tons).

### Make-and-buy approach for renewable electricity

A core component of reducing greenhouse gas emissions is the gradual conversion of our energy supply to renewable sources as part of our carbon management. This mainly affects our electricity supply. In 2022, electricity supply from renewable sources as a share of total electricity consumption was 16% (2021: 16%). Our electricity requirements will increase significantly in the coming years due to the planned electrification of our steam generation and the gradual switch from natural gas-based to electricity-based, low-carbon production processes, for example in our steam crackers. We aim to source more than 60% of our power needs from renewable sources by 2030. Based on our growth forecast, this is roughly equivalent to our total power demand in 2021.

In the transformation of our power supply, BASF is pursuing a make-and-buy approach. Firstly, we are investing in our own renewable power assets, particularly offshore wind farms. Secondly, BASF will purchase green power from third parties. A key purchasing criterion is the “additionality” of the electricity purchased. This means

<sup>1</sup> Scope 1 and Scope 2 (excluding the sale of energy to third parties, including offsetting). The target includes greenhouse gases according to the Greenhouse Gas Protocol, which are converted into CO<sub>2</sub> equivalents (CO<sub>2</sub>e).

that electricity is primarily sourced from new renewable energy facilities.

Work on the Hollandse Kust Zuid (HKZ) offshore wind farm, a joint project with Vattenfall and Allianz, is proceeding according to plan and it should be fully operational in 2023. With 140 turbines and a capacity of 1.5 gigawatts, HKZ will then be one of the largest subsidy-free offshore wind farms in the world.

In 2022, we signed further long-term supply agreements for green power. In North America, for example, we have secured around 250 megawatts of wind and solar generation capacity through virtual power purchase agreements with Dawn Solar and EDF Energy Services. BASF has also signed a 12-year supply agreement with X-ELIO to supply 48 megawatts of solar power to the Freeport site in Texas. In China, we initiated further long-term supply agreements for green power with the State Power Investment Corporation and Brookfield, including for our new Verbund site in Zhanjiang, which is currently under construction. Our aim is to supply the site entirely with electricity from renewable sources from the startup phase of the large-scale plants in 2025 – much earlier than originally planned.

Number of sites partially or fully powered by emission-free electricity in 2022

**108**

### Innovative processes for climate-smart chemistry

Most of our production processes are already highly optimized. Completely new technologies are therefore needed to reduce greenhouse gas emissions over the long term and on a large scale.

Our focus here is on the production of basic chemicals such as hydrogen. We are driving forward two alternative processes for climate-smart hydrogen production. We are already testing an alternative process – methane pyrolysis<sup>1</sup> – in Ludwigshafen, Germany.

This is virtually carbon-free if renewable energy is used and extremely energy efficient compared with other methods. Together with Siemens Energy, and depending on funding from the German Federal Ministry for Economic Affairs and Climate Action (BMWK), we are also planning to build a proton exchange membrane (PEM) water electrolyzer in Ludwigshafen with an output of 54 megawatts for carbon-free hydrogen production.

Another focus area is alternative heating concepts for our steam cracker furnaces, which could reduce process-related emissions by at least 90% in the future. To test the feasibility of this new process and two different heating concepts that use electricity from renewable sources, we started construction of a demonstration plant at the Ludwigshafen site in Germany together with our partners SABIC and Linde in September 2022. The project has been granted €14.8 million from the BMWK under the Decarbonization in Industry funding program and is scheduled for startup in 2023.

We are also investigating carbon capture and storage (CCS). For example, we are part of an industrial CCS project at the Antwerp site in Belgium (Kairos@C) as the first phase of the Antwerp@C project, which will enable BASF to avoid the emission of up to 1 million metric tons of CO<sub>2</sub> every year from production.

### Corporate carbon footprint

BASF has published a comprehensive corporate carbon footprint every year since 2008. This reports on all emissions along the value chain – from raw materials to production and disposal (see graphic below).

For more information on our emissions reporting, see [bASF.com/corporate\\_carbon\\_footprint](http://bASF.com/corporate_carbon_footprint)

### Transparency through product carbon footprints

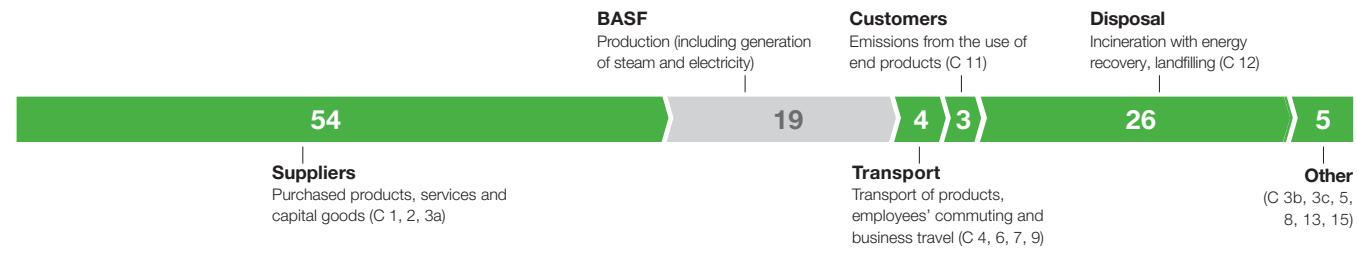
In 2020, we developed a digital solution to make our product-specific greenhouse gas emissions more transparent and we have since determined the product carbon footprints (PCFs) for all of our around 45,000 sales products. The digital methodology we developed was used as the basis for a globally uniform guideline for calculating cradle-to-gate PCFs in the chemical industry that was agreed by the members of the Together for Sustainability initiative in September 2022. This will enable the climate impact of products to be directly compared and evaluated in the future based on a standardized approach. A technical solution for sharing PCF data between companies is under development and should be implemented by the end of 2023.

For more information on product carbon footprints, see [bASF.com/en/pcf](http://bASF.com/en/pcf)

In 2021, we launched our global Supplier CO<sub>2</sub> Management Program to create transparency and to better steer and work toward reducing emissions in the supply chain. In a first step, we have

### Scope 3 emissions along the BASF value chain in 2022<sup>2</sup>

Million metric tons of CO<sub>2</sub> equivalents



<sup>1</sup> Project sponsored by the German Federal Ministry of Education and Research (Grant number 03SF0571A)

<sup>2</sup> According to the Greenhouse Gas Protocol; Scope 1, 2 and 3; reported categories within Scope 3 are shown in parentheses. Scope 3 emissions in category 10 ("Processing of sold products") are not reported according to the standard for the chemical sector. Only direct use phase emissions are reported in the customer category (Scope 3.11). For more information on our Scope 3 emissions reporting, see [bASF.com/corporate\\_carbon\\_footprint](http://bASF.com/corporate_carbon_footprint)

requested the PCFs of our raw materials and we support our suppliers in determining these, for example, by sharing our knowledge of valuation and calculation methods with them. Since the start of the program, we have asked more than 1,300 suppliers, covering around 60% of our raw materials-related greenhouse gas emissions. In a second step, we want to work with our suppliers on solutions to reduce product-related emissions and establish the PCF as a criterion for purchasing decisions.

 For more information on the Supplier CO<sub>2</sub> Management Program, see [bASF.com/suppliers](http://bASF.com/suppliers)

## Responsibility for human rights

BASF acknowledges its responsibility to respect internationally recognized human rights. For many years, we have engaged in constructive dialog on human rights with other companies, non-governmental organizations, international organizations and multi-stakeholder initiatives to better understand different perspectives and address conflicting goals. BASF is a founding member of the U.N. Global Compact and a member of the Global Business Initiative on Human Rights (GBI). We have embedded our responsibility for human rights into our Code of Conduct and set this out in our Policy Statement on Human Rights.

We established a Human Rights Advisory Council (HRAC) in 2020 to integrate external expertise. Its members include independent international human rights experts. The trust-based dialog on human rights topics helps us to better understand different perspectives and to deal more openly with critical situations.

 See [bASF.com/humanrights](http://bASF.com/humanrights) for more information

## Responsible sourcing

BASF sources many raw materials, precursors, technical goods and services. Our suppliers are an important part of our value chain. Our objective is to create competitive advantages through our professional procurement structures, to establish stable and reliable supply chains, and at the same time, meet high ethical and environmental

standards. Together with our suppliers, we want to improve sustainability in the supply chain and minimize risks. Consequently, we require our suppliers to comply with the applicable laws in full and to adhere to internationally recognized environmental, social and governance (ESG) standards. We also expect our suppliers to make an effort to enforce these standards at their suppliers. In addition, we ask our suppliers to support and comply with our global Supplier Code of Conduct – or to demonstrate and ensure their commitment to the principles specified in the Code of Conduct, for example in their own code of conduct.

 For more information on our supplier management, see [bASF Report 2022](http://bASF.com/report2022), page 114 onward

## Raw materials

In 2022, BASF purchased a total of around 35,000 different raw materials from more than 6,500 suppliers. We expect our suppliers to source and produce raw materials in line with environmental and social requirements. We support them in doing this via our supplier management, for example, or with various sustainability projects along the raw materials supply chain.

 See [bASF.com/raw-materials](http://bASF.com/raw-materials) for more information

## Renewable resources

In addition to fossil resources, we employ renewable raw materials, mainly based on vegetable oils, fats, grains, sugar and wood. In 2022, we purchased around 1.2 million metric tons of renewable raw materials. The mass balance approach allows us to allocate the amount of renewable and recycled resources used to a wide variety of end products.

Palm oil, palm kernel oil and their derivatives are some of our most important renewable resources. We aim to ensure that palm-based raw materials come from certified sustainable sources and we have actively supported the Roundtable on Sustainable Palm Oil (RSPO) since 2004. In 2022, we purchased 191,714 metric tons of certified

palm oil and palm kernel oil. BASF again reached its voluntary goal of sourcing only RSPO-certified palm oil and palm kernel oil.

 For more information on our voluntary commitment to palm oil products and the Palm Progress Report, see [bASF.com/en/palm-dialog](http://bASF.com/en/palm-dialog)

## Recycled feedstocks

Recycling is playing an increasingly important role due to limited resources, growing sustainability requirements in the markets and regulatory developments. That is why we want to increase the use of recycled feedstocks with our Circular Economy Program: From 2025 onward, we aim to process around 250,000 metric tons of recycled and waste-based raw materials every year worldwide, replacing fossil raw materials.

Chemical recycling of plastic waste complements mechanical recycling and can help to reduce the amount of plastic waste that is disposed of in landfill or thermally recovered. In our ChemCycling® project, our technology partners use the pyrolysis process to produce pyrolysis oil from mixed plastic waste or used tires, which are not yet mechanically recycled. We feed the pyrolysis oil into our Verbund as a substitute for fossil raw materials and manufacture new products from it using the mass balance principle. Our customers can process these mass balance products in the same way as conventional products. Our Cycled® portfolio now comprises more than 200 products.

With the rapidly growing market for electric vehicles, there is also an increasing need for recycling lithium-ion batteries. As a leading producer of battery materials, BASF has profound expertise in battery chemistry and process technology. We are utilizing these competencies to address battery recycling as an additional growth market in cooperation with partners along the value chain (see page 18 onward). In this way, we want to ensure that valuable metals remain in the production cycle for as long as possible.

 For more information on the circular economy, see [bASF Report 2022](http://bASF.com/report2022), page 43

## Mineral raw materials

Sourcing mineral raw materials responsibly is important to BASF. We have implemented the E.U. Conflict Minerals Regulation. This defines supply chain due diligence for tin, tantalum, tungsten, their ores and gold (3TG) imported into the E.U. from conflict-affected and high-risk areas (CAHRAs). In addition, BASF is committed to responsible and sustainable global supply chains for other mineral raw materials. These include cobalt, a key component in the production of battery materials. Together with BMW, Samsung SDI, Samsung Electronics, Volkswagen and GIZ, we have been involved in the cross-industry Cobalt for Development initiative since 2018. We have also been a member of the Responsible Lithium Partnership since 2021, together with BMW, Mercedes Benz Group, Fairphone and Volkswagen.

 For more information on the Cobalt for Development project, see [bASF.com/cobalt-initiative](https://bASF.com/cobalt-initiative) and [cobalt4development.com](https://bASF4development.com)

## Safe and efficient production

Safety and quality are our number one priorities. That is why we have established comprehensive management and control systems. Our Responsible Care® Management System comprises the global directives, standards and procedures for environmental protection, health and safety (EHS).

For occupational and process safety as well as health protection, we rely on comprehensive preventive measures. We count on the active involvement of all employees and contractors here. Our safety concepts are designed to provide the best possible protection for employees, contractors and our sites' neighbors, and to prevent damage to property and the environment.

 For more information on Responsible Care®, see [bASF.com/en/responsible-care](https://bASF.com/en/responsible-care)

## Product safety

We see product safety as an integral part of all business processes, as an element of our risk management and as an important pillar of our commitment to Responsible Care®. We continuously work to ensure that our products pose no risk to people or the environment when they are used responsibly and in the manner intended.

 See [bASF.com/product-safety](https://bASF.com/product-safety) for more information

## Water

Introducing and implementing sustainable water management has been a cornerstone of our strategy for many years now. Our goal is to introduce sustainable water management at our Verbund sites and at all production sites in water stress areas by 2030, covering 89% of BASF's total water abstraction. We achieved 61.6% of our target in 2022 (2021: 53.5%). Sustainable water management was introduced at seven further sites in 2022 (2021: 7). In 2022, we again achieved Leadership status with a top rating of "A" in CDP's water assessment.

 See [bASF.com/water](https://bASF.com/water) for more information

## Biodiversity

As a chemical company, we depend on ecosystem services like the availability of renewable resources and high air, water and soil quality, while also influencing them. Protecting biodiversity is a key element of our commitment to sustainability.

We align our biodiversity measures with the impact of our business activities along the value chain. Our focus here is on three areas: sites and production, product impact and supply chains. To be able to take the right measures, we need to understand how our actions affect the biodiversity of the affected ecosystems. Measuring biodiversity is a challenge, as a global indicator – like greenhouse gas emissions for climate change – does not yet exist. We use indicators such as nitrogen emissions to water to measure drivers of biodiver-

sity loss, and indicators such as species occurrence to assess the status of ecosystems. In addition, we regularly test various analysis tools available on the market.

Preservation of biodiversity is taken into consideration in the management of our sites. We strive to operate our facilities in a responsible manner and minimize negative effects on the environment by keeping air, water and soil emissions as low as possible and reducing and avoiding waste.

We evaluate our products and solutions in crop protection and seeds throughout the entire research, development and registration process. After they have been approved for the market, we continue assessing them regularly for potential risks and impact to the ecosystems in which they are used. We have initiated various projects and offer training to prevent misuse of our products.

 For more information on product stewardship for crop protection products and seeds, see [BASF Report 2022](https://bASF.com/BASFReport2022), page 132

Some of the business activities of our raw materials suppliers involve land uses that can influence biodiversity. We have laid down our expectations with regard to environmental, labor and social standards in the supply chain as well as our commitment to preserving biodiversity in the Supplier Code of Conduct.

BASF again participated in the "Forests" assessment conducted by the international organization CDP in 2022 and achieved a score of A–, once more giving us Leadership status.

 For more information on our commitment to biodiversity, see [bASF.com/biodiversity](https://bASF.com/biodiversity)

## Portfolio

**Investments are an essential building block for driving our growth and at the same time achieving our climate targets. That is why we make targeted investments in modern and more sustainable technologies and processes. Our major growth projects help us to reach this goal. We are continuously optimizing our portfolio through targeted acquisitions and divestitures.**

We continued to drive forward our major growth projects in 2022 and further expanded our position in our three key regions: Europe, Asia Pacific and North America. The Asia Pacific region and China in particular, which is expected to expand its share of the global chemical market to around 55% by 2030, will continue to play a key role here. To serve the increasing needs of various growth industries in this region, we are continuously expanding our market position in China, for example, with the construction of our new smart Verbund site in Zhanjiang in the southern Chinese province of Guangdong. In North America, we further expanded our production capacities in the isocyanates value chain in 2022, for example. We also continued to invest in Europe, especially in our battery materials business in Schwarzeide, Germany, and Harjavalta, Finland.

 For more information on the planned Verbund site in Zhanjiang, see [page 28](#). For more information on battery materials, see [page 18](#).

In addition, we are refining our portfolio through acquisitions that promise above-average profitable growth and help to expand our market position in a targeted manner. A key consideration is that these are innovation-driven, offer a technological differentiation, or make new, sustainable business models possible.

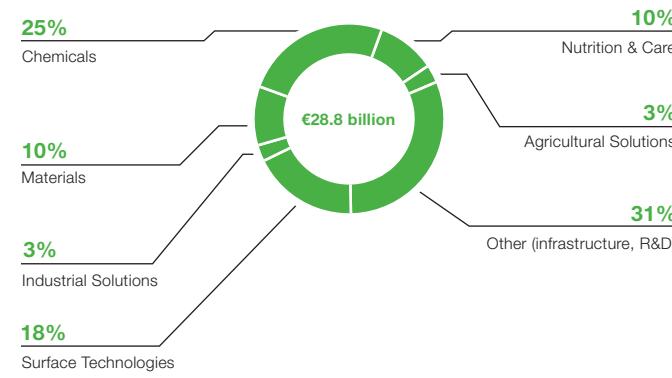
### Investments

Investments in property, plant and equipment amounted to €4,842 million in 2022 (2021: €4,078 million). Capital expenditures (capex)<sup>1</sup> accounted for €4,148 million of this amount (2021: €3,363 million). Our investments in 2022 focused on the Chemicals, Materials, Surface Technologies and Nutrition & Care segments.

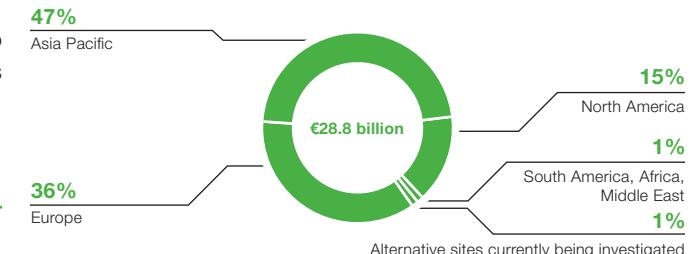
### Capex: selected projects

Location	Project
Chalampé, France	Construction of a production plant for hexamethylenediamine
Geismar, Louisiana	Capacity expansion at MDI plant
Ludwigshafen, Germany	Modernization of chloroformates and acid chlorides production
Schwarzeide, Germany	Construction of a production plant for battery materials
Zhanjiang, China	Construction of a smart Verbund site

### Capex by segment 2023–2027



### Capex by region 2023–2027



We are planning capex of around €6.0 billion for the BASF Group in 2023. For the period from 2023 to 2027, we have planned capex totaling €28.8 billion, including €13.6 billion for our major growth projects – the new Verbund site in Zhanjiang, China, and the expansion of the battery materials business. The investment volume in the next five years will thus be above that of the planning period 2022 to 2026 (€25.6 billion).

### Acquisitions

We did not make any acquisitions in the 2022 business year.

### Divestitures

On April 12, 2022, BASF completed the sale of a 51% share in HKZ Investor Holding B.V., Arnhem, Netherlands, the holding company for the investment in the Hollandse Kust Zuid (HKZ) wind farm, to Allianz Capital Partners, Luxembourg, acting as party to the contract on behalf of Allianz Insurance Companies. BASF had acquired 49.5% of HKZ from Vattenfall in the third quarter of 2021. BASF will receive most of the power produced by its originally acquired share of 49.5% of HKZ under a long-term fixed-price power purchasing agreement.

<sup>1</sup> Additions to property, plant and equipment excluding acquisitions, restoration obligations, IT investments and right-of-use assets arising from leases

On September 30, 2022, BASF completed the divestiture of its kaolin minerals business to KaMin LLC./CADAM S.A., a global performance minerals company headquartered in Macon, Georgia. The divestiture comprised the production hub with sites in Daveyville, Toddville, Edgar, Gordon and related mines, reserves and mills in Toomsboro and Sandersville in Georgia. The refinery catalysts operations located at the same site were not part of the divestiture. Until the divestiture, the kaolin minerals business was part of the Performance Chemicals division. The purchase price was €225 million.

On October 31, 2022, BASF closed the divestiture of its Quincy, Florida site and corresponding attapulgite business to Clariant Corporation, Louisville, Kentucky. The Quincy site produces clay-based mineral products for a wide range of industrial applications. Until its sale, the site was part of the Dispersions & Resins division and employed around 75 people. The purchase price was \$60 million.

### Agreed transactions

On July 19, 2022, BASF and ASC Investment Sarl, Luxembourg, signed an agreement on the sale of BASF's production site in De Meern, Netherlands, to ASC. The site produces nickel-based catalysts and is part of the Catalysts division. The transaction mainly covers production facilities, including the associated infrastructure and inventories, as well as the employees working at the site. The transaction is expected to close in the first half of 2023.

## Priorities for the use of cash



- €28.8 billion capex budget 2023-2027
- Around €2.3 billion in R&D expenses per year



- Aim to increase the dividend per share every year based on a strong free cash flow
- Solid balance sheet supports dividend policy



- Strengthen portfolio through selective M&A opportunities while maintaining price discipline
- Focus the portfolio with continued pruning measures



- Share buybacks are part of our toolbox but currently not being used
- Between January 2022 and February 2023 own shares were repurchased for ~€1.4 billion

## Portfolio management – criteria and selected transactions

### Strategic acquisition criteria

#### We want to acquire businesses which

- create more value as part of BASF's Verbund
- help achieve relevant market positions
- drive innovation or technological differentiation
- enable new and sustainable business models

### Financial acquisition criteria

#### We want to acquire businesses which

- provide a return on capital employed above the WACC after full integration into BASF Group
- are EPS accretive by year three at the latest
- contribute to growth of EBITDA before special items

### Selected, closed transactions 2010 – May 2023

#### Acquisitions

- Functional crop care
- Personal care and food ingredients
- Omega-3 fatty acids
- Enzymes
- Battery materials
- Specialty plastics
- Refinish coatings
- Surface treatment
- Seeds and crop protection
- Polyamide business

#### Divestitures

- Styrenics
- Fertilizers
- Natural gas trading and storage
- Custom synthesis business
- Textile chemicals
- Polyolefin catalysts
- Industrial coatings
- Leather chemicals
- Water and paper chemicals
- Oil & gas
- Construction chemicals
- Pigments business

#### ~€9.5 billion sales

in emerging and innovation-driven businesses

#### ~€30.0 billion sales

in businesses with decreased differentiation potential

## New Verbund site in Zhanjiang

In recent years, market growth in China has been driven by increased domestic consumption, higher standards of living as well as more local value creation. With a world market share of around 50%, China is the largest chemical market and drives the growth of global chemical production. BASF is very well prepared to capture future growth in China. We have built an extensive network throughout the country. The following sites are the backbone of our activities in China:

- Shanghai is home to our Greater China headquarters and an Innovation Campus as well as the Caojing production site.
- Nanjing is the location of our Verbund site in a joint venture with Sinopec as well as a wholly owned site.
- In Chongqing, we operate a wholly owned MDI production complex.

Greater China is currently BASF's second-largest market after the United States. At the end of December 2022, BASF had 11,411 employees in Greater China, 26 wholly owned subsidiaries and

30 production sites. In 2022, BASF posted sales of approximately €11.6 billion to customers in Greater China.

To accelerate our growth in Asia, BASF commenced its Verbund project in Zhanjiang in the southern Chinese province of Guangdong in 2019. The site, which will be built in phases, will be fully owned by BASF and will involve a total investment of up to €10 billion by 2030. When completed, the site will be BASF's third-largest Verbund site globally. In 2022, BASF made the final investment decision for the main construction phase of the Zhanjiang Verbund site, including a steam cracker and downstream plants to support growth of our customers in the dynamic Chinese market.

Construction of the first plants started in 2020. A compounding plant for engineering plastics was inaugurated in 2022. It will provide 60,000 metric tons of engineering plastics compounds to meet growing demand from the Chinese automotive and electronics industries and will bring BASF's total capacity for engineering plastics in Asia Pacific to more than 400,000 metric tons by 2023. A production plant for

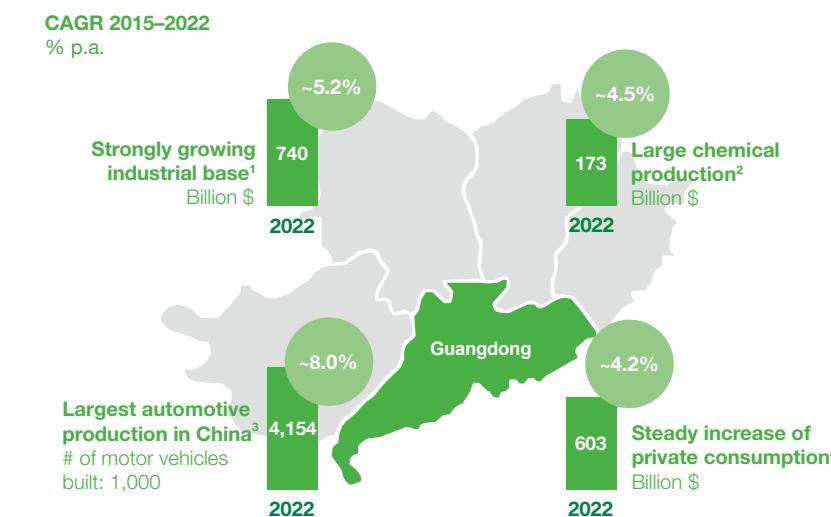


Construction in progress at BASF's Zhanjiang Verbund site

thermoplastic polyurethane (TPU) will come on stream in 2023. The startup of the upstream plants is expected to take place as of 2025. An expansion phase covering further downstream plants for diversification is expected to be operational as of 2028.

With around 127 million residents, Guangdong is the most populous province in China. The province is the economic growth engine of China and accounted for more than 10% of the country's GDP in 2022. Guangdong province is home to many BASF customers in fast-growing industries such as transportation, consumer goods, home and personal care, and electronics. This large and growing market is locally undersupplied in terms of its demand for chemicals. Zhanjiang has a deep-water seaport with easy access to shipments of raw materials and finished goods to and from other ports in China, Asia and other regions. It also offers the shortest sea routes between mainland China and Southeast Asia. The government of Guangdong province is committed to providing this area with world-class logistics infrastructure.

## Guangdong is home to key customers from fast-growing industries



### Market characteristics<sup>5</sup>

- Nearly 127 million residents in Guangdong province (2022)
- GDP Guangdong (2022): > \$1.9 trillion (exceeding Brazil)
- GDP CAGR 2022–2037: ~4.8% p.a.
- Key customer industries: transportation, consumer goods, home and personal care, electronics
- Chemical products are generally undersupplied from local production

<sup>1</sup> Industry real output, 2015-based, Guangdong Bureau of Statistics

<sup>2</sup> Real chemical gross output, 2015-based, inferred by gross output/value added ratio for China, Guangdong Bureau of Statistics

<sup>3</sup> Guangdong Bureau of Statistics

<sup>4</sup> Real private consumption, 2015-based. National Bureau of Statistics with S&P Global forecast, subject to retrospective revision

<sup>5</sup> Guangdong Bureau of Statistics, S&P Global

BASF is committed to building the Zhanjiang Verbund site as a model for sustainable production. We aim to power the site with 100% renewable energy by 2025. As BASF's first implementation of a fully digital smart Verbund concept in a large-scale project globally, the site will be built on the basis of cutting-edge technologies that maximize resource and energy efficiency and reduce environmental impact. Circular economy concepts will be incorporated into the new Verbund site to support customers in the region with low-carbon solutions.

## People

**Our employees make a significant contribution to BASF's success. We want to attract and retain talented people for our company and support them in their development. To do so, we cultivate a working environment that inspires and connects people. It is founded on inclusive leadership based on mutual trust, respect and dedication to top performance.**

### Strategy

Our employees are key to the successful implementation of BASF's strategy. That is why we rely on our employees and leaders. We give them the tools and skills necessary to be able to offer our customers products and services tailored to their needs. We promote a working atmosphere based on mutual trust with attractive working conditions, in which employees can develop their individual skills and potential. We want to further strengthen our innovative power through the inclusion of diversity. This also positions us to meet the challenges of an increasingly rapidly changing environment, demographic change and the digital workplace. Continuous learning and individual development lay the foundation for this. Compensation and benefits as well as our commitment to supporting a balance between personal and professional life complete our comprehensive package. In order to attract and retain talented people for our company in the future, we work continuously on BASF's attractiveness as an employer. Our employees play an important role here as ambassadors for BASF.

For us, diversity means, among other things, having people from different backgrounds working at our company who can draw on their individual perspectives and skills to grow our business. As a global company, we serve many different customer needs. We also want to reflect this diversity in our workforce. By valuing and promoting employee diversity, we boost our teams' performance

and power of innovation, and increase creativity, motivation and employee identification with the company.

We also promote diversity in the selection and development of our leaders. We have set a global target to promote female leadership and aim to increase the proportion of women in leadership positions to 30% by 2030. We have made important progress toward this target. In the BASF Group, the global proportion of female leaders with disciplinary responsibility was 27.2% at the end of 2022 (2021: 25.6%).

BASF can rely on the engagement of its employees. Employee surveys and pulse checks are used as feedback tools to actively involve employees in shaping their working environment. As part of the BASF strategy, we set ourselves the following goal in 2018: More than 80% of our employees feel that at BASF, they can thrive and perform at their best. We regularly calculate the employee engagement level as an index score based on five questions on set topics in our employee surveys. The most recent survey from 2022 revealed an engagement index of 81% (2020: 82%).

Our aim of acting responsibly toward our employees is embedded in our global Code of Conduct through our voluntary commitment to respecting international labor and social standards. This encompasses internationally recognized labor norms as stipulated in the United Nations' Universal Declaration of Human Rights, the OECD Guidelines for Multinational Enterprises, and the Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy of the International Labour Organization (ILO).

### Number of employees

As of December 31, 2022, the number of employees increased to 111,481 employees compared with 111,047 employees as of December 31, 2021. The rise was primarily due to staff increases in Asia Pacific, especially for the new Verbund site in Zhanjiang, China.

The divestiture of the kaolin minerals business and the cessation of business activities in Russia had an offsetting impact. We employed 3,049 apprentices<sup>1</sup> (2021: 3,028). 2,468 employees were on temporary contracts.

### BASF Group employees by region

	December 31, 2022	%
Europe	67,958	61.0
of which Germany	51,703	46.4
Asia Pacific	20,452	18.3
North America	16,036	14.4
South America, Africa, Middle East	7,035	6.3
<b>Total</b>	<b>111,481</b>	<b>100.0</b>

The BASF Group hired 10,893 new employees in 2022. The percentage of employees who resigned during their first three years of employment – the early turnover rate – was 1.9% worldwide in 2022. This turnover rate was 0.8% in Europe, 4.0% in North America, 3.8% in Asia Pacific and 2.8% in South America, Africa, Middle East.

### Compensation and benefits

We want to attract and retain engaged and qualified employees and motivate them to achieve top performance with a total offer package that includes market-oriented compensation, individual development opportunities and a good working environment. Our employees' compensation is based on global compensation principles according to position, market and performance. As a rule, compensation comprises fixed and variable components as well as benefits that often exceed legal requirements. In many countries, these benefits include company pension benefits, supplementary health insurance and share programs. We regularly review our compensation systems at the global and local levels.

<sup>1</sup> At BASF, the apprenticeship program trains students for technical, scientific and business vocations as well as for trade and craft professions.

We want our employees to contribute to the company's success. This is why the compensation paid to the vast majority of our employees includes variable compensation components, with which they participate in the success of the BASF Group as a whole and are recognized for their individual performance. We use the BASF Group's return on capital employed (ROCE) to measure economic success for the purposes of variable compensation. This links variable compensation to our ROCE target.<sup>1</sup> Individual performance is assessed as part of a globally consistent performance management process.

#### BASF Group personnel expenses

Million €

	2022	2021	+/-
Wages and salaries	9,102	8,847	+2.9%
Social security contributions and assistance expenses	1,598	1,519	+5.2%
Pension expenses	701	732	-4.2%
<b>Total personnel expenses</b>	<b>11,400</b>	<b>11,097</b>	<b>+2.7%</b>

#### Compliance Program and Code of Conduct

BASF's Compliance Program is based on our corporate values and our voluntary commitments, as well as international standards. It describes our commitment to responsible conduct and expectations around how all BASF employees interact with business partners, officials, coworkers and the community.

At the core of our Compliance Program is the global, standardized Code of Conduct. All employees and managers are obligated to adhere to its guidelines, which cover topics ranging from corruption and antitrust laws to human rights, labor and social standards, conflicts of interest and trade control, and protection of data privacy.

The online version of our Code of Conduct is aimed at our employees and also offers user-friendly features such as case studies,

#### The structure of BASF's Code of Conduct

##### We Care

- Our Code of Conduct
- How We Make Decisions
- We Always Speak Up
- We Lead With Integrity

##### We Earn Trust

- Anti-Corruption
- Trade Control
- Anti-Money Laundering

##### We Play Fair

- Antitrust Laws
- Gifts and Entertainment
- Conflicts of Interest

##### We Respect

- Human Rights, Labor and Social Standards
- Environmental Protection, Health and Safety

##### We Protect

- Sensitive Company Information
- Personal Data
- Digital Responsibility
- Company Property
- Accurate Books and Records

FAQs and additional references. The internal online platform and app provide our employees worldwide with up-to-date content such as videos and links to specialist units and guidelines as well as direct contact to subject specialists.

Abiding by compliance standards is the foundation of responsible leadership. This has also been embedded in our values. We are convinced that compliance with these standards will play a key role in securing our company's long-term success. Our efforts are principally aimed at preventing violations from the outset.

We perform a systematic risk assessment to identify the risk of compliance violations, including corruption risks. These are conducted at divisional and Group company level. The regular compliance audits performed by the Corporate Audit department are another source of information for the systematic identification of risks. These risks are documented in the relevant risk or audit report. The same applies to specific risk minimization measures as well as the time frame for their implementation.

One key element in violation prevention is compulsory training and workshops held as classroom or online courses. All employees are required within a prescribed time frame to take part in basic compliance training, refresher courses and special tutorials dealing with,

for example, antitrust legislation, taxes or trade control regulations. Newly appointed senior executives also receive special training on leading with integrity. Course materials and formats are constantly updated, taking into account the specific risks of individual target groups and business areas. In total, more than 30,000 participants worldwide received over 50,000 hours of compliance training in 2022.

 For more information on the BASF Code of Conduct, see [bASF.com/code\\_of\\_conduct](http://bASF.com/code_of_conduct)

**Code of Conduct**  
is the core of our Compliance Program

**More than 30,000**  
participants in compliance training

**47 internal audits**  
conducted on adherence to our compliance standards

<sup>1</sup> In calculating compensation-relevant ROCE, adjustments are made for negative and positive special items resulting from acquisitions and divestitures (for example, integration costs in connection with acquisitions and gains or losses from the divestiture of businesses) when these exceed a corridor of +/-1% of the average cost of capital basis. An adjustment of the compensation-relevant ROCE (in the first 12 months after closing) therefore only occurs in cases of exceptionally high special items resulting from acquisitions and divestitures.

# 2

# Segments

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<b>Segments</b>	<b>32</b>	<b>Nutrition &amp; Care</b>	<b>58</b>
Chemicals	34	Care Chemicals	60
Petrochemicals	36	Nutrition & Health	62
Intermediates	38		
<b>Materials</b>	<b>40</b>	<b>Agricultural Solutions</b>	<b>64</b>
Performance Materials	42	Agricultural Solutions	66
Monomers	44		
<b>Industrial Solutions</b>	<b>46</b>	<b>Other</b>	<b>68</b>
Dispersions & Resins	48		
Performance Chemicals	50	<b>Non-Integral Shareholding in Wintershall Dea</b>	<b>69</b>
<b>Surface Technologies</b>	<b>52</b>		
Catalysts	54		
Coatings	56		

# Segments

Our segments' business models are aligned with their specific strategic action areas. Innovation and sustainability are the cornerstones that will enable us to continue to be successful with our products and with our customers in the future and to collectively master the challenges that lie ahead.

The **Chemicals** segment is at the heart of the Verbund. Its production facilities reliably supply BASF's other segments with chemicals to produce higher value-added products and thus contribute to the organic growth of the BASF Group. It also markets high-quality basic chemicals and intermediates to customers in downstream industries.

The segment creates value through process and product innovation and invests in research and development to implement new, sustainable technologies and make existing technologies even more

efficient. Thanks to our integrated manufacturing processes, the carbon footprint of some of our products is significantly lower than that of our competitors. Technological leadership, operational excellence and a clear focus on individual value chains are among our most important competitive advantages. We concentrate on the essential success factors of the traditional chemicals business: leveraging economies of scale and the advantages of our Verbund, high asset availability, continuous optimization of access to raw materials, lean and energy-efficient processes, and reliable, cost-effective logistics. We are continuously developing our value chains and are expanding our market position – especially in Asia – with investments and collaborations in growth markets.

Furthermore, we are constantly improving our global production structures and aligning these with regional market requirements. For example, we are modernizing our chloroformates and acid chlorides

plant in Ludwigshafen, Germany, so that we can continue to reliably support our customers' growth with these products.

BASF's **Materials** segment supplies high-quality plastics precursors and develops new plastics applications, high-performance materials, systems and digital solutions. Our product portfolio is unique in the industry. We aim to grow mainly organically by differentiating ourselves with our application expertise and industry knowledge and by creating maximum value in our isocyanate and polyamide value chains. Advanced material simulation capabilities are a unique selling point in the industry and enable us to meet customer requirements individually.

To provide added value to our customers and society, we are working on new circular economy solutions and more sustainable production processes that use resources as efficiently as possible. BASF is active along the value chain for important durable plastics, from monomers to polymers and their formulated specialties. With our specific technology knowledge, we are working to shape and close loops and convert plastics back into raw materials for the chemical industry. This is how we help to reduce plastic waste, save fossil resources and avoid carbon emissions in plastics production. Examples include Ultramid® Cycled®, which is made from raw material based on end-of-life tires, biomass balance products and certified compostable bioplastics. With these solutions, we aim to meet growing demands in all key markets and help our customers to meet their sustainability targets.

We are continuously expanding the range of applications in our portfolio with tailor-made services and product offerings. Our global production network enables us to provide our solutions wherever our customers are.

## Strategic alignment of the segments

	<b>Chemicals</b>	<b>Materials</b>	<b>Industrial Solutions</b>	<b>Surface Technologies</b>	<b>Nutrition &amp; Care</b>	<b>Agricultural Solutions</b>
Verbund synergies			Catalysis			
			Process technology			
			Automotive industry			
			Recycling and renewable raw materials			Biosciences
				Formulation		
			Digitalization and artificial intelligence			
Strategic focus	Economies of scale in basic chemicals and intermediates	High-performance plastics	Additives platform	Surface technology platform	Ingredients for consumer products	Connected offer across technologies for farmers
Innovation and sustainability focus	Emission-reduced processes	Applications, recycled and bio-based materials	Polymer dispersions, resins	Battery materials, coatings	Biotechnology, natural active ingredients, formulations	Active ingredients, seeds and traits, digital solutions

The **Industrial Solutions** segment markets and develops ingredients and additives for industrial applications. These include fuel and lubricant solutions, ingredients for paints and coatings, electronic materials and plastic additives. We concentrate on research and development with the aim of enabling more efficient resource use and developing more sustainable products and processes, for example, in polymer dispersions, resins and plastic additives. At the same time, this also enables our customers to contribute to sustainability through their applications and processes. Other focus areas are efficient production setups, backward integration in our Production Verbund's value chains, capacity management, and technology and cost leadership.

Our global presence enables us to operate close to our customers and their industries. As a reliable partner, we offer high-quality products at attractive prices. We work on new solutions together with our customers and strive for long-term partnerships that create profitable growth opportunities for both sides. To achieve this, we draw on our innovative strength and our many years of experience and extensive industry expertise. Through our in-depth application knowledge and technological innovations, we strengthen customer relationships in key industries such as the automotive, electronics, plastics and coatings industries.

In the **Surface Technologies** segment, the focus is on the protection, modification and development of surfaces. Together with our customers, we develop novel products and technologies for catalysts, coatings and battery materials. We also offer precious and base metal as well as surface treatment services. Our aim is to drive growth by leveraging our portfolio of technologies to find the best solution for our customers in terms of functionality and cost. This in turn helps our customers to drive forward innovation in their industries and contribute to sustainable development.

Key growth drivers for us are the positive medium-term development of the automotive market, especially in Asia, the trend toward sustainable, low-emission mobility, and the associated rise in

demand for battery materials for electromobility. We are developing customized, more sustainable solutions in these growth areas for battery materials, emission control, recycling and functional coatings in close cooperation with our customers. Our specialties and system solutions in these areas enable customers to stand out from their competition.

The automotive industry is currently undergoing a fundamental transformation. As one of the largest suppliers of chemicals to this industry, we will further strengthen our focus on battery materials and recycling and pursue our ambitious growth plan. We have established a new unit, BASF Environmental Catalyst and Metal Solutions, within the Catalysts division for mobile emissions catalysts, automotive catalysts recycling and associated precious metal services. The carve-out process started in January 2022. The new organizational structure prepares the business for the upcoming changes in the internal combustion engine market and allows for future strategic options.

In the **Nutrition & Care** segment, we strive to expand our position as a leading provider for nutrition and care ingredients for consumer applications. We will continue to develop our capabilities in areas such as biotechnology and broaden our portfolio with bio-based and biodegradable products. One example is the Verdessence™ product line launched in 2022, which offers sustainably sourced biopolymers for personal care applications. This supports our customers in meeting the ever-growing consumer demand for natural and organic cosmetics.

Our enzymes business enables us to pursue a targeted, accelerated marketing strategy and expand our portfolio for natural and biotechnological products. Furthermore, we are investing in natural and biological substances. BASF supplies excipients for human therapeutic drug formulations. Our biopharma ingredients serve a variety of markets, from bioprocessing and formulation of proteins to vaccines and antibodies.

In addition, acquisitions expand our business with new business models and sustainability trends in consumer markets. Future growth in our markets will be driven by trends such as growing consumer awareness and the resulting demand for sustainable product solutions, natural and organic ingredients and their traceability. Moreover, the shift toward individualization and local production supports new players and business models. Digitalization, a focused technology and product portfolio, and close cooperation with our customers are crucial to meeting these dynamic market requirements, both now and in the future.

In the **Agricultural Solutions** segment, we are working to achieve the right balance between economic, environmental and social value creation for a sustainable and efficient agricultural sector. Efficient farming is fundamental given that the world's population is expected to increase by about 1.7 billion<sup>1</sup> people between 2022 and 2050. While the demand for food, feed, fiber and energy is growing, natural resources are limited. Balanced agriculture is a key enabler in producing enough healthy, affordable food and responding to changing consumer behavior while reducing the impact on the environment.

As one of the world's leading agricultural solutions companies, we are making a positive impact on sustainable agriculture and food systems. Our innovation-driven strategy for agriculture focuses on selected crops and their appropriate cultivation systems in specific regions. We integrate sustainability criteria into all business and portfolio decisions. In doing so, we help farmers achieve better yield, protect the planet and produce economically.

We leverage our expertise in research and development and our deep understanding of the way individual growers manage their farms to provide cross-technology offerings. These include novel solutions for seeds, traits, crop protection and digital products tailored to the farming needs of their region and crop systems.

# Chemicals

The Chemicals segment consists of the Petrochemicals and Intermediates divisions. It supplies the other segments with basic chemicals and intermediates, contributing to the organic growth of our key value chains. Alongside internal transfers, our customers mainly come from the chemical and plastics industries. We aim to further expand our competitiveness through technological leadership and operational excellence.

## Divisions

### Petrochemicals

Broad portfolio of high-quality basic chemicals and specialties, tailored to the needs of internal and external customers, which serve as starting materials for products such as dispersions, paints, coatings, plastics, insulating materials and hygiene products

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### Intermediates

Comprehensive portfolio of intermediates and specialties, which are used as precursors for products such as coatings, plastics, textile fibers, pharmaceuticals and crop protection products

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### Neopentyl glycol ZeroPCF

Since 2022, BASF has offered the versatile intermediate neopentyl glycol (NPG) as a ZeroPCF variant, i.e., with a Product Carbon Footprint (PCF) of net zero.<sup>1</sup> We achieve this through a production process that combines our biomass balance approach with the use of renewable energies and the advantages of our Verbund production system. NPG ZeroPCF has the same quality as our conventionally manufactured NPG and therefore serves as a drop-in solution for our customers to achieve their emission and sustainability targets. A key application area for NPG is powder coatings, primarily used in the construction industry and for household appliances. There, they enable a reduction of volatile organic compounds (VOC) by up to 50%. NPG ZeroPCF is currently produced at the Verbund site in Ludwigshafen, Germany, and is available worldwide.

 Discover NPG ZeroPCF at [bast.com/en/npg](http://bast.com/en/npg)

<sup>1</sup> Cradle-to-gate calculation (from raw materials extraction to the factory gate)

## Chemicals

### Sales

**€4,349 million**

Intermediates

Change: 11.4%

Share of sales: 29%

2022:  
**€14,895 million**

Change:  
**9.7%**

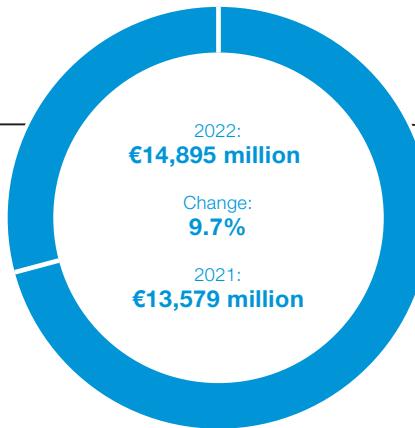
2021:  
**€13,579 million**

**€10,546 million**

Petrochemicals

Change: 9.0%

Share of sales: 71%



### Segment data

Million €

	2022	2021 <sup>1</sup>	2020	2019
Sales to third parties	14,895	13,579	8,071	9,532
Share of total BASF sales %	17	17	14	16
of which Petrochemicals	10,546	9,674	5,426	6,670
Intermediates	4,349	3,904	2,645	2,862
Income from operations before depreciation, amortization and special items	2,774	3,842	1,305	1,574
Income from operations before depreciation and amortization (EBITDA)	2,771	3,882	1,237	1,545
EBITDA margin %	18.6	28.6	15.3	16.2
Income from operations (EBIT) before special items	1,956	3,092	445	791
EBIT before special items margin %	13.1	22.8	5.5	8.3
Income from operations (EBIT)	1,758	3,115	-192	622
EBIT margin %	11.8	22.9	-2.4	6.5
Return on capital employed (ROCE) %	15.6	33.9	-2.2	6.8

<sup>1</sup> BASF's ethylene value chain was reorganized internally as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the joint venture BASF-YPC Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The 2021 figures have been adjusted. This reduced income from integral companies accounted for using the equity method, EBITDA before special items, EBITDA, EBIT and EBIT before special items in Other by €118 million in 2021 and increased these indicators in the Petrochemicals division accordingly. The operating assets were also reallocated as part of the reorganization and increased the Chemicals segment's assets by €114 million as of December 31, 2021.

### Factors influencing sales

2022 versus 2021

Volumes	-10.6%	
Prices	15.2%	
Portfolio	-0.1%	
Currencies	5.2%	
Sales	9.7%	

### EBIT before special items<sup>1</sup>

Million €

2022	1,956
2021	3,092
Change: -€1,136 million	

## Petrochemicals

The Petrochemicals division is the cornerstone of BASF's petrochemical-based value chains throughout the regions. The division manufactures and markets a broad portfolio of high-quality basic chemicals and tailored specialties for internal and external customers. To contribute to BASF's net zero CO<sub>2</sub> emissions goal, we offer some of our portfolio based on circular feedstock. For this purpose, either renewable or chemically recycled feedstock is used instead of virgin fossil resources at the beginning of the value chain. Furthermore, we develop processes to reduce greenhouse gas emissions in our existing plants.

### Portfolio

#### Acrylic monomers and superabsorbent polymers

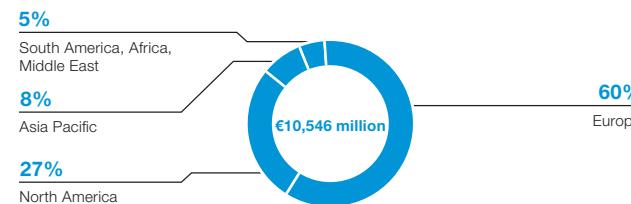
BASF is the world's largest and most widespread producer of acrylic monomers, which are sold to internal and external customers in the form of acrylic acid, acrylic esters and specialty acrylates. Acrylic monomers are used as precursors to manufacture acrylic polymers and polymer dispersions for various applications such as adhesives, coatings, flocculants, superabsorbent polymers and surfactants.

Superabsorbent polymers (SAP) are used in various hygiene applications, such as baby diapers, adult incontinence products and feminine hygiene articles. With our world-scale production plants in every region, we are close to our customers. Through our market knowledge and R&D expertise, we aim to foster trusted relationships with customers and partners in the global hygiene industry.

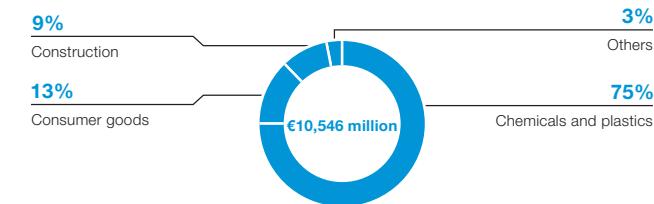
#### Alcohols and solvents

BASF is the world's largest producer of oxo alcohols and is also a major producer of oxygenated solvents in Europe, including acetates, glycol ethers, glycol ether acetates and specialty solvents. Major customer industries are paints and coatings, pharmaceuticals and cosmetics.

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



#### Alkylene oxides and glycols

Ethylene oxide derived from ethylene is used mainly to produce surfactants, ethanolamines, glycols, glycol ethers and polyols. Ethylene glycol is used in antifreeze applications and the production of fibers, films and PET (polyethylene terephthalate) plastic bottles.

#### Cracker products

BASF produces the entire range of cracker products from ethylene and propylene to butadiene, butenes and benzene. Propylene is the most important starting product for BASF's value chains.

#### Plasticizers

BASF offers a broad product portfolio of general purpose and special purpose plasticizers. Plasticizers give flexibility to PVC products such as cables or films. At the same time, they offer protection against the effects of weathering and temperature, thereby helping to maintain the product's functionality. Plasticizers are used in a large number of industries such as construction, automotive, toys and medical devices.

#### Styrenics

The styrenics value chain of BASF comprises styrene monomer, polystyrene, extruded polystyrene (XPS, with the brand Styrodur®) and expandable polystyrene (EPS, with the brands Styropor® and Neopor®). The most important industries for BASF's styrenics business are packaging and construction, where the unique properties of styrenic polymers allow customers to realize various eco-efficient solutions, for example, as insulation material.

#### BASF's market position and main competitors

The Petrochemicals division holds one of the top three market positions in more than half of the strategic business areas in which it is active.

The main competitors (alphabetical order) include Dow, Evonik, ExxonMobil, INEOS, LG Chem, LyondellBasell, Nippon Shokubai, SABIC, Sinopec, Shell and Wanhua.

#### Focus of research and development

We aim to set the benchmark for cost competitiveness and environmental footprint. The focus is on developing new processes and optimizing our existing ones. We want to be a thought and action leader in sustainability with a special focus on CO<sub>2</sub> reduction and the circular economy. In terms of product innovation, we advance research in the field of superabsorbent polymers and styrenics.

## Key capabilities of BASF

- Strong Verbund sites with world-scale production facilities
- Leading process technology and operational excellence
- Capabilities for greenhouse gas emission reduction
- Strong global market position with regional production
- Outstanding market knowledge and technical capabilities

## Acquisitions/JVs/investments/divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Ethylene oxide	Expansion of integrated complex in Antwerp, Belgium	2023
Superabsorbent polymers	Closure of production in Mannheim, Germany	2022
	Investment in excellence center in Antwerp, Belgium	2023
<i>tert</i> -butyl acrylate	New plant in Nanjing, China	2023
Cracker products and downstream	Establishment of an integrated Verbund site in Zhanjiang, China	until 2030

## Innovation



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## Water electrolysis for CO<sub>2</sub>-free hydrogen

Water electrolysis based on energy from renewable sources offers a route to carbon-free hydrogen. Subject to funding from the German Federal Ministry for Economic Affairs and Climate Protection (BMWK), BASF is planning to build a proton exchange membrane (PEM) water electrolyzer in Ludwigshafen together with Siemens Energy. The plant will produce about 8,000 metric tons of hydrogen per year that will primarily be used in BASF's Verbund.

## Major nameplate capacities of BASF

Thousand metric tons per year

### Product group

	Location													Total <sup>5</sup>
	Antwerp, Belgium	Camaçari, Brazil	Cornwall, Canada	Freeport, Texas	Geismar, Louisiana	Rayong, Thailand	Kuantan, Malaysia <sup>1</sup>	Ludwigshafen, Germany	Nanjing, China <sup>2</sup>	Pasadena, Texas	Port Arthur, Texas <sup>3</sup>	Tarragona, Spain <sup>4</sup>	Ulsan, South Korea	
Acrylic acid	■	■					■	■	■					1,510
Benzene	■							■	■		■			910
Butadiene	■						■	■	■		■			680
Ethylene	■						■	■	■		■			3,480
Ethylene oxide (equivalents)	■				■		■	■	■					1,445
Oxo C4 alcohols				■			■	■	■	■				1,625
Plasticizers (incl. Hexamoll® DINCH)			■				■			■				595
Propylene	■						■	■	■		■	■		2,680
Styropor®/Neopor®							■						■	545
Superabsorbents	■	■		■		■			■					585

<sup>1</sup> BASF 60%; PETRONAS 40%

<sup>2</sup> BASF 50%; Sinopec 50%

<sup>3</sup> BASF 60%; Total 40%

<sup>4</sup> BASF 51%; Sonatrach 49%

<sup>5</sup> All capacities are included at 100%, including plants belonging to joint operations and joint ventures.

## Intermediates

The Intermediates division manufactures about 600 products, which are sold worldwide. These include butanediol and its derivatives, amines, organic acids, polyalcohols, life science intermediates, solvents and OASE® gas treatment solutions. They are often the result of multistep production processes within BASF. Customers typically purchase them as precursors for their downstream chemicals, and they are widely used for BASF's own downstream products. The Intermediates division focuses primarily on the C1 and C2 value chains.

### Portfolio

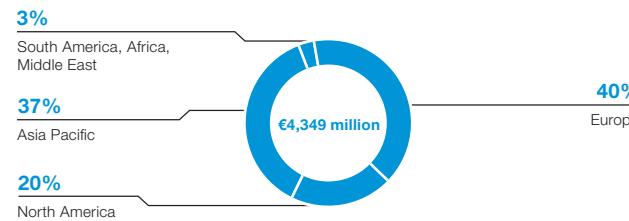
#### Acetylenics and carbonyl derivatives

These specialty intermediates are based on raw materials from BASF's Verbund, such as acetylene and chlorine. Among the acetylene derivatives are vinyl monomers, acetylenic alcohols and higher alkylpyrrolidones. Chlorine-based intermediates include acid chlorides and chloroformates. Further specialty intermediates are glyoxal and imidazoles, cyclododecanone (CDon), 2-mercaptopropanoic acid and triphenylphosphine. The products serve as building blocks for crop protection agents and pharmaceuticals or as monomers and performance additives for polymers, coatings and printing inks.

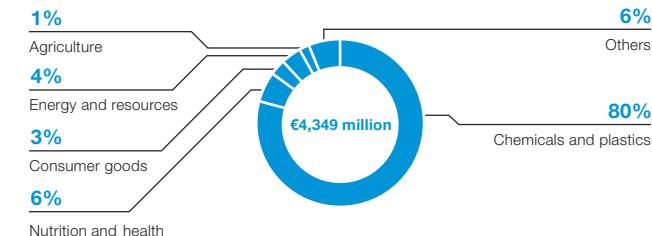
#### Acids and polyalcohols

BASF is the world's leading manufacturer of polyalcohols, such as neopentyl glycol (NPG) and 1,6 hexanediol (HDO), and carboxylic acids, such as formic and propionic acid. Carboxylic acids are used as preservatives for the feed and food industries, as auxiliaries for textile and leather applications and as deicing agents. The portfolio also includes higher carboxylic acids such as 2-ethylhexanoic acid (2-EHA) and isononanoic acid (INA), which are primarily utilized in synthetic lubricants, paint dryer and PVC plasticizer applications. Polyalcohols are mainly offered for the production of a wide range of coatings.

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



#### Amines

With about 300 different amines, we have the world's most diverse portfolio of this type of chemical intermediate. Along with alkyl-, alkanol-, alkoxyalkylamines and ethyleneamines, we offer heterocyclic and aromatic as well as specialty amines. The range is completed by a portfolio of chiral amines of high optical and chemical purity. The versatile products are used mainly to manufacture process chemicals, pharmaceuticals and crop protection agents, as well as cosmetic products and detergents. They also serve to produce coatings, specialty plastics, composites and specialty fibers.

#### Butanediol and its derivatives

BASF is among the world's largest manufacturers of 1,4-butanediol, which is a chemical building block for products such as polyesters and polyurethanes. Its derivatives are used to manufacture products ranging from fibers to paints, pharmaceuticals and lithium-ion batteries, and include N-methylpyrrolidone (NMP), tetrahydrofuran (THF) and PolyTHF®.

### Innovation

We consistently align our innovation activities with the needs of our customers. As sustainability is the most important driver of innovation in many of our customer segments, we strive to make our product portfolio more sustainable and thus enable our customers to better achieve their sustainability goals.

In 2022, we launched a number of our chemical intermediates as "LowPCF" products globally. This suffix denotes the low carbon footprint (PCF) of these products relative to that of comparable products available on the markets. Our range of LowPCF products currently consists of *tert*-butylamine (tBA), formic acid (FA), propionic acid (PA), 1,6-hexanediol (HDO®) and NPG.

In addition, we have been globally offering NPG and PA produced at our Ludwigshafen Verbund site with the suffix "ZeroPCF". We achieve this by using renewable raw materials in our unique Verbund production system via our biomass balance (BMB)<sup>1</sup> approach. We additionally use renewable energy in the production of NPG.

<sup>1</sup> The biomass balance approach allows fossil fuels to be replaced by renewable raw materials in BASF's Production Verbund. The amount of renewable feedstock is allocated to specific products using a third party-verified certification method. For more information on the mass balance approach, see [bASF.com/massbalance](http://bASF.com/massbalance)

## Innovation



© PETRONAS

### First floating LNG project with OASE®

BASF is taking a new approach to capturing carbon dioxide from certain waste gases. Over the past two years, BASF's OASE® gas scrubbing technology has been successfully used for the first time in a floating liquefied natural gas (FLNG) plant. The plant, owned by Malaysian oil and gas company PETRONAS, uses a BASF process to remove acidic gas components. The plant is designed to extract natural gas from deep-sea gas reservoirs at depths of up to 1,500 meters.

As drop-in solutions, our LowPCF and ZeroPCF products have the identical quality and properties as standard products. As a result, our customers can use them without having to adapt their existing processes. Customers can easily and efficiently reduce their Scope 3 emissions from purchased goods and increase the share of renewable raw materials in the value chain, thus contributing to the transition to a circular economy.

### BASF's market position and main competitors

The Intermediates division holds one of the top three market positions in all strategic business areas in which it is active.

The main competitors (alphabetical order) include Dairen, Dow, Eastman, Huntsman, Luxi, LyondellBasell and Wanhua.

### Focus of research and development

The main aim of process innovation is to optimize existing production technologies and develop new, highly efficient processes that offer significant sustainability contributions and cost benefits.

### Key capabilities of BASF

- World-scale plants based on leading process technology
- Competitive raw material sourcing and/or backward integration
- Operational, logistical as well as commercial excellence
- Strong market position with regional setup

### Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Neopentyl glycol	Capacity expansion in Nanjing, China	2020
tert-Butylamine	Capacity expansion in Nanjing, China	2021
2-Mercaptoethanol	Capacity expansion in Ludwigshafen, Germany	2021
2-Ethylhexanoic acid	Capacity expansion in Kuantan, Malaysia	2024
Propionic acid/ethanolamines/ethyleneamines	Capacity expansion in Nanjing, China	2024
Neopentyl glycol	New plant in Zhanjiang, China	2025
Chlorofomates/acid chlorides	Modernization in Ludwigshafen, Germany	2025

### Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
1,4-Butanediol	Closure of production line in Chiba, Japan	2020
	Closure of production line in Kuantan, Malaysia	2021

### Major nameplate capacities of BASF<sup>1</sup>

Thousand metric tons per year

Product group	Capacity
Alkylamines	250
Ethanolamines and derivatives	440
Specialty amines	~100
Butanediol equivalents	550
PolyTHF®	350
Neopentyl glycol (Neol®)	255
Formic acid	305
Propionic acid	180

<sup>1</sup> All capacities are included at 100%, including plants belonging to joint operations and joint ventures.

# Materials

The Materials segment comprises the Performance Materials and Monomers divisions. The segment's portfolio includes advanced materials and their precursors for new applications and systems such as isocyanates, polyamides and inorganic basic products as well as specialties for the plastics and plastics processing industries. We differentiate ourselves through specific technology expertise, industry knowledge and customer proximity, and create maximum value in the isocyanate and polyamide value chains.

## Divisions

### Performance Materials

Polyurethanes, thermoplastics and foam specialties for sectors such as the transportation, construction and consumer goods industries, as well as for industrial applications

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### Monomers

Isocyanates and polyamides as well as inorganic basic products and specialties for sectors such as the plastics, automotive and construction industries

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<sup>1</sup> Ebusbar® is headquartered in Shenzhen, China and specializes in high voltage connection system solutions for new energy vehicles.

## Materials

### Sales

**€9,877 million**

**Monomers**

Change: 24.7%  
Share of sales: 54%

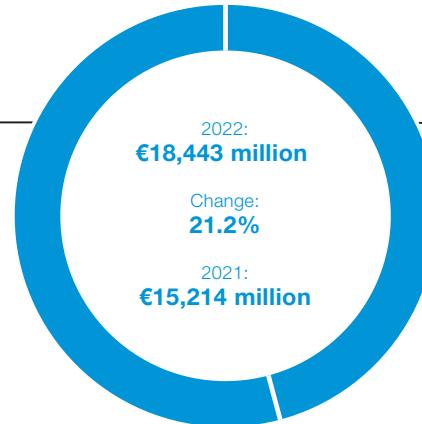
2022:  
**€18,443 million**

Change:  
**21.2%**

2021:  
**€15,214 million**

**€8,567 million**

**Performance Materials**  
Change: 17.5%  
Share of sales: 46%



### Segment data

Million €

	2022	2021	2020	2019
Sales to third parties	18,443	15,214	10,736	11,466
Share of total BASF sales %	21	19	18	20
of which Performance Materials	8,567	7,292	5,635	6,064
Monomers	9,877	7,922	5,101	5,402
Income from operations before depreciation, amortization and special items	2,686	3,208	1,714	1,719
Income from operations before depreciation and amortization (EBITDA)	2,660	3,162	1,556	1,691
EBITDA margin %	14.4	20.8	14.5	14.7
Income from operations (EBIT) before special items	1,840	2,418	835	1,003
EBIT before special items margin %	10.0	15.9	7.8	8.7
Income from operations (EBIT)	1,776	2,345	-109	973
EBIT margin %	9.6	15.4	-1.0	8.5
Return on capital employed (ROCE) %	14.9	22.8	-1.1	10.7

### Factors influencing sales

2022 versus 2021

Volumes	-5.7%	
Prices	21.3%	
Portfolio	-0.1%	
Currencies	5.6%	
Sales	21.2%	

### EBIT before special items

Million €

2022	1,840
2021	2,418
Change: -€578 million	

## Performance Materials

The Performance Materials division is at the forefront of the much-needed sustainability transformation in plastics. Our experts co-create products with customers to bring innovations to four major industry sectors – transportation, consumer goods, industrial applications and construction. These solutions contribute to a sustainable future by pushing the boundaries in thermal resistance, robustness and lightweight applications. Today, a substantial share of our portfolio is already available with significantly lower or even net-zero carbon footprints, using the biomass balance approach.

### Portfolio

#### Engineering plastics

Engineering plastics are used in numerous applications, such as automotive engineering, the electrical and electronics sectors, household appliances and precision technology as well as in medical technology. This product group includes Ultraform® based on polyoxymethylene (POM), Ultradur® based on polybutylene terephthalate (PBT) and Ultramid® based on polyamide (PA).

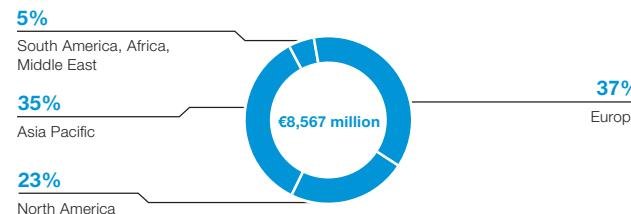
#### Functional foams

Functional foams include Basotect®, a flexible open-cell foam made from melamine resin, as well as the particle foam Neopolen®. Basotect® is used for sound and thermal insulation in the construction and transportation industries and as a cleaning sponge in the consumer industry.

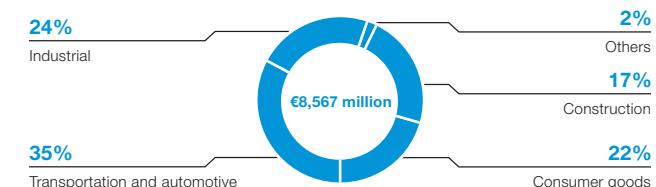
#### Polyurethanes

Polyurethane solutions make life more comfortable, safer and more pleasant, while helping to save energy. They contribute toward improved insulation of buildings and household appliances, lightweight design of cars and other consumer products. Several industry fields use the unique advantages of polyurethanes provided with the knowledge and experience of BASF's polyurethane experts worldwide. This product group includes PU (polyurethane) systems,

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



TPU (thermoplastic polyurethanes) and MPU (microcellular polyurethane or Cellasto®) technologies.

#### Specialty plastics

Specialty plastics include biodegradable co-polyesters, mainly used in various packaging applications and sold under the ecoflex® and ecovio® brands, as well as Ultrason®, a high-temperature plastic based on polyarylsulfone (PPSU, PSU, PESU) mainly used in household and healthcare applications.

#### Industry focus

Performance Materials approaches the market with a strong industry orientation, focusing on innovation to address important needs of key market segments. We work with our customers and stakeholders in the industries to introduce innovative solutions by combining our comprehensive portfolio of products with application, engineering, simulation and manufacturing know-how. Customer proximity and close collaboration are the basis for our solution-selling approach, which is a key driver for profitable growth.

Product/Industry	Transportation	Consumer	Industrial	Construction
PU systems	■	■	■	■
TPU	■	■	■	■
MPU	■	■	■	■
Engineering plastics	■	■	■	■
Polysulfones	■	■	■	■
Functional foams	■	■		■
Biodegradable plastics		■		

#### BASF's market position and main competitors

The Performance Materials division holds one of the top three market positions in almost all of the strategic business areas in which it is active.

The main competitors (alphabetical order) include Celanese, Covestro, Dow, Envalior, Huntsman, Polyplastics, Solvay and Wanhua.

## Focus of research and development

Our focus is on all stages of the plastics journey: make, use and recycle. The make phase is about improving how plastics are made, from product design to the choice of raw materials and the manufacturing process itself. In the use phase, we improve plastics' strengths such as light weight, robustness and thermal resistance. At the end of the product lifecycle, the recycle phase looks at how we can close the loop to achieve a circular economy. We are involved in the early stage of the product development and design and we apply digital and data-driven models that help our customers transform toward CO<sub>2</sub> neutrality.

## Key capabilities of BASF

- Close collaboration with key customers in target industries worldwide
- Innovation in products, applications, processes and business models
- Technical, engineering and application competence
- Operational excellence ensuring reliability and consistent quality
- Focused specialty businesses

### Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Polyurethanes	New TPU plant in Zhanjiang, China	2023
Engineering plastics	Acquisition of Solvay's polyamide business	2020
	New Ultramid® (PA) and Ultradur® (PBT) plants in Zhanjiang, China	2022
	Expansion of Ultramid® (PA) capacity in Gujarat, India	2022
	Expansion of Ultramid® (PA) and Ultradur® (PBT) in Pasir Gudang, Malaysia	2023

### Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Engineering plastics	Closure of Ultramid® compounding site in Leuna, Germany	2022

### Major nameplate capacities of BASF<sup>1</sup>

Thousand metric tons per year

Product group	Capacity
Engineering plastics	900

<sup>1</sup> All capacities are included at 100%, including plants belonging to joint operations and joint ventures.

## Innovation



### BASF and Citroën present all-electric concept car

In September 2022, Citroën and BASF unveiled their all-electric concept car "oli," a testament to how much can be saved by reducing weight and resource usage. The concept car has a wider driving range and a significantly improved battery lifespan. The minimalistic approach paved the way for a refreshing and innovative design: Various interior and exterior components have been radically reinterpreted and constructed using materials in a different context. Citroën chose BASF as a partner for the development and design phase thanks to its innovative solutions.

Discover the oli concept car at [concept-car-citroen.bASF.com](http://concept-car-citroen.bASF.com)

## Monomers

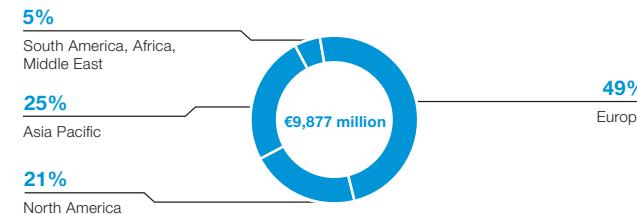
The Monomers division supplies a broad portfolio of large-volume monomers, basic polymers and inorganic chemicals. Major products include MDI (methylene diphenyl diisocyanate), TDI (toluene diisocyanate), propylene oxide, caprolactam, adipic acid, hexamethylenediamine, ammonia, polyamide 6 and 6.6, nitric acid, sulfur and chlorine products, inorganic salts, urea, glues and impregnating resins. The products are used in a broad spectrum of industries, such as the automotive, furniture, construction, woodworking, food, feed, solar, packaging and textile industries. The division is in a key position to drive the sustainable transformation of these industries. It is therefore expanding its portfolio of products with a lower CO<sub>2</sub> footprint and is committed to providing a circular option in every major product line by 2025.

### Portfolio

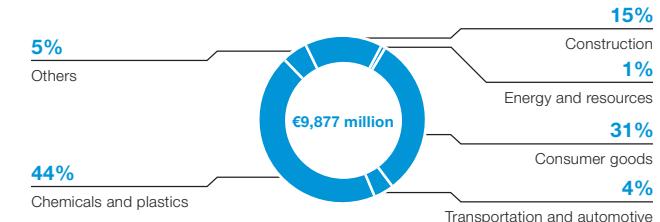
#### Glues and impregnating resins

BASF, the inventor of Kaurit® and Kauramin® glues, is the number one producer and seller of glues and impregnating resins for different types of panel boards and laminated flooring. The portfolio encompasses liquid and powder glues specifically developed to produce a broad range of wood-based materials that meet low-emission standards. Powder glues are also used in other industries, for example, to produce clutch linings in vehicles. BASF's impregnating resins have been designed for the treatment of various papers, including for overlay, counterbalance and decor papers for the flooring or furniture industry. Additionally, BASF produces AdBlue®, a high-purity urea solution that is used in trucks and passenger cars to reduce NOx emissions from diesel engines.

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



#### Inorganic chemicals

Inorganic chemicals are mainly used as precursors for plastics, amines and other high-value chemicals. The product portfolio ranges from basic chemicals to inorganic salts and includes ammonia, ammonium salts, caustic soda, chlorine, nitric acid, standard alcoholates and sulfuric acid.

More than half of these products are for captive use within BASF's Verbund. The remaining products are sold primarily to other chemical companies. We are also one of the leading suppliers of sodium nitrate (used as a component for storage media in solar thermal power plants), sodium methylate (a catalyst used for the production of biodiesel) and a variety of inorganic salts for different industries such as food, feed, textiles and paper.

#### Isocyanates and propylene oxide

The portfolio of isocyanates consists of MDI and TDI. BASF is a world leader in isocyanates, which are key components to produce soft or rigid foams. MDI is a versatile isocyanate that can be used to make flexible foams as well as semi-rigid and rigid polyurethane plastics. Its primary applications are construction, consumer appliances, automotive components and shoe soles. TDI is an isocyanate used primarily in the manufacturing of flexible foams. Its main applications include mattresses and cushions for furniture and automotive seating.

Propylene oxide is the main raw material for polyether polyols. Polyols are – together with isocyanates – the second key component for polyurethane foams. Other applications for propylene oxide are propylene glycols, surfactants and amines.

#### Polyamides and precursors

BASF is the world's leading supplier of high-quality polyamides, with the trade name Ultramid®, and polyamide precursors such as caprolactam, hexamethylenediamine (HMD) or adipic acid. BASF started manufacturing Ultramid® polyamides over 50 years ago. Today, BASF offers a wide product range of polyamides for injection molding and extrusion. The product range includes PA 6 grades (Ultramid® B), PA 6.6 grades (Ultramid® A), special grades based on copolyamides (Ultramid® C) as well as Ultramid® Cycled®, which is produced using recycled plastic waste or end-of-life tires.

Polyamides from BASF are the materials of choice for many applications:

- Engineering plastics: Ultramid® is used to produce molding compounds. Due to their outstanding properties, these materials have become indispensable in almost all fields of engineering for the most varied components and machine parts, as high-quality electrical insulating materials and for many special applications.

## Innovation



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### Lupranat® ZERO

Lupranat® ZERO is BASF's first greenhouse gas-neutral isocyanate. It has a cradle-to-gate product carbon footprint (PCF) of zero when all product-related greenhouse gas emissions and the biogenic carbon bound in the product are taken into account together. Lupranat® ZERO has been commercially available for the production of MDI polyisocyanurate panels and rigid polyurethane foam for the thermal insulation of buildings since 2022. It offers customers a solution for reducing their CO<sub>2</sub> footprint while maintaining high product quality. The PCF calculation for Lupranat® ZERO has been certified by TÜV Nord.

- Films for food packaging: Ultramid® is especially well-suited for the packaging sector due to its high strength, outstanding thermoformability, high thermal stability and very good barrier properties toward gases, especially oxygen, flavors and aromas.
- Textiles and carpets: The variety of Ultramid® grades for textiles enables the manufacturing of superior quality textiles for hosiery, swimwear and high-tech outdoor garments as well as high-end polyamide carpets and technical fiber applications.

## BASF's market position and main competitors

The Monomers division holds one of the top three market positions in around two-thirds of the strategic business areas in which it is active.

The main competitors (alphabetical order) include AdvanSix, Ascend, Covestro, Dow, Envalior, Huntsman, Ube and Wanhua.

## Focus of research and development

R&D efforts are focused on process innovation to optimize our large asset base as well as the development of new products and applications to support the division's sustainability goals.

## Key capabilities of BASF

- World-scale plants based on leading process technology
- Competitive raw material sourcing and/or backward integration
- Operational, logistical as well as commercial excellence
- Strong market position with regional setup

## Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Polyamide	Acquisition of Solvay's polyamide business	2020
MDI	Expansion of production in Geismar, Louisiana (staggered investment approach)	2020–2025
Sodium methylate	Expansion of plant in Guaratinguetá, Brazil	2020
HMD	New world-scale plant in Chalampé, France	2024

## Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
TDI	Closure of TDI plant in Schwarzeide, Germany	2020
Ammonia value chain <sup>1</sup>	Closure of one of two ammonia plants, the caprolactam plant and the ammonium sulfate nitrate fertilizer plant in Ludwigshafen, Germany	2023–2026
Adipic acid value chain <sup>1</sup>	Partial closure of the adipic acid plant; closure of the precursor plant for cyclohexanol and cyclohexanone, the soda ash plant and the melamine plant in Ludwigshafen, Germany	2023–2026
TDI <sup>1</sup>	Closure of the TDI plant and precursor plants for toluenediamine and dinitrotoluene in Ludwigshafen, Germany	2023–2026

<sup>1</sup> Announced on February 24, 2023, as part of BASF's measures to improve competitiveness

## Major nameplate capacities of BASF<sup>1</sup>

Thousand metric tons per year

Product group	Capacity
Adipic acid <sup>2</sup>	720
Ammonia <sup>2</sup>	1,765
Caprolactam <sup>2</sup>	700
Chlorine <sup>2</sup>	595
MDI	1,920
Polyamides 6 and 6.6 <sup>2</sup>	925
Propylene oxide	675
Sulfuric acid	920
TDI	780
Urea	545

<sup>1</sup> All capacities are included at 100%, including plants belonging to joint operations and joint ventures.

<sup>2</sup> Between 2023 and 2026, annual nameplate capacities will be reduced to the following amounts as part of the measures to improve competitiveness announced on February 24, 2023 (all figures in thousand metric tons): adipic acid: 624; ammonia: 1,385; caprolactam: 600; chlorine: 495; polyamides 885; TDI 480.

## Industrial Solutions

The Industrial Solutions segment consists of the Dispersions & Resins and the Performance Chemicals divisions. It develops and markets ingredients and additives for industrial applications, such as polymer dispersions, resins, additives, electronic materials and antioxidants. We aim to grow organically in key industries such as automotive, plastics, paints and coatings, electronics, and energy and resources. We want to expand our position by leveraging our comprehensive industry expertise and application know-how.

## Divisions

### Dispersions & Resins

Raw materials used to formulate products in the coatings, construction, paper, printing and packaging, adhesives and electronics industries

 page 48

### Performance Chemicals

Customized products for various customer industries such as chemicals, plastics, consumer goods, energy and resources, as well as automotive and transportation

 page 50



### Innovative chemistry at nanoscale

Advanced semiconductor nodes usually measure less than five nanometers. Shrinking logic chip size presents unique challenges for leading semiconductor manufacturers to clean extremely thin metal layers in small three-dimensional structures. BASF is the first chemical company to develop wafer cleaning products that make use of a new nanoscale kinetic control mechanism to solve this problem. In this way, we support our customers in the mass production of three-nanometer integrated circuit chips. BASF expects these products to generate annual sales growth of over 15% between 2022 and 2027. The cleaning products are also recyclable, reducing chemical waste and packaging consumption by more than 50% compared with traditional single-use solutions.

 Discover innovative chemistry for semiconductors at [bASF.com/semiconductors](http://bASF.com/semiconductors)

## Industrial Solutions

### Sales

**€3,973 million**  
**Performance Chemicals**  
 Change: 24.3%  
 Share of sales: 40%

2022:  
**€9,992 million**  
 Change:  
**12.6%**  
 2021:  
**€8,876 million**

**€6,019 million**  
**Dispersions & Resins**  
 Change: 6.0%  
 Share of sales: 60%

### Segment data

Million €

	2022	2021	2020	2019
Sales to third parties	9,992	8,876	7,644	8,389
Share of total BASF sales %	12	11	13	14
of which Dispersions & Resins	6,019	5,681	4,869	5,178
Performance Chemicals	3,973	3,195	2,775	3,211
Income from operations before depreciation, amortization and special items	1,437	1,343	1,189	1,249
Income from operations before depreciation and amortization (EBITDA)	1,443	1,344	1,099	1,327
EBITDA margin %	14.4	15.1	14.4	15.8
Income from operations (EBIT) before special items	1,091	1,006	822	820
EBIT before special items margin %	10.9	11.3	10.8	9.8
Income from operations (EBIT)	1,097	965	630	889
EBIT margin %	11.0	10.9	8.2	10.6
ROCE %	16.0	15.2	9.3	12.5

### Factors influencing sales

2022 versus 2021

Volumes	-3.4%	
Prices	16.0%	
Portfolio	-5.9%	
Currencies	6.0%	
Sales	12.6%	

### EBIT before special items

Million €

2022	1,091
2021	1,006
Change: <b>€85 million</b>	

## Dispersions & Resins

The Dispersions & Resins division is the leading global supplier of raw materials used in formulations for a number of industries, including coatings, construction, adhesives, printing and packaging, electronics and paper. Our portfolio encompasses dispersions, resins and a broad range of additives, such as performance and formulation additives as well as electronic materials. We put a strong emphasis on environmentally friendly systems, such as low-VOC (volatile organic compound) water-based coatings.

### Portfolio

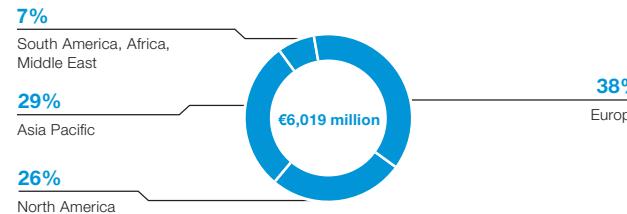
#### Additives

BASF offers a broad range of performance and formulation additives that significantly improve the quality and performance of paints and coatings. BASF is a market leader for performance additives, particularly in light stabilizers. Light stabilizers protect paint films against degradation and a number of undesirable effects, including changes in appearance from long-term exposure to UV radiation. Our formulation additives offer solutions in the range of defoamers, dispersing agents, film-forming agents, rheology modifiers as well as wetting agents and surface modifiers to improve the properties of coatings. Our unique portfolio is based on a broad technology platform and helps performance-driven products to meet the latest and most stringent environmental regulations.

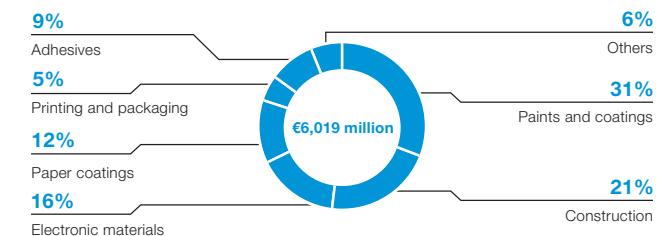
#### Dispersions

Polymer dispersions are water-based systems used in formulations for adhesives, sealants, architectural coatings, paper coatings, construction and fiber bonding materials. Our strength lies in our backward integration into acrylics, strong technical expertise and application know-how. In addition, our worldwide presence is a key advantage in serving our global customer base.

### Sales by region 2022 (location of customer)



### Sales by direct customer industry 2022



#### Electronic materials

BASF is able to deliver fully customized solutions for next-generation semiconductor and display manufacturing processes and metal systems. Our portfolio includes ultra-pure process chemicals, advanced materials for semiconductor manufacturing, high-end formulations for displays as well as products for injection molding and metal systems (Catamold® and carbonyl iron powder). We provide reliable services and innovative solutions to customers in the fast-paced electronics industry.

#### Resins

Resins are film-forming components used in industrial, automotive and wood coatings as well as in printing and packaging for ink formulations and barrier coatings. The comprehensive product portfolio includes water-based resins, acrylic oligomers, polyisocyanates, amino resins, aldehyde resins, vinyl chloride copolymers and high-solid polyols. Our portfolio offers customers a wide range of water-based technologies that fulfill regulatory requirements regarding volatile organic compounds.

#### BASF's market position and main competitors

The Dispersions & Resins division holds one of the top three market positions in around 80% of the strategic business areas in which it is active.

The main competitors (alphabetical order) include Allnex, Altana, Covestro, Dow, DuPont, Entegris, Evonik, Merck, Synthomer and Trinseo.

#### Focus of research and development

We invest in research and development to create innovative, differentiating and more sustainable products and solutions. Our innovations allow our customers to offer environmentally friendly solutions with dispersions for applications in the coatings, printing, adhesives and construction industries. In addition, customers benefit from new and improved resins and formulation additives, which enable them to upgrade the performance of their product portfolio. In electronic materials, the focus is on developing innovative solutions for the electronics industries, for example, for semiconductors. We advance digital and automation solutions in our laboratory environment to optimize our efficiency.

## Innovation



### Early rain resistance technology for the roof coating market

Roof coatings, once applied, are vulnerable to wash-off from rainfall in the early stages of curing, resulting in costly repairs and negative environmental impact. To help customers save costs, BASF offers its new Quick-Trigger® early rain resistance technology to achieve rapid film integrity in existing acrylic coating portfolios. With the addition of a single aqueous dispersion additive, acrylic coatings can withstand heavy rainfall within thirty minutes of application under challenging climate conditions. It vastly expands the possibilities for applying acrylic coatings in tropical and coastal regions and significantly speeds up job completion.

## Key capabilities of BASF

- Leading technology and cost position enable consistent product quality, reliability and competitiveness
- Comprehensive portfolio of raw materials for coatings, printing and packaging inks, adhesives and construction materials
- Strong technical and application know-how, professional service, close to our customers
- Global production footprint close to relevant markets

## Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Additives	Capacity expansion in Nanjing, China	2020
Dispersions	Capacity expansion in Castellbisbal, Spain	2020
	Capacity expansion in Pasir Gudang, Malaysia	2021
	Capacity expansion in Dahej, India	2022
	Capacity expansion in Merak, Indonesia	2023
Electronic materials	Capacity expansion in Jiaxing, China	2023
	New plant in Mangalore, India	2023

## Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Additives	Divestiture of plant in Quincy, Florida	2022
Dispersions	Closure of plant in Callao, Peru	2020
Pigments	Divestiture of the pigments business	2021
Resins and additives	Closure of plant in West Memphis, Arkansas	2021

## Major production sites

BASF's dispersions, resins, additives and electronic materials are produced at more than 50 sites worldwide. Our most important sites for each product group are listed below.

Product group	Site
Additives	Appleton, Wisconsin; Heerenveen, Netherlands; Nanjing, China; Schweizerhalle, Switzerland
Dispersions	Cengkareng, Indonesia; Chattanooga, Tennessee; Dagang, Huizhou and Shanghai, China; Dahej, India; Freeport, Texas; Guaratinguetá, Brazil; Hamina, Finland; Ludwigshafen, Germany; Mangalore, India; Monaca, Pennsylvania; Pasir Gudang, Malaysia; Tarragona, Spain
Electronic materials	Jiaxing, China; Kuan Yin and Taichung, Taiwan; Ludwigshafen, Germany; Schweizerhalle, Switzerland; Singapore; Yeosu, South Korea
Resins	Heerenveen, Netherlands; Ludwigshafen and Schwarzeide, Germany; Shanghai, China; Wyandotte, Michigan

## Performance Chemicals

As an innovative partner, the Performance Chemicals division offers chemicals for various customer industries such as plastics, automotive, refineries, lubricants, oilfield and mining. Our highly qualified and experienced team has outstanding market knowledge. Together with our innovation platform and application know-how, this ensures BASF's technological competence and allows us to provide our customers with excellent solutions.

### Portfolio

#### Fuel and lubricant solutions

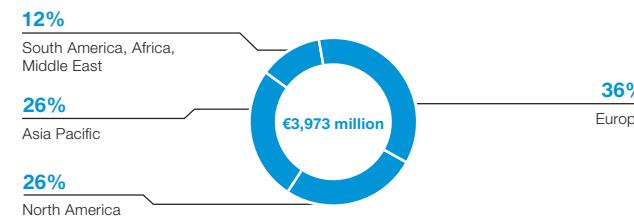
BASF is one of the leading suppliers of formulations and components for the global automotive and mineral oil industries. Our portfolio includes:

- Brake fluids and engine coolants
- Fuel and refinery additives, lubricant additives and additive packages, base stocks, lubricants
- Low, medium and high molecular weight polyisobutene (PIB)

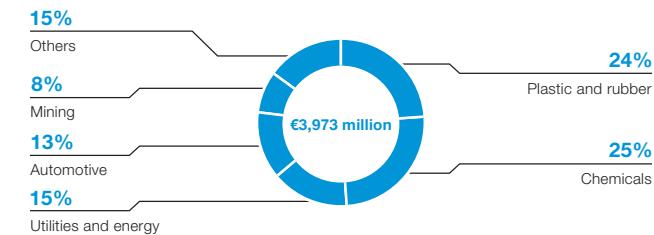
#### Mining solutions

BASF's mining solutions business offers a diverse range of mineral processing and hydrometallurgical chemistries and technologies to improve process efficiencies and the economic extraction of valuable resources. Our offer includes reagents and process technologies focusing on applications such as solid/liquid separation, leaching, solvent extraction, tailings management, flotation, materials handling and grinding. In addition, we provide digital solutions such as the BASF Intelligent Mine, the first fusion of scientific AI with chemistry expertise.

**Sales by region 2022** (location of customer)



**Sales by direct customer industry 2022**



#### Oilfield chemicals

Based on industry-leading technical expertise, we offer a wide range of sustainable solutions and high-quality products that help our customers develop efficient formulations for the oil and gas industry. Our product portfolio includes:

- Chemicals for drilling, cementing and stimulation for the completion of production wells
- Additives for continuous and cost-efficient production of oil and gas
- Next-generation surfactants and polymers designed to support enhanced oil recovery (EOR) operations

#### Plastic additives

BASF is the globally leading supplier for stabilizers and additive blends to the plastics and rubber industries. The product range includes high-performance light and thermal stabilizers, antioxidants, process stabilizers, UV absorbers and other specialty additives for those industries. The portfolio is constantly analyzed, assessed and actively improved toward solutions which make a larger contribution to sustainability. The main fields of application are:

- Automotive
- Agricultural films
- Construction materials
- Electrical and electronics
- Fibers and tapes
- Mechanical recycling
- Packaging and consumer goods

## BASF's market position and main competitors

The Performance Chemicals division holds one of the top three market positions in around three-quarters of the strategic business areas in which it is active.

The main competitors (alphabetical order) include Adeka, Afton, ChampionX, ExxonMobil, Lanxess, Lubrizol, Sabo, Solvay and Songwon.

## Focus of research and development

Developing solutions together with our customers and ensuring technology leadership to improve our cost position are crucial to the success of Performance Chemicals. By leveraging the breadth of our competencies, we develop products that help improve the performance of our customers' products and processes. We utilize advances in data analytics, modelling and automation to accelerate development and enable faster implementation of innovations. With sustainability as a key growth driver for our businesses, we focus our innovation pipeline on solutions that will enable the transformations in the end markets. Important fields are resource efficiency, emissions reduction and the circular economy.

## Key capabilities of BASF

- Industry-leading innovation platform and application know-how
- Customer proximity and market focus
- Technological competence to provide excellent solutions to our customers
- Continuous improvements in cost competitiveness in production

## Major production sites

Product group	Site
Fuel and lubricant solutions	Antwerp, Belgium; Cincinnati, Ohio; Dahej, India; Geismar, Louisiana; Guaratinguetá, Brazil; Kaisen, Switzerland; Kuantan, Malaysia; Lampertheim and Ludwigshafen, Germany; McIntosh, Alabama; Meaux, France; Nanjing and Shanghai, China; Puebla, Mexico; Singapore
Mining solutions	Cork, Ireland; Jacareí, Brazil; Ludwigshafen, Germany; Nanjing, China
Oilfield chemicals	Lerma, Mexico; Tarragona, Spain; Trostberg, Germany
Plastic additives	Kaisen, Switzerland; Lampertheim, Germany; Manama, Bahrain; McIntosh, Alabama; Pontecchio Marconi, Italy; Puebla, Mexico; Shanghai, China; Singapore

## Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Fuel and lubricant solutions	Capacity expansion for synthetic ester base stocks in Jinshan, China	2022
	New fuel performance additives plant in Shanghai, China	2022
Plastic additives	Capacity expansion for antioxidants in Pontecchio Marconi, Italy	2021
	Capacity expansion for Irganox® 1010 in Singapore	2022
	Capacity expansion for hindered amine light stabilizers in Pontecchio Marconi, Italy, and Lampertheim, Germany	2023

## Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Kaolin minerals business	Sale of kaolin minerals business to KaMin LLC. / CADAM S.A. (KaMin)	2022

## Innovation



## Engine coolants for battery electric vehicles

GLYSANTIN® ELECTRIFIED® engine coolants are a range of products that address the specific requirements of alternative powertrain technologies including battery electric and fuel cell concepts. BASF has recently developed a safety-optimized coolant solution especially for indirect battery cooling systems that is marketed under the trade name GLYSANTIN® G22® ELECTRIFIED®. It delivers low electrical conductivity and maintains low and stable currents when exposed to voltage sources, making it an excellent solution for battery electric vehicles.

# Surface Technologies

The Surface Technologies segment comprises the Catalysts and Coatings divisions, which offer chemical solutions for surfaces. Its portfolio serves industries such as the automotive and chemical sectors and includes automotive OEM and refinish coatings, surface treatment, catalysts, battery materials, and precious and base metal services. We improve our customers' applications and processes with tailored products, technologies and solutions, and support them through geographical proximity across all regions. The aim is to drive BASF's growth by leveraging our portfolio of technologies and expanding our position as a leading and innovative provider of battery materials and surface coatings solutions.

## Divisions

### Catalysts

Mobile emissions catalysts, chemical catalysts and adsorbents, refining catalysts, battery materials, precious and base metal products and services, precious metal trading, metals recycling, clean air technologies

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### Coatings

Automotive OEM coatings, automotive refinish coatings and services, decorative paints, surface-applied treatments for metal, plastic and glass substrates for a wide range of industries

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### StarBloc®

StarBloc® is a continuously developed thin-film primer technology from BASF that can make a significant contribution to more efficient, sustainable and profitable automotive coatings. StarBloc® enables paint to be applied with a reduced film thickness of just 20 µm instead of 30 µm. It also offers advantages in the application process, such as a reduced number of application robots, which also saves solvents and cleaning efforts. This means that automotive manufacturers can save a third of the materials required compared with a standard series primer. For OEMs, lower material consumption also leads to a reduction in their CO<sub>2</sub> emissions and lower logistics costs. These environmental and process advantages are convincing automotive manufacturers around the world to switch to StarBloc®. BASF therefore expects annual sales of this product to increase fivefold to more than €20 million as early as 2023 compared with baseline 2021.

 Discover StarBloc® at [coatings.bASF.com](http://coatings.bASF.com)

## Surface Technologies

### Sales

**€4,220 million**

**Coatings**  
Change: 22.7%  
Share of sales: 20%

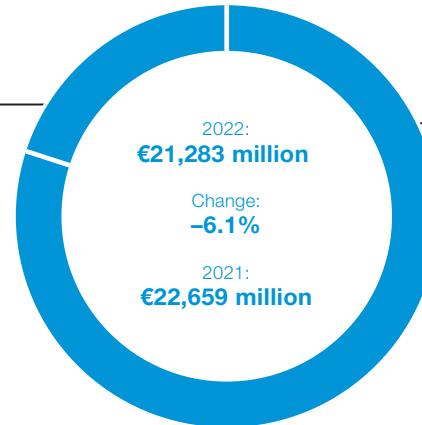
2022:  
**€21,283 million**

Change:  
**-6.1%**

2021:  
**€22,659 million**

**€17,062 million**

**Catalysts**  
Change: -11.2%  
Share of sales: 80%



### Segment data

Million €

	2022	2021	2020	2019
Sales to third parties	21,283	22,659	16,659	13,142
Adjusted sales to third parties <sup>1</sup>	8,947	6,933	—	—
Share of total BASF sales %	24	29	28	22
of which Catalysts	17,062	19,219	13,570	9,396
Coatings	4,220	3,440	3,089	3,746
Income from operations before depreciation, amortization and special items	1,464	1,277	966	1,173
Adjusted EBITDA margin before special items <sup>1</sup> %	16.4	18.4	—	—
Income from operations before depreciation and amortization (EBITDA)	1,264	1,243	900	1,120
EBITDA margin %	5.9	5.5	5.4	8.5
Income from operations (EBIT) before special items	902	800	484	722
EBIT before special items margin %	4.2	3.5	2.9	5.5
Income from operations (EBIT)	612	761	-587	663
EBIT margin %	2.9	3.4	-3.5	5.0
Return on capital employed (ROCE) %	3.9	5.6	-4.8	5.7

<sup>1</sup> Adjusted figures excluding sales in precious metal trading und precious metal sales in the automotive catalysts business have been reported since 2021.

### Factors influencing sales

2022 versus 2021

Volumes <sup>2</sup>	-13.0%	
Prices	-2.7%	
Portfolio	3.4%	
Currencies	6.3%	
Sales	-6.1%	

<sup>2</sup> Adjusted figure excluding sales in precious metal trading and precious metal sales in the automotive catalysts business: 3.9%

### EBIT before special items

Million €

2022	902
2021	800
Change: €102 million	

# Catalysts

BASF's Catalysts division is the global market leader in catalyst technologies. The division develops and produces mobile emissions catalysts as well as process catalysts and offers precious metals trading, recycling and related products and services. It is also the home of BASF's battery materials business and provides base metals sourcing, recycling and management services. BASF expands its leading role in catalyst technology through continuous process and product innovation.

## Portfolio

## Battery base metals and recycling

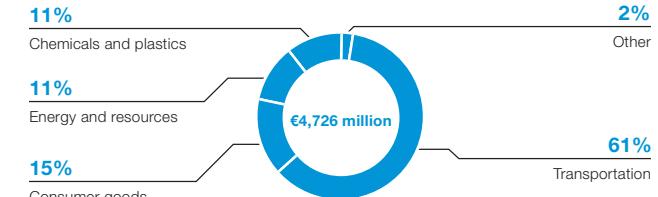
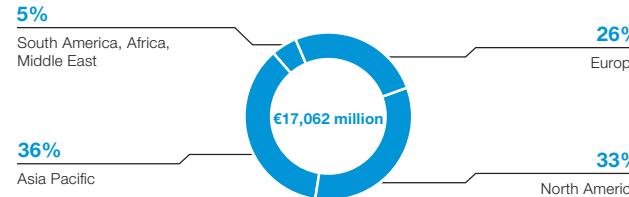
The global business unit Battery Base Metals & Recycling supports BASF's battery materials business and its customers with services related to base metals sourcing and management. It purchases, sells, distributes, stores and offers transportation services for metals. In addition, we offer closed loop battery recycling solutions and services for our customers in the e-mobility value chain. This unit also provides a variety of pricing and delivery arrangements to meet logistical, financial and price-risk management requirements.

## Battery materials

BASF is a leading global supplier of advanced cathode active materials (CAM) for the lithium-ion batteries market, providing high-performance CAM to the world's largest cell producers and for leading platforms of OEMs. BASF has a global presence with R&D and production capacity in all regions, in some cases leveraging partnerships. BASF is a frontrunner in developing innovative solutions and conducting next-generation battery materials research.

## Mobile emissions catalysts

BASF's mobile emissions catalysts enable cost-effective regulatory compliance, providing technologies that control emissions from gasoline and diesel-powered passenger cars, trucks, buses, off-road vehicles and motorcycles.

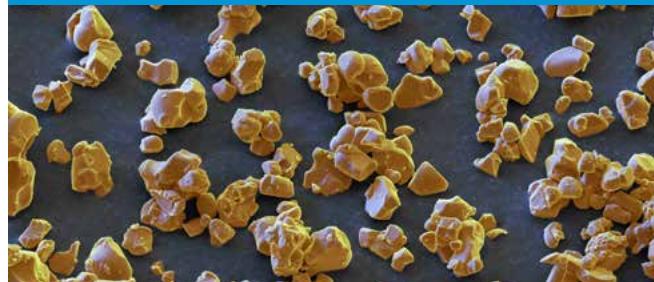


**1** Excluding sales of €12,336 million in precious metal trading and precious metal sales in the automotive catalyst business

#### Emissions catalysts market – regulation remains primary demand driver

		Implemented Regulations				Set to be Implemented			Anticipated Regulations								
United States	LD	US Tier 3						US Tier 4									
	HDon	CA LEV III				CARB 0.05g BSNOx FTP+LLC			Advanced Clean Cars II								
	HDoF	US2010				GHG Phase 2 N <sub>2</sub> O/CH <sub>4</sub>			CA UL NOx 0.02g BSNOx								
	LD	US Tier 4F				Euro 6d			ULNOx								
Europe	HDon	Euro 6d CF=1.0				Euro 7 (starting mid 2025)			CO <sub>2</sub> 81 g/km (-15% vs. 2021)								
	HDoff	CO <sub>2</sub> 95 g/km				Euro VI-E			Euro VII (starting mid 2027)								
	LD	HD CO <sub>2</sub> review				-15% vs. 2021			-37.5% vs. 2021								
	HDoff	Stage IV				Stage V			L8 BIN 40 w/ RDE CF 1.5x								
Brazil	LD	L 5		L 6		L 7		L8 BIN 50 w/ RDE CF 2x		L8 BIN 30 w/ RDE CF 1.5x							
	HDon	P7 (Eu5)				P8 (EU6c)			P8 (EU6c) is defined, but OEMs expect EU6d or EUR6e to be implemented in 5 to 6 years.								
	HDoff	MAR-1 (Euro 3)				MAR-2 (Tier-4) Under Discussion											
	LD	BS 4		BS 6   CO <sub>2</sub> 113 g/km		BS 6		BS 6 w/RDE		BS 7							
India	HDon	BS IV		BS VI		BS VI PEMS			BS VII								
	HDoff	TREM IV (Apr.2022)				TREM V (Apr. 2024)											
	LD	NS 5		NS 6a		NS 6b w/RDE			NS 7								
	HDon	NS V		NS VIa (2021: 50% NG, 2021: 75% Urban)		NS VIb (Full PEMS)			China VII								
China	HDoff	Stage III				Stage IV + PN (est.)			Stage V								
	LD	Euro 6c				Euro 6d			Euro 7								
	HDon	Euro Vlc				Euro Vld w/PEMS			Euro VII								
	HDoff	Global 4				Global 5											
Japan	LD	2009 Post New Long Term				HDD GHG											
		CO <sub>2</sub> 113 g/km															
		2018				2019			2020								
		2021				2022			2023								
		2024				2025			2026								
		2027				2028			2029								
		2030															

## Innovation



### Single-crystal cathode active material

With its broad portfolio of innovative cathode active materials, BASF serves all market segments – from small to luxury cars. Promising developments are single-crystal cathode active materials. Due to their specific structure, they are characterized by particularly high electrochemical and temperature stability and they age slower than other materials. This leads to a longer battery lifetime in electric vehicles and increases battery safety.

### Precious metal services

The global business unit Precious Metal Services supports BASF's mobile emissions catalysts business and its customers with services related to precious metals sourcing and management. It purchases, refines, sells, distributes, stores and offers transportation services for metals. The business produces precious metals chemicals and temperature sensors and is a global leader in precious metals recycling and refining. In addition, it provides a variety of pricing and delivery arrangements to meet logistical, financial and price-risk management requirements.

### Process catalysts

BASF is a leading global manufacturer of catalysts for the chemical industry, with solutions across the chemical value chain. The business comprises chemical catalysts and adsorbents, refinery catalysts and custom catalysts.

## BASF's market position and main competitors

The Catalysts division holds one of the top three market positions in all strategic business areas in which it is active.

The main competitors (alphabetical order) include Albemarle, Clariant, Easpring, Ecopro, Johnson Matthey, Umicore and W.R. Grace.

## Focus of research and development

For battery materials, the focus is on offering comprehensive products meeting customers' requirements for e-mobility applications, including improving energy density to extend driving range as well as stability, safety and cost. For mobile emissions catalysts, the focus is on improved products to meet future vehicle emission standards. In the process catalysts business, priority is given to developing new and improved products that enable the chemical industry's transformation to net-zero emissions.

## Key capabilities of BASF

- Global R&D footprint covering catalysts and battery materials
- Technology leadership in mobile emissions catalysts, process catalysts and battery materials
- Recognized precious metals expertise
- Strong and growing position in Asia through fully owned entities and joint ventures
- Operational excellence in catalyst and battery materials production and use

## Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Battery materials	BASF and Shanshan formed joint venture (BASF 51%) for CAM and PCAM production in China	2021
	CAM capacity expansion for the joint venture BASF Shanshan in Chansha, China	2023
	New PCAM manufacturing plant in Harjavalta, Finland	2023
	New CAM manufacturing plant in Schwarzeide, Germany	2023
	New battery recycling prototype plant in Schwarzeide, Germany	2023
	CAM capacity expansion for the joint venture BASF TODA in Onoda, Japan	2024
Mobile emissions catalysts	New black mass recycling plant in Schwarzeide, Germany	2024
	Capacity expansion in Środa Śląska, Poland	2020
	Capacity expansion in Chennai, India	2022
Precious metal services	Acquisition of Zodiac Enterprises LLC assets in Caldwell, Texas, for catalyst recycling	2021
	Refinery capacity expansion in Seneca, South Carolina	2022
	BASF HERAEUS (China) Metal Resource Co., Ltd. formed in China for automotive catalyst recycling	2022
Process catalysts	Construction of global Catalyst Development and Solids Processing Center in Ludwigshafen, Germany	2024

## Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Process catalysts	Closure of the Erie, Pennsylvania, production site	2021

## Coatings

BASF's Coatings division offers innovative and ecologically viable solutions for the automotive industry, including both the original equipment manufacturer (OEM) and refinish markets, as well as surface treatment solutions for a variety of markets. BASF also develops and markets decorative paints in Brazil for interior and exterior use in residential and commercial buildings. The portfolio is supplemented by "Beyond Paint" solutions, which enable new applications with innovative surfaces. We combine protection and aesthetics with eco-efficiency in tailor-made products and processes.

### Portfolio

#### Automotive OEM coatings solutions

BASF provides complete automotive coatings solutions, including a product portfolio of:

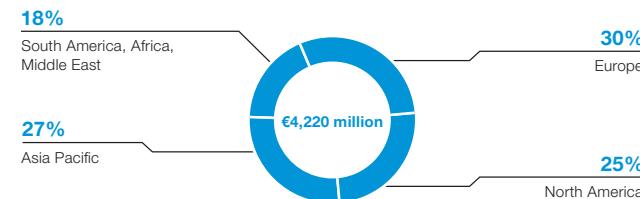
- E-coats
- Primers
- Basecoats
- Clearcoats

In addition to offering extensive technical support, BASF is a valued innovation and design partner for nearly all leading automotive manufacturers worldwide.

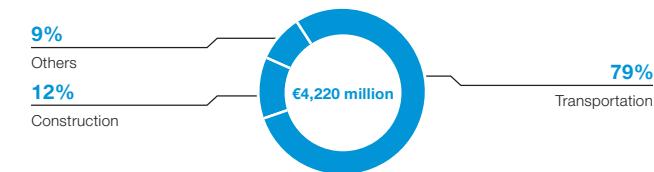
#### Automotive refinish coatings solutions

For the refinishing of passenger cars and trucks, BASF offers top-coat and undercoat materials sold under the global premium brands Glasurit® and R-M® as well as the value-for-money brands baslac®, LIMCO®, Norbin® and Yinfan®, which are sold to paint distributors and automotive repair shops. BASF is a leader in the fields of water-borne coatings and high-solid systems, enhanced by value-added services and tools for end users.

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



#### Decorative paints

For interior and exterior use in buildings, BASF offers decorative paints, marketed, for example, under the premium brand Suvinil®, which is one of Brazil's best-known brands. With constant innovation launches, such as super-concentrated premium interior and exterior paint, Suvinil® continues to strengthen its role as a pioneer in the area of innovative paints.

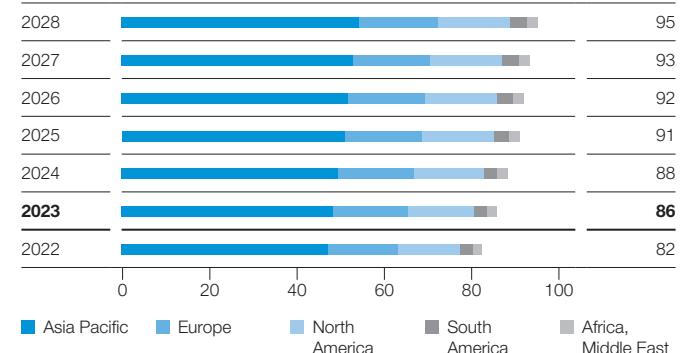
#### Surface treatment solutions

BASF is a globally leading solution provider for applied surface treatment. Under our Chemetall brand, we offer customized technology and system solutions to protect metals from corrosion, facilitate forming and machining, allow parts to be optimally prepared for the painting process and ensure proper coating adhesion. These products are used in a wide range of industries and markets, such as automotive, aerospace, aluminum finishing and metal forming.

Automotive is the most important customer industry for BASF's coatings business. The number of cars and light commercial vehicles produced globally is expected to grow in the medium term. The main growth driver is Asia – in particular China – where BASF is well-positioned to participate in the growth opportunities.

#### Passenger car and light commercial vehicle production

Million units produced



Source: Global automotive production forecast May 2023 (IHS Markit, now part of S&P Global)

## BASF's market position and main competitors

The Coatings division holds one of the top three market positions in all strategic business areas in which it is active.

The main competitors (alphabetical order) include AkzoNobel, Axalta, Henkel, Kansai Paint, Nippon Paint, PPG and Sherwin-Williams.

## Focus of research and development

Our innovation efforts for the automotive industry are focused on close partnerships with our customers in order to formulate, for instance, new coatings solutions for integrated processes and unique eco-efficient coatings. Additional research topics include improved products for new technology markets, such as functional films and environmentally friendly applications.

## Key capabilities of BASF

- Innovative long-term cooperation with leading OEM customers
- Technical on-site support at customer locations, creating additional value and long-term relationships
- Services and tools within the automotive industry to deal with color complexity
- Leveraging strong market position and application know-how from mature markets into growing markets
- Global production and market presence

### Acquisitions/JVs/investments from 2020 onward

Product group	Description	Year
Automotive OEM	Resin capacity expansion in Caojing, China	2020
	Expansion of e-coat production in Greenville, Ohio	2022
	Spraybooth capacity upgrade in Windsor, Canada	2022
	Upgrade of e-coat application center in Münster, Germany	2023
	Application center upgrade in Guadalajara, Spain	2023
	Site expansion in Minhang, China	2023
	Further resin capacity expansion in Caojing, China	2024
Refinish	New laboratory facility in Münster, Germany	2022
	Capacity expansion in Jiangmen, China	2022
	New filling and packaging lines in Münster, Germany	2023
Surface treatment	New surface treatment site in Pinghu, China	2021
New business development	New production for functional films in Münster, Germany	2020

### Major production sites

BASF Coatings manufactures its products at more than 70 sites worldwide. The most important sites are listed below.

Product group	Site
Automotive OEM	Greenville, Ohio; Guadalajara, Spain; Münster, Germany; Shanghai, China; Tultitlán, Mexico
Refinish	Clermont de l'Oise, France; Jiangmen, China; Münster, Germany; Windsor, Canada
Surface treatment	Blackman Township, Michigan; Boksburg, South Africa; Guissano, Italy; Langelsheim, Germany; Sens, France; Shanghai, China
Decorative paints	Demarchi and Jaboatão, Brazil

## Innovation



### Automotive colors in the virtual world

With AUROOM®, OEM designers can access photorealistic virtual car colors and speed up the design process. Our virtual colors capture all characteristics of automotive coatings, including lightness flop, color flop and sparkling, while our colorimetric know-how ensures their authenticity. By mapping these colors on car models, OEM designers can paint every color proposal virtually and gain realistic impressions of colors and effects on a complete car during an early design phase.

# Nutrition & Care

The Nutrition & Care segment, consisting of the Care Chemicals and Nutrition & Health divisions, serves the growing needs of food and feed producers as well as the pharmaceutical, cosmetics, detergents and cleaner industries. We offer solutions for the increasingly sophisticated demands of fast-moving consumer goods as well as for technical applications, crop protection and nutrition. We strive to expand our position as a leading provider of ingredients for consumer goods in the areas of nutrition, home and personal care. Our goal is to drive organic growth. We focus on growth markets, sustainability trends and digital business models in consumer markets.

## Divisions

### Care Chemicals

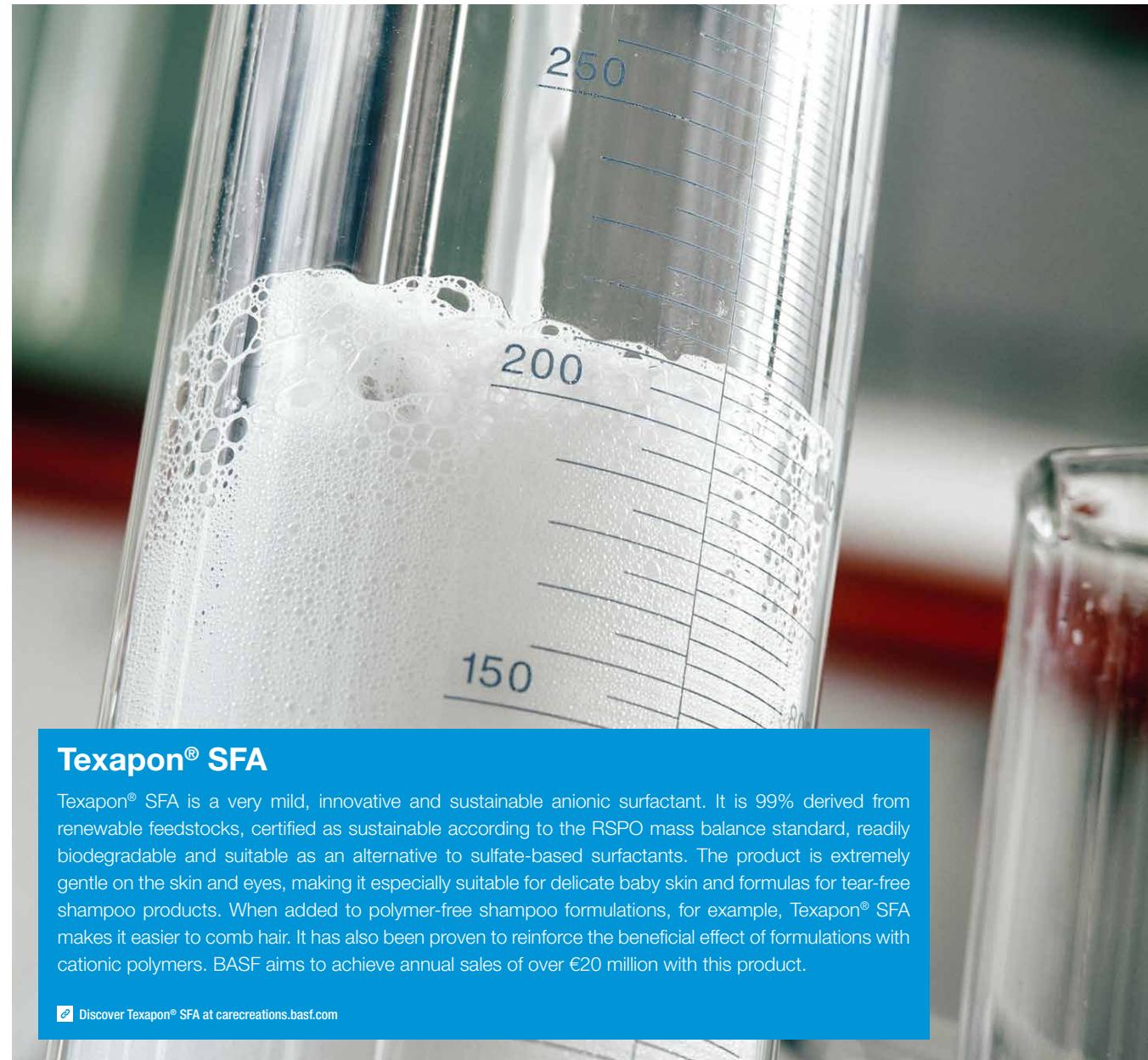
Ingredients for the cosmetics, detergents and cleaner industries, agrochemical and technical applications

 page 60

### Nutrition & Health

Products for the food and feed industries, the flavor and fragrance industry and the pharmaceutical industry

 page 62



### Texapon® SFA

Texapon® SFA is a very mild, innovative and sustainable anionic surfactant. It is 99% derived from renewable feedstocks, certified as sustainable according to the RSPO mass balance standard, readily biodegradable and suitable as an alternative to sulfate-based surfactants. The product is extremely gentle on the skin and eyes, making it especially suitable for delicate baby skin and formulas for tear-free shampoo products. When added to polymer-free shampoo formulations, for example, Texapon® SFA makes it easier to comb hair. It has also been proven to reinforce the beneficial effect of formulations with cationic polymers. BASF aims to achieve annual sales of over €20 million with this product.

 Discover Texapon® SFA at [carecreations.bASF.com](http://carecreations.bASF.com)

## Nutrition & Care

### Sales

**€2,447 million**

**Nutrition & Health**  
Change: 22.2%  
Share of sales: 30%

**2022:  
€8,066 million**

Change:  
**25.2%**

**2021:  
€6,442 million**

**€5,619 million**

**Care Chemicals**  
Change: 26.6%  
Share of sales: 70%

### Segment data

Million €

	2022	2021	2020	2019
Sales to third parties	8,066	6,442	6,019	6,075
Share of total BASF sales %	9	8	10	10
of which Care Chemicals	5,619	4,439	3,989	4,118
Nutrition & Health	2,447	2,003	2,030	1,957
Income from operations before depreciation, amortization and special items	1,067	909	1,190	1,214
Income from operations before depreciation and amortization (EBITDA)	1,055	967	1,152	1,189
EBITDA margin %	13.1	15.0	19.1	19.6
Income from operations (EBIT) before special items	618	497	773	793
EBIT before special items margin %	7.7	7.7	12.8	13.1
Income from operations (EBIT)	605	554	688	644
EBIT margin %	7.5	8.6	11.4	10.6
Return on capital employed (ROCE) %	7.5	8.2	10.6	10.0

### Factors influencing sales

2022 versus 2021

Volumes	-1.4%
Prices	23.3%
Portfolio	-1.2%
Currencies	4.5%
Sales	25.2%

### EBIT before special items

Million €

2022	618
2021	497
Change: <b>€121 million</b>	

## Care Chemicals

**BASF's Care Chemicals division is a globally leading supplier to the cosmetics, detergents and cleaner industries. We also offer solutions for technical applications, crop protection and plant nutrition. Together with our customers, we create innovative solutions to meet the current and future needs of society more sustainably. We contribute to the long-term success of our customers' brands with a broad range of products and concepts via our global network of production and development sites.**

### Portfolio

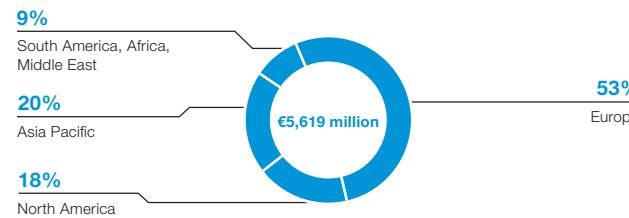
#### Home care and industrial & institutional cleaning

We develop, produce and market a wide range of ingredients for detergents and cleaning solutions worldwide. As the innovation leader in this market, we offer choices to our customers and provide the best-possible solutions to successfully cater to today's and tomorrow's market needs and changing regulatory requirements. Our strong R&D base and in-depth market and application expertise set us apart from the competition and make us the partner of choice for formulators of efficient, convenient, sustainable and safe-to-use detergents and other cleaning products. Our portfolio, which is constantly being further developed, includes surfactants, enzymes, water-soluble polymers, chelating agents, biocides, optical effect products, stabilizers and methanesulfonic acid.

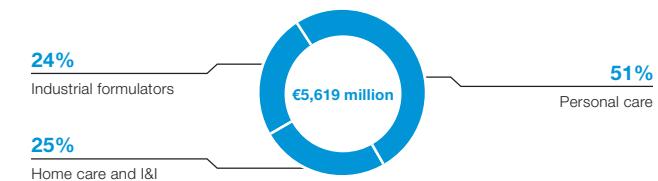
#### Industrial formulators

We develop and commercialize a broad portfolio of processing aids, differentiating additives and surface-active building blocks for a wide range of industrial applications and further downstream processing. With our formulation know-how and understanding of the physico-chemical properties of our products, we enable customer-specific solutions. In addition, we market an extensive portfolio of performance enhancers to crop protection and plant nutrition companies.

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



Our product portfolio includes dispersants, emulsifiers, surface modifiers, solvents, chelating agents, biocides, micronutrients and methanesulfonic acid.

#### Personal care

We offer high-quality, value-adding and sustainable ingredients for the personal care industry. Our focus on consumer trends and our ability to innovate and bring new products rapidly to market contribute strongly to the success of our customers. We take into consideration the entire value chain to develop sustainable solutions. The personal care product range includes surfactants and emulsifiers, polymers, emollients, cosmetic active ingredients and UV filters.

Our business approach draws its inspiration for products and concepts from consumers and society. We strive to make BASF's personal care business a valued partner for the industry in terms of scientific excellence, market knowledge and agility.

#### BASF's market position and main competitors

The Care Chemicals division holds one of the top three market positions in all strategic business areas in which it is active.

The main competitors (alphabetical order) include Clariant, Croda, Dow, Evonik, Sasol, Solvay, Stepan and Zanyu.

## Focus of research and development

We are committed to delivering innovative and sustainable products and solutions in close collaboration with customers in our core markets, with a strong focus on bio-based and biodegradable ingredients. With process innovation in our core technologies, we target continuous capacity and yield improvement to ensure competitiveness and reduce carbon footprints. We systematically identify and establish new technologies to best support our customers in driving innovation for end consumers.

## Key capabilities of BASF

- Customer proximity and industry focus across regions and industries
- Innovative and sustainable solutions through BASF's global R&D network
- State-of-the-art formulation technologies
- Strong global production footprint close to our customers, also in emerging markets

### Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Alkoxylates	Gradual capacity expansion in Antwerp, Belgium	2018–2022
	Capacity expansion in Jinshan, China	2020
Pearlizers and opacifiers	Capacity expansion in Mauldin, South Carolina	2020
Methanesulfonic acid	Capacity expansion in Ludwigshafen, Germany	2022
Optical brighteners	Capacity expansion in Monthey, Switzerland	2022
UV filters	New plant in Jinshan, China	2023
Enzymes	Investment in production setup for bacterial enzymes and biotechnology products, Kundl/Schafenauf, Austria <sup>1</sup>	2024

<sup>1</sup> Joint investment with Nutrition & Health division

### Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Surfactants	Divestiture of anionic surfactants business in Kankakee, Illinois	2021

### Major nameplate capacities of BASF<sup>1</sup>

Thousand metric tons per year

Product group	Location	Capacity
Chelating agents	Europe, North America, South America	170
Methanesulfonic acid	Europe	50
Non-ionic surfactants	Europe, North America, Asia Pacific	650
Anionic surfactants	Europe, North America, South America, Asia Pacific	550

<sup>1</sup> All capacities are included 100%, including plants belonging to joint operations and joint ventures.

## Innovation



© GettyImages

## Biotic rejuvenation support

Two new biotic ingredients from BASF support healthful and graceful skin aging. Probiolift™ and Postbiolift™ are the first biotics on the cosmetics market to use a bacterium that is found naturally in the skin: *Lactobacillus crispatus* (*L. crispatus*) has been found to decrease with age. Probiolift™ is composed of dormant *L. crispatus* bacteria that awaken on contact with water on the skin. The ingredient makes skin appear fuller and improves the appearance of forehead wrinkles. Postbiolift™ contains metabolites secreted by *L. crispatus*. Eye wrinkles appear smoothed as a result; the complexion appears more even.

## Nutrition & Health

**BASF's Nutrition & Health division develops, produces and markets ingredients for the nutrition and health industries. Our products fulfill the highest safety, regulatory and sustainability standards. Together with our customers, we play an active part in enhancing the nutrition and health of consumers all over the world.**

### Portfolio

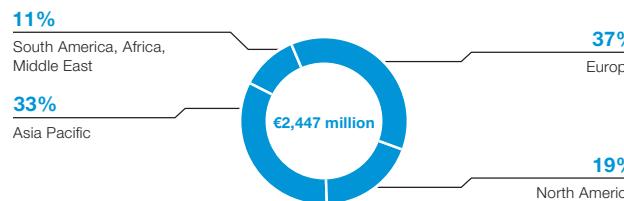
#### Aroma ingredients

BASF offers a wide variety of aroma ingredients, such as L-menthol, geraniol, citronellol and linalool, which are part of our citral value chain. In 2019, we broadened our portfolio with renewable-based natural ingredients by acquiring Isobionics®. Our aroma ingredients are sold to the flavor and fragrance industry for use mainly in home and personal care products, in fine fragrances and in the food industry.

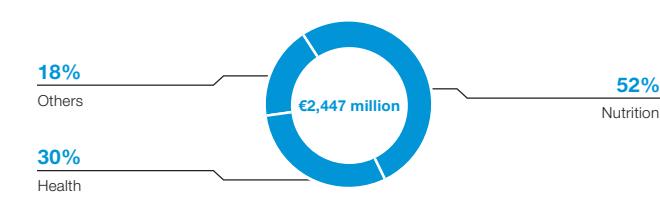
#### Nutrition ingredients

BASF is one of the leading suppliers of feed additives for livestock and companion animals. The focus is on supplying the feed industry with highly effective products like vitamins, carotenoids, enzymes and organic acids. We offer our customers ingredients that reduce greenhouse gas emissions and improve resource efficiency as well as animal wellbeing. Digital technologies increasingly expand our portfolio. Examples include Opteinics™ (software for more sustainable production), trinamiX (mobile NIR spectroscopy solution) and Cloudfarms (pig management system).

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022<sup>1</sup>



<sup>1</sup> Aroma ingredients business is included in the customer industries nutrition and others.

Our health ingredients for human nutrition are based on a combination of scientific approach and technical and application expertise that contribute to leading healthy and active lifestyles. Our ingredients comprise vitamins, carotenoids, conjugated linoleic acid, omega-3 natural oils and powders, and plant sterols. They are used for a wide range of applications in strategic market segments including early life nutrition, dietary supplements, functional nutrition and food colors.

In our food fortification initiative, our health ingredients help fortify staple foods to combat micronutrient deficiencies across the world. Furthermore, we offer a comprehensive performance ingredient portfolio for the beverage and food industry. Our products are used as stabilizers or colorants in various applications and include emulsifiers, enzymes, filtration aids and specialty compounds.

#### Pharma solutions

In pharma solutions, we produce innovative excipients and active ingredients of outstanding quality and performance. With digital solutions such as the Virtual Pharma Assistants and a global team of industry experts, BASF supports its customers in developing efficient, cost-effective and reliable formulations. Equipped with an in-depth understanding of multiple technologies and applications, we have the knowledge and resources to make biologics and drug manufacturing as well as delivery safer and more sustainable.

## BASF's market position and main competitors

The Nutrition & Health division holds one of the top three market positions in all strategic business areas in which it is active.

The main competitors (alphabetical order) include Ashland, Croda, DSM-Firmenich, IFF, NHU and ZMC.

## Focus of research and development

Together with our partners, we continuously work on translating ideas into innovations. Ongoing process innovation ensures technological and cost leadership in our major product lines.

## Key capabilities of BASF

- Cost leadership through integration into the Verbund
- Value-driven innovation to support customer needs
- Deep understanding of the nutrition and health market
- High expertise in a complex regulatory environment
- Sustainability and quality management

## Acquisitions/JVs/investments

From 2020 onward

Product group	Description	Year
Animal nutrition	Acquisition of Cloudfarms, Slovakia	2020
	Expansion of vitamin A production plant in Ludwigshafen, Germany	2021
Enzymes	Capacity expansion of enzyme plant in Ludwigshafen, Germany	2021
	Investment in production setup for bacterial enzymes and biotechnology products, Kundl/Schafenau, Austria <sup>1</sup>	2024
Pharma solutions	Expansion of ibuprofen production in Bishop, Texas	2020

<sup>1</sup> Joint investment with Care Chemicals division

## Divestitures/shutdowns

From 2020 onward

Product group	Description	Year
Human nutrition	Divestiture of site in Kankakee, Illinois, and associated businesses of vegetable-oil-based pharmaceutical raw material sterols, natural vitamin E, anionic surfactants and esters	2021
	Divestiture of Kalundborg site, Denmark, omega-3 production	2020

## Major production sites

Product group	Site
Animal nutrition	Gunsan, South Korea; Ludwigshafen, Germany; Shenyang, China
Aroma ingredients	Geleen, Netherlands; Kuantan, Malaysia; Ludwigshafen, Germany
Human nutrition	Ballerup, Denmark; Boussens, France; Cheltenham, Hutt Lagoon and Whyalla, Australia; Gunsan, South Korea; Illertissen and Ludwigshafen, Germany
Pharma solutions	Bishop, Texas; Callanish, United Kingdom; Sandefjord, Norway

## Innovation

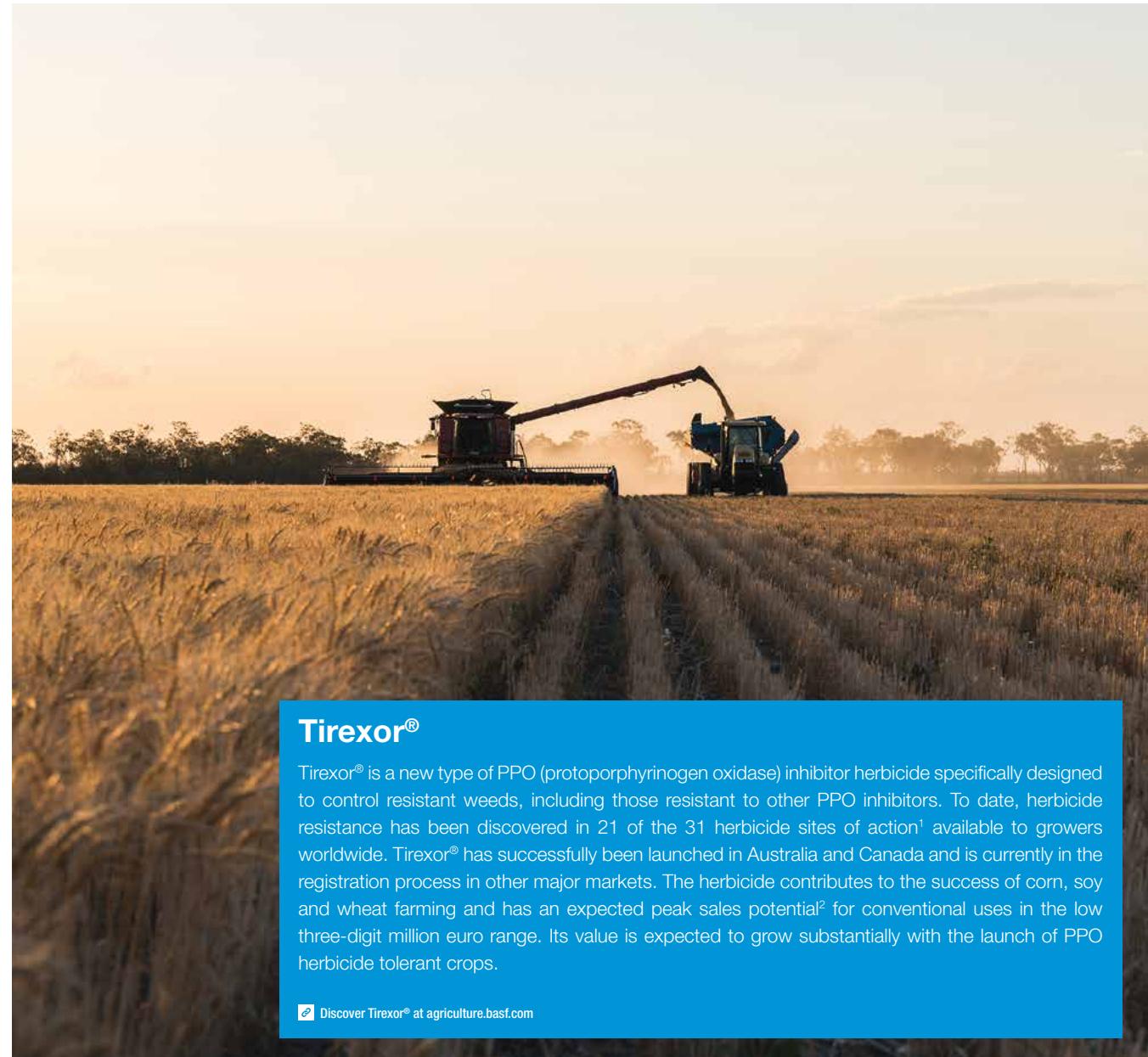


## Virtual Pharma Assistants for a fully digitized customer experience

BASF's Virtual Pharma Assistants offer a seamless, fully digitized customer experience that enables customers to create formulations faster, find the right product for their needs and access a comprehensive library of compliance documentation. A growing number of customers rely on ZoomLab™, a virtual formulation assistant that predicts optimized formulations of pharmaceutical drugs much faster and more precisely than traditional empirical methods. ZoomLab™ instantly predicts which excipients should best be used based on properties of the active ingredient and the intended dosage form. After selecting the appropriate formulation ingredients, RegXcellence® makes quality compliance and registration processes seamless, saving customers time and money. Finally, MyProductWorld provides a modern eCommerce platform where BASF customers can browse product details, access samples quickly and manage their product orders.

# Agricultural Solutions

In the Agricultural Solutions segment, we aim to further strengthen our market position as an integrated provider. Our offer comprises seeds and seed treatment products, as well as fungicides, herbicides, insecticides and biological solutions, complemented by digital farming solutions to help farmers achieve better yield. Our strategy is based on innovation-driven organic growth and targeted portfolio expansion through acquisitions. Customer needs, societal expectations and reducing environmental impacts are what motivate us to innovate.



## Tirexor®

Tirexor® is a new type of PPO (protoporphyrinogen oxidase) inhibitor herbicide specifically designed to control resistant weeds, including those resistant to other PPO inhibitors. To date, herbicide resistance has been discovered in 21 of the 31 herbicide sites of action<sup>1</sup> available to growers worldwide. Tirexor® has successfully been launched in Australia and Canada and is currently in the registration process in other major markets. The herbicide contributes to the success of corn, soy and wheat farming and has an expected peak sales potential<sup>2</sup> for conventional uses in the low three-digit million euro range. Its value is expected to grow substantially with the launch of PPO herbicide tolerant crops.

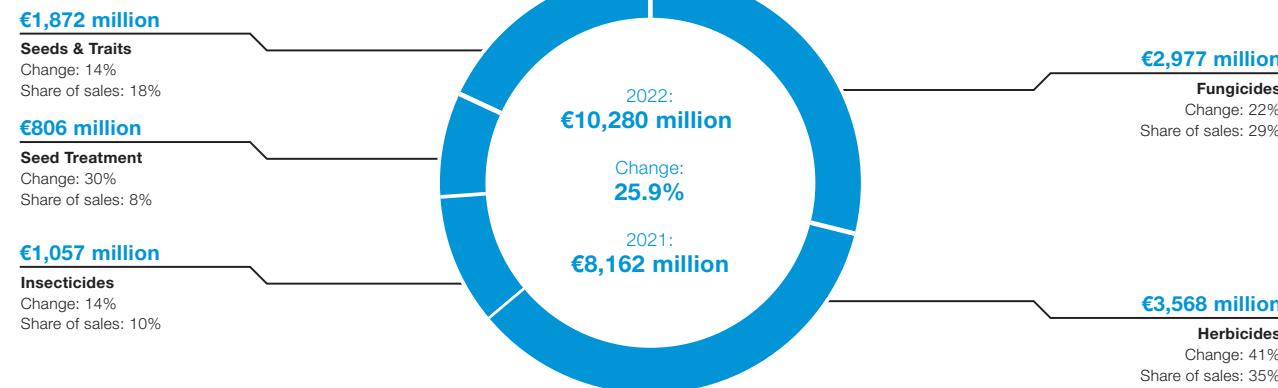
Discover Tirexor® at [agriculture.bASF.com](http://agriculture.bASF.com)

<sup>1</sup> International herbicide-resistant weed database

<sup>2</sup> Peak sales are the highest sales value to be expected from one year.

## Agricultural Solutions

### Sales



### Segment data

Million €

	2022	2021	2020	2019
Sales to third parties	10,280	8,162	7,660	7,814
Share of total BASF sales %	12	11	13	13
Income from operations before depreciation, amortization and special items	1,928	1,375	1,680	1,809
Income from operations before depreciation and amortization (EBITDA)	1,922	1,358	1,582	1,647
EBITDA margin %	18.7	16.6	20.7	21.1
Income from operations (EBIT) before special items	1,220	715	970	1,095
EBIT before special items margin %	11.9	8.8	12.7	14.0
Income from operations (EBIT)	1,221	696	582	928
EBIT margin %	11.9	8.5	7.6	11.9
Return on capital employed (ROCE) %	7.1	4.5	3.6	5.3

### Factors influencing sales

2022 versus 2021

Volumes	5.7%
Prices	12.4%
Portfolio	-0.6%
Currencies	8.4%
Sales	25.9%

### EBIT before special items

Million €

2022	1,220
2021	715

Change: €505 million

## Agricultural Solutions

**Efficient farming is fundamental to provide enough healthy and affordable food for a rapidly growing population while reducing environmental impacts. Working with partners and agricultural experts and by integrating sustainability criteria into all business decisions, we help farmers to create a positive impact on sustainable agriculture. At BASF, we believe that the way forward for agriculture is finding the right balance between economic, environmental and social value creation – for farmers, agriculture and future generations.**

### Portfolio

#### Digital farming

With products from xarvio® Digital Farming Solutions, we enable precision farming and help farmers globally optimize crop yield using fewer natural resources and crop inputs.

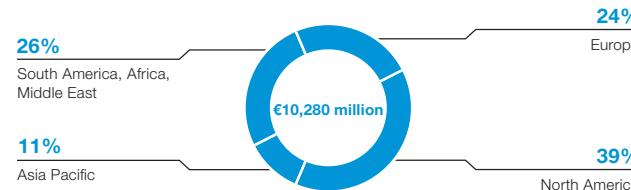
- We developed ONE SMART SPRAY together with Bosch. This technology recognizes weeds and allows precise herbicide application, maximizing crop production and reducing environmental impacts. In 2023, it was launched commercially in Germany and Hungary.

#### Field crop seeds & traits

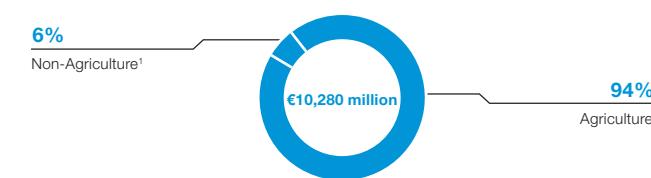
Proven seed germplasm, trusted trait products and a pipeline of innovation that addresses current and future needs of farmers:

- A strong seed brand portfolio that delivers high-quality seed germplasms via high-performing hybrids and varieties that adapt to the growing conditions of local farmers. The portfolio includes InVigor® canola (oil seed rape), FiberMax® cotton, Stoneville® cotton and Credenz® soybean seed.
- Herbicide-tolerance, insect resistance and agronomic trait technologies that help crops realize their full potential. The portfolio includes pod shatter reduction technology, LibertyLink®, GlyTol®,

#### Sales by region 2022 (location of customer)



#### Sales by direct customer industry 2022



<sup>1</sup> Aquaculture, forestry, home and garden, industrial weed control, ornamentals, public health, turf, urban pest control

TwinLink®, TwinLink® Plus, Clearfield® Production System and Provisia® Rice System.

- Committed to bringing future innovation to farmers through research and technological advancements in areas of breeding, trait research and trait development.

#### Fungicides

Conducting pioneering research to find new active ingredients and provide our customers new options to control fungal diseases:

- Revysol® is our latest compound. It meets the highest level of regulatory standards and offers outstanding biological performance against difficult-to-control pathogens in specialty and row crops. The active ingredient has received registrations in all regions. Revysol®-based products have been introduced globally in all major crops.
- Xemium® is a key component of BASF's fungicides portfolio due to its broad-spectrum disease control. It has excellent mobility in the plant and long-lasting residual action. Xemium® is available in more than 80 countries for roughly 150 different crops.

#### Herbicides

Reducing competition from weeds secures yield and harvest quality, enabling no-till farming practices:

- Luximo®, with no known cross-resistance, provides soil residual control against a broad range of grasses in cereal crops.
- Tirexor® is a PPO-inhibiting herbicide (protoporphyrinogen IX oxidase) for controlling weeds currently resistant to other PPO inhibitors, effective burndown of broadleaf weeds and suppression of annual ryegrass.
- Liberty®, Rely®, Finale® and Basta® are glufosinate ammonium-based herbicides designed to control weeds in a number of row and specialty crops.

#### Insecticides

Combating insect pests in agriculture and beyond:

- Axalion® Active insecticide, developed by BASF, is a new class of chemistry with a novel mode of action. Axalion® provides long-lasting control of a broad spectrum of piercing and sucking pests, including whiteflies and aphids, while working harmoniously with beneficials and the environment when applied according to the label. Australian farmers had first access to Axalion® with the launch of this active ingredient in April 2023; additional launches are planned in Asia, Europe and South America in the coming years.
- Inscalis® insecticide offers an alternative mode of action for the control of piercing and sucking insects such as aphids, whiteflies,

## Innovation



## Reducing on-farm carbon emissions

With our global Carbon Farming Program, which was launched in 2022, we support farmers in reducing CO<sub>2</sub>e emissions while benefiting financially. BASF and Boortmalt, the world's leading malting company, entered into a first-of-its-kind collaboration that enables farmers in the malting barley value chain to reduce on-farm carbon emissions in barley production and also certify the reduction. With tailor-made solutions ranging from seeds, traits, innovative chemical and biological crop protection products to digital farming and fertilizer management solutions, farmers can reduce greenhouse gas emissions, sequester carbon in the soil and make their farms more resilient to climate change.

and leafhoppers in row and specialty crops as well as ornamentals.

■ Broflanilide<sup>1</sup>, with a novel mode of action, is highly efficacious against chewing pests, such as caterpillars and beetles in specialty and row crops. It also combats ants, cockroaches and flies in the professional pest management market.

### Seed treatment

Biological and chemical products, functional coatings and colorants to improve seed performance:

- Poncho® Votivo® is a systemic insecticide and biological seed treatment for use on a wide range of crops to control insect pests and protect against soil plant pathogenic nematodes.
- ILEVO® seed treatment for soybeans provides broad-spectrum nematode protection against soybean sudden death syndrome and cyst nematode, two of the top yield robbers.
- Teraxxa® and Teraxxa® F4 are the only seed treatments that not only control wireworms but eliminate them by interfering with nerve signal communication in the insects' cells.

### Vegetable seeds

Developing solutions to make healthy eating enjoyable and sustainable, by creating improved varieties through conventional breeding and working closely with partners throughout the value chain. Under the Nunheims® brand, BASF markets more than 1,200 vegetable varieties for 24 crops.

■ Since early in the outbreak of the Tomato Brown Rugose Fruit Virus (ToBRFV), BASF has actively sought and offered solutions to growers to battle the virus. New seed varieties resistant to ToBRFV are being launched to meet the needs of growers and the market.

### BASF's market position and main competitors

The Agricultural Solutions division holds one of the top four market positions in nearly all of the strategic business areas in which it is active.

The main competitors (alphabetical order) include Bayer, Corteva, FMC and Syngenta.

### Research and development

With an estimated peak sales potential of more than €7.5 billion, our innovation pipeline comprises products and solutions across all business areas. Throughout the next decade, we will launch major

projects, including several industry-leading weed control solutions, further products based on Revysol® fungicide and digital farming solutions based on the agronomic intelligence of xarvio®. We spent €944 million on R&D in the Agricultural Solutions segment in 2022, representing 9% of the segment's sales.

### Key capabilities of BASF

- Strong customer orientation with a comprehensive offer for strategic crop systems
- Strengthened R&D pipeline for sustainable agriculture helping farmers balance environmental and economic challenges as well as meeting consumer demand for more sustainably produced food
- Stringent patent management
- Innovative digital farming solutions
- Strong integration into the Production and Know-How Verbund

### Selected acquisitions/JVs/investments/divestitures

From 2020 onward

Product group	Description	Year
Crop protection/active ingredients	Streamlining of global glufosinate-ammonium production network	2020
	Acquisition of proprietary technology for L-glufosinate-ammonium from AgriMetis™	2020
	Divestiture of active ingredient for control of plant-parasitic nematodes to Mitsui Chemicals Agro	2021
Digital farming	Founding of BOSCH BASF Smart Farming GmbH	2021
	Acquisition of Horta S.r.l. (Italy)	2022
Formulation capacities	New formulation capacities for glufosinate-ammonium (United States, Europe, Asia)	2020
	New production facility for seed treatment formulations (United States)	2020
	New formulation facility (Singapore)	2022
Seeds	Divestiture of HILD Samen business to Graines Voltz	2020
	Expansion of tomato breeding facilities (Netherlands)	2021
	Acquisition of melon breeding company ASL	2023

<sup>1</sup> Co-developed with Mitsui Chemicals Agro, Inc.

# Other

**Activities that are not allocated to any of the divisions are recorded under Other. These include other businesses which comprise commodity trading, engineering and other services, as well as rental income and leases. Discontinued operations and certain activities remaining after divestitures are also reported here.**

The following activities are also presented under Other:

- The steering of the BASF Group by corporate headquarters.
- Cross-divisional corporate research works on long-term topics of strategic importance to the BASF Group. Furthermore, it focuses on the development of specific key technologies, which are of overriding importance for the divisions.
- Trade with renewable energies as well as the activities of the Net Zero Accelerator unit established on January 1, 2022, which bundles cross-company projects to achieve climate protection targets.
- Results from currency translation that are not allocated to the segments; earnings from the hedging of raw materials prices and foreign currency exchange risks; and gains and losses from the long-term incentive programs (LTI programs).
- Remanent fixed costs resulting from organizational changes or restructuring; function and region-related restructuring costs not allocated to a division; idle capacity costs from internal human resource platforms; and consolidation effects that cannot be allocated to the divisions.

## Financial data – Other<sup>1</sup>

Million €

	2022	2021	+/-
Sales	4,368	3,666	19.2%
Income from operations before depreciation, amortization and special items <sup>2</sup>	-594	-607	2.2%
Income from operations before depreciation and amortization (EBITDA) <sup>2</sup>	-368	-602	38.9%
Depreciation and amortization <sup>3</sup>	155	157	-1.4%
Income from operations (EBIT) <sup>2</sup>	-523	-759	31.1%
Special items	226	3	.
EBIT before special items <sup>2</sup>	-749	-761	1.6%
of which costs for cross-divisional corporate research	-325	-355	8.5%
costs of corporate headquarters	-258	-255	-1.2%
other businesses	-43	62	.
foreign currency results, hedging and other measurement effects	33	-62	.
miscellaneous income and expenses	-156	-151	-3.3%
Assets <sup>2,4</sup>	16,803	23,007	-27.0%
Investments including acquisitions <sup>5</sup>	268	183	46.8%
Research and development expenses	381	378	0.7%

1 Information on the composition of Other can be found in the BASF Report 2022 from page 220 onward.

2 BASF's ethylene value chain was reorganized internally as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the joint venture BASF-YPG Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The prior-year figures have been adjusted. This reduced income from integral companies accounted for using the equity method, EBITDA before special items, EBITDA, EBIT and EBIT before special items in Other by €118 million in 2021 and increased these indicators in the Petrochemicals division accordingly (rounding differences are possible). The operating assets were also reallocated as part of the reorganization and increased the Chemicals segment's assets by €114 million as of December 31, 2021.

3 Depreciation and amortization of property, plant and equipment and intangible assets (including impairments and reversals of impairments)

4 Includes assets of businesses recognized under Other and reconciliation to assets of the BASF Group

5 Additions to property, plant and equipment and intangible assets

In 2022, **sales** in Other amounted to €4,368 million, €703 million above the prior-year figure. The increase was mainly due to sales growth in commodity trading.

**EBIT** improved by €236 million to –€523 million. This included special income from the partial divestiture of the interest in the Hollandse Kust Zuid wind farm in April 2022.

**EBIT before special items** improved by €12 million year on year to –€749 million. This was primarily attributable to higher income from long-term incentive programs, among other factors. Income also increased from hedging transactions.

# Non-Integral Shareholding in Wintershall Dea

**In May 2019, Wintershall Holding GmbH and DEA Deutsche Erdoel AG merged to form Europe's leading independent natural gas and oil company: Wintershall Dea.**

The company with German roots and headquarters in Kassel and Hamburg explores for and produces gas and oil in 11 countries worldwide in an efficient and responsible manner. With activities in Northern Europe, Latin America and the MENA region (Middle East and North Africa), Wintershall Dea has a global upstream portfolio. Furthermore, with its participation in natural gas transport, it is also active in the midstream business. The company stands for over 120 years of experience as an operator and project partner along the entire E&P value chain. The company employs around 2,500 people worldwide from almost 60 nations.

Due to increasing restrictions on its ability to influence its investments in Russia, largely as a result of government interference, Wintershall Dea deconsolidated its Russian segment in the fourth quarter of 2022 and subsequently recognized it as a financial asset measured at fair value in accordance with IFRS 9. In addition, on January 17, 2023, Wintershall Dea announced its full exit from Russia in compliance with all legal requirements.

## The merger and the shareholders of Wintershall Dea

Following the approval of all relevant authorities, BASF and LetterOne successfully completed the merger of Wintershall and DEA on May 1, 2019. BASF holds 72.7% of the ordinary shares in Wintershall Dea AG; 27.3% are held by LetterOne. The preference shares previously held by BASF were converted into ordinary shares on May 1, 2022.

## Operating and financial performance of Wintershall Dea

In 2022, Wintershall Dea had revenues and other income of €18.7 billion (€16.9 billion excluding segment Russia), income from operations before depreciation, amortization and exploration (EBITDAX) of €7.7 billion (€5.9 billion excluding segment Russia) and adjusted net income of €2.4 billion (€928 million excluding segment Russia). Total production of Wintershall Dea (excluding Libya onshore) was 597,000 barrels of oil equivalent per day (BOEPD) (321,000 BOEPD excluding segment Russia). As of December 31, 2022, proven and probable reserves stood at 1.4 billion BOE, corresponding to a reserve to production ratio of 12 years.

## Key financials of Wintershall Dea (excluding segment Russia)<sup>1</sup>

Million €

	2022	2021
Revenues and other income	16,936	6,941
EBITDAX <sup>2</sup>	5,924	3,103
Adjusted net income <sup>3</sup>	928	403

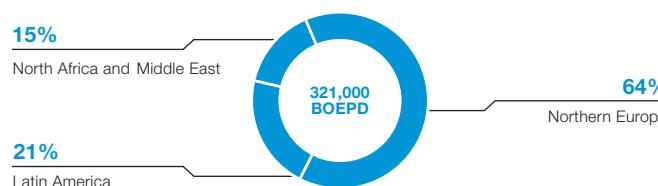
<sup>1</sup> Unaudited figures

<sup>2</sup> EBITDAX is defined as revenues and other income, less production and operating expenses, less production and similar taxes, less general and administrative expenses and less cost of sales midstream, adjusted for special items.

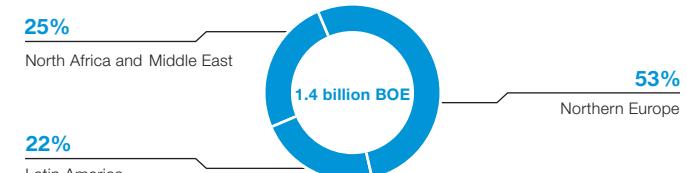
<sup>3</sup> Adjusted net income is derived from EBITDAX less depreciation and amortization, less exploration expenses, plus financial income, less financial expenses and less income taxes, adjusted for special items and tax effects on adjusted special items and disregarded items (e.g., impairments on assets).

## Wintershall Dea

### Production 2022 by region (excluding Russia)



## Proven and probable reserves (2P) 2022 by region (excluding Russia)



## Activities by country



## Algeria

Wintershall Dea has been active in Algeria since 2002 and is currently producing from the Reggane Nord project. Algeria has significant energy potential. It is the leading natural gas producer in Africa and a major gas exporter to Europe. The country is an OPEC member and one of the top three oil producers in Africa. In May 2022, Wintershall Dea entered into a sale and purchase agreement to acquire Edison's participating interest in the Reggane Nord natural gas project. Upon the closing of the transaction, the Groupement Reggane Nord consortium, operator of the project, would comprise Sonatrach (40%), Repsol (36%) and Wintershall Dea (24%).

## Argentina

Wintershall Dea has been active in Argentina for more than 40 years. Today, the company has a stake in about 20 onshore and offshore fields, all of them non-operated. In the southern part

of the country, Wintershall Dea together with TotalEnergies and Pan American Energy, is active in the offshore concession Cuenca Marina Austral 1 (CMA-1) contributing approximately 16% of total domestic gas production in Argentina. In Neuquén province, Wintershall Dea participates in conventional production as well as in production from the Vaca Muerta shale from the Aguada Pichana Este and San Roque blocks. In 2022, Wintershall Dea focused its activities in Argentina on gas production and divested its 50% interest, including operatorship, in the unconventional Aguada Federal and Bandurria Norte shale oil blocks in Neuquén province. In September 2022, Wintershall Dea and its partners TotalEnergies and Pan American Energy took the final investment decision (FID) to develop the Fénix gas project offshore Tierra del Fuego. First gas from Fénix is projected for 2025 and is planned to reach a peak gross production of around 10 million cubic meters of gas per day.

#### **Denmark**

Wintershall Dea has been producing oil successfully off the coast of Denmark since 2003. Today, Wintershall Dea has a share in the two oil fields Cecilie and Nini, which are located in the Danish Central Graben and expected to remain in production until 2024. Further, Wintershall Dea draws on the potential of CO<sub>2</sub> storage technologies for a cleaner energy future as one of the core members of the Project Greensand Consortium. In March 2023, the consortium initiated the first CO<sub>2</sub> storage as part of the pilot phase of the project.

#### **Egypt**

Wintershall Dea has been active in Egypt for over 45 years. Currently it produces gas in the onshore Nile Delta as part of the DISOUCO joint venture and as partner to BP for the West Nile Delta offshore gas project. In November 2022, Wintershall Dea and operator BP were awarded the North West Abu Qir Offshore exploration block, where Wintershall Dea holds a 17.25% participating interest.

#### **Germany**

In Germany, Wintershall Dea has been active in the exploration and production business for more than nine decades. The company has concentrated its production to the Mittelplate and

Emlichheim oil fields and the Völkersen gas field. Production in Germany requires particular technological expertise, which the company can apply in its operations globally. The company's operations in Mittelplate are considered exemplary and regarded internationally as a benchmark for safe oil production in an environmentally sensitive area. Wintershall Dea is actively engaged in the energy transition and is pursuing hydrogen prototype projects with partners to meet its climate targets.

#### **Libya**

Through its affiliate Wintershall Aktiengesellschaft (WIAG), Wintershall Dea participates in crude oil production from nine oil fields in the Eastern Sirte Basin. Wintershall Dea also holds a minority stake in offshore oil production from Al-Jurf offshore platform in contract areas 15, 16 and 32 (former block C137).

#### **Mexico**

Mexico has some of the world's largest proven reserves. Wintershall Dea entered the country's oil and gas market in 2017 and has established a major position. This includes being operator of the producing onshore Ogarrio oil field and partner in the offshore development Zama. This development in Block 7 of the Sureste Basin is progressing with the unit development plan that was submitted to the authorities in March 2023. In October 2022, Wintershall Dea announced the expansion of its presence in Mexico with the acquisition of a 37% non-operated participating interest in the producing Hokchi Block from Hokchi Energy. The field currently produces around 26,000 BOEPD, with a planned ramp-up to a gross production of 37,000 BOEPD in 2023. In Q4 2022, Wintershall Dea started drilling its first own-operated offshore exploration well in Block 30 of the Sureste Basin in the Gulf of Mexico.

#### **Netherlands**

Wintershall Dea has been active in the Dutch North Sea for more than 50 years. As a shareholder of Wintershall Noordzee, the company is currently one of the major producers of natural gas in the region.

#### **Norway**

Norway has become the most important gas provider for the E.U. Wintershall Dea has operated on the Norwegian continental shelf for almost 50 years and is now one of the leading oil and gas companies there. The company currently participates in about 100 licenses, in 24 of them as operator. The portfolio in Norway consists of a large number of producing assets in different life cycles, including key development projects Nova, Dvalin and Njord. In July 2022, Wintershall Dea's own-operated Nova development came on stream to help meet Europe's energy needs. The field is in its ramp-up phase and is expected to contain estimated recoverable gross reserves of 90 million BOE, of which the majority is oil. In December 2022, the Njord field re-started production and is expected to contribute estimated recoverable gross reserves of 177 million BOE, of which the majority is gas. Njord is currently ramping up production. Wintershall Dea's own-operated development project Dvalin started production in February 2023. In October 2022, Wintershall Dea and its partner CapeOmega were awarded the operatorship of the Luna CO<sub>2</sub> storage licence in the Norwegian North Sea. The licence provides storage potential of more than 5 million tons of CO<sub>2</sub> per year.

#### **United Arab Emirates**

The United Arab Emirates have the seventh-largest oil reserves in the world. Wintershall Dea has been active in the country since 2010. In 2018, the national oil company ADNOC awarded it a 10% stake in the Ghasha concession. Ghasha is one of the most promising gas and condensate projects that has yet to be developed in the Emirates. The Ghasha concession offshore Abu Dhabi consists of several major gas and condensate development projects in different phases over the 40-year concession period.

#### **United Kingdom**

In the United Kingdom, Wintershall Dea's 50% shareholding Wintershall Noordzee holds and operates several licences. Gas production is clustered around the established Wingate gas field, which was discovered in 2008. Future activities will concentrate on the efficient extension of this area.

# 3

## Financials

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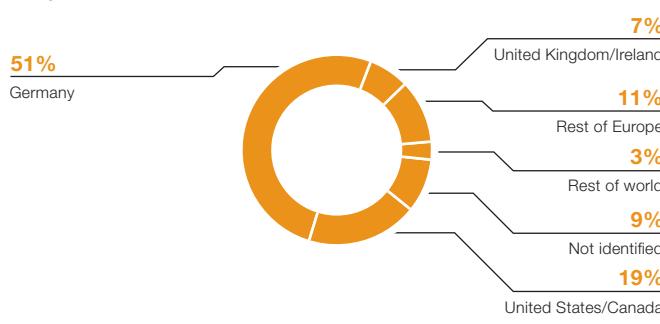
# BASF on the Capital Market

## Broad base of international shareholders

With over 900,000 shareholders, BASF is one of the largest publicly owned companies with a high free float. An analysis of the shareholder structure carried out at the end of 2022 showed that, at around 19% of share capital, the United States and Canada made up the largest regional group of institutional investors. Institutional investors from Germany accounted for around 6%. Institutional investors from the United Kingdom and Ireland hold 7% of BASF shares, while investors from the rest of Europe hold a further 11% of capital. Approximately 45% of the company's share capital is held by private investors, nearly all of whom reside in Germany. BASF is therefore one of the DAX companies with the largest percentage of private shareholders.

### Shareholder structure

By region, rounded



## Employees becoming shareholders

In many countries, we offer share purchase programs that turn our employees into BASF shareholders. In 2022, for example, around 27,100 employees (2021: around 23,600) purchased BASF shares worth €92.8 million (2021: €38.2 million).

## BASF – a sustainable investment

BASF has participated in the program established by the international organization CDP (formerly the Carbon Disclosure Project) for reporting on data relevant to climate protection since 2004. CDP represents over 680 investors with over \$130 trillion in assets and more than 280 major organizations with \$6.4 trillion in purchasing power. In 2022, BASF again scored an A– on CDP's Climate List, giving it Leadership status. Among other things, the assessment considers the transparency of emissions reporting, the handling of risks and opportunities arising from climate change, the climate protection strategy and CO<sub>2</sub> reduction measures.

BASF achieved the top rating of A in the CDP assessment for sustainable water management. The assessment takes into account how transparently companies report on their water management activities and how they reduce risks such as water scarcity. CDP also evaluates the extent to which product developments can contribute to sustainable water management for customers of the companies assessed. BASF continues to implement its sustainable water management target at all relevant production sites.

BASF participated in the CDP's "Forests" assessment for the third time in 2022 and was ranked A–, as in previous years. BASF is committed to ending deforestation in the relevant businesses in which it is active. As such, BASF is one of the companies with Leadership status in this area as well.

BASF again achieved Prime status in the ISS ESG rating developed by Institutional Shareholder Services and is among the top 7% of the companies assessed. BASF received special recognition for addressing key sustainability issues such as environmental management, energy efficiency and business ethics with a comprehensive set of measures and processes.

In Morningstar Sustainalytics<sup>1</sup> ESG Risk Ratings, BASF belongs to the best category for "diversified chemicals" with a medium ESG risk and was recognized for its risk management, for example, in the areas of CO<sub>2</sub> emissions, wastewater and waste, as well as occupational health and safety.

BASF is participating in a pilot project on the U.N. Global Compact's new reporting format. We consistently support the U.N. Global Compact and its 10 principles of responsible business conduct and the Sustainable Development Goals.

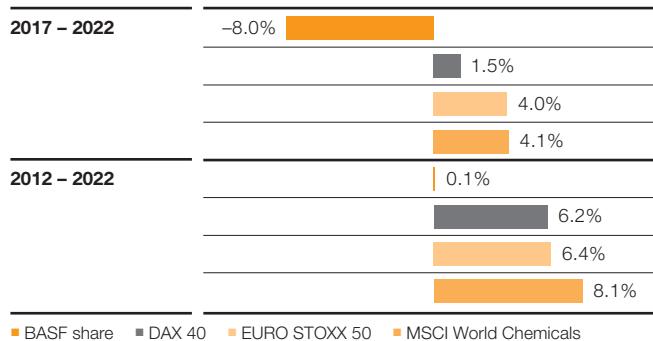
## BASF share performance

The share price of BASF reached an annual high of €68.69 on February 11, 2022, before declining over the remainder of the year. This was mainly attributable to the Russian attack on Ukraine and the associated risks to natural gas supplies in Europe. The resulting high energy prices negatively impacted the competitiveness of energy-intensive companies in Europe in particular. In addition, high inflation and increased interest rates weakened demand in key customer industries, especially in the second half of the year.

Assuming that dividends were reinvested, BASF's share performance declined by 19.7% in 2022. The benchmark indexes of the German and European stock markets – the DAX 40 and the EURO STOXX 50 – fell by 12.3% and 9.5% over the same period, respectively. The global industry index MSCI World Chemicals lost 15.5%.

**Long-term performance of BASF shares compared with indexes**

Average annual increase with dividends reinvested

**Change in value of an investment in BASF shares in 2022**

With dividends reinvested; indexed

**American depository receipts**

American depositary receipts (ADRs) allow U.S. institutional and retail investors to trade and own non-U.S. companies directly through the U.S. equity markets. BASF has a sponsored level 1 program, which is traded on OTC-QX, the platform for international quality companies on OTC markets. BASF's ADRs (Symbol: BASFY) are now included in International PremierQX, the highest OTC market tier.

For further information, see [bASF.com/share](http://bASF.com/share)

**Analysts' recommendations**

Around 30 financial analysts regularly publish studies on BASF. The latest analyst recommendations for our shares as well as the average target share price ascribed to BASF by analysts can be found online at [bASF.com/analystestimates](http://bASF.com/analystestimates).

**Shareholder return**

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Dividends	million €	2,480	2,572	2,664	2,755	2,847	2,939	3,031	3,031	3,072	3,035 <sup>1</sup>
Dividend per share	€	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.30	3.40	3.40
Share price at year-end	€/share	77.49	69.88	70.72	88.31	91.74	60.40	67.35	64.72	61.78	46.39
Dividend yield <sup>2</sup>	%	3.5	4.0	4.1	3.4	3.4	5.3	4.9	5.1	5.5	7.3
Payout ratio	%	52	50	67	68	47	63	36	.	57	.
Price-earnings ratio (P/E ratio)		14.8	12.5	16.3	20.0	13.9	11.8	7.3	.	10.3	.
Free cash flow yield <sup>3</sup>	%	4.5	2.6	5.6	4.4	5.7	7.3	5.9	3.8	6.5	8.0

<sup>1</sup> Based on the number of shares outstanding (893,854,929) minus the number of treasury shares held by BASF SE (1,332,765) on the date of the dividend payment

<sup>2</sup> Based on year-end share price

<sup>3</sup> Free cash flow per share at year-end divided by share price at year-end

**Dividend**

For 2022, BASF paid a dividend of €3.40 per share and paid out €3.0 billion to its shareholders. Based on the year-end share price for 2022, BASF shares offer a high dividend yield of around 7.3%. BASF is part of the DivDAX share index, which contains the 15 companies with the highest dividend yield in the DAX 40.

**Dividend per share****€3.40****Dividend yield****7.3%****Dividend policy:**

We aim to increase the dividend per share every year.

**Share buyback program**

Share buybacks are part of BASF's toolbox but are currently not being used. On January 4, 2022, the Board of Executive Directors of BASF SE resolved on a share buyback program. The program, which started on January 11, 2022, was intended to reach a volume of up to €3 billion by December 31, 2023, at the latest. In an ad hoc release, BASF announced on February 24, 2023, that it would terminate the share buyback program ahead of schedule. The decision was made in line with the company's priorities for the use of cash and in view of the profound changes in the global economy in the course of 2022.

From January 11, 2022, until and including February 23, 2023, 25,956,530 shares were bought back, corresponding to 2.8 percent of the share capital on announcement of the program. The purchase price for these own shares totaled around €1.4 billion.

**Close dialog with the capital market**

Regular and transparent communication with the capital market is key to increasing long-term value. We continued to use mainly virtual formats such as video or conference calls for dialog in 2022. We engage with institutional investors and rating agencies in numerous one-on-one meetings, as well as roadshows and conferences worldwide. We also give private investors insights into BASF at informational events.

Analysts and investors have confirmed the quality of our financial market communications. In the annual survey conducted by Britain's IR Magazine, we placed first in the category "Best IR Website (Large Caps)."

**Further information on the BASF share****Securities code numbers**

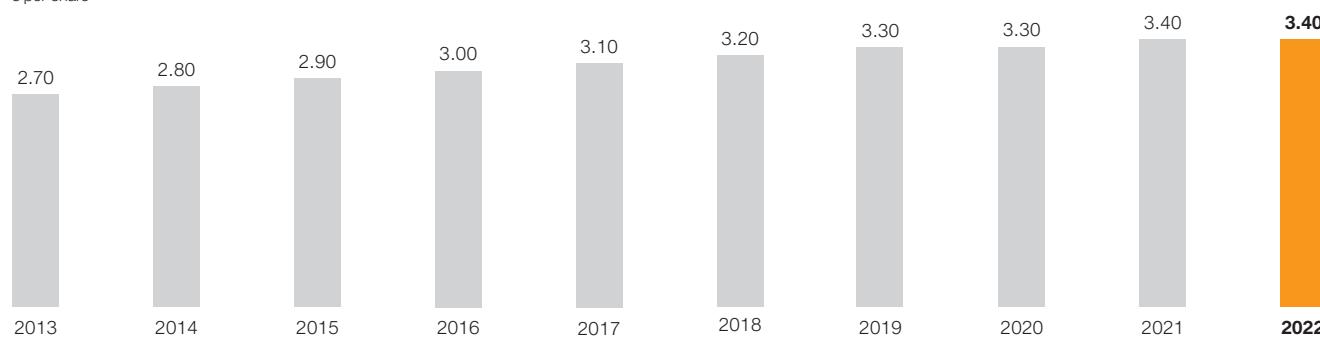
Germany	BASF11
United States (CUSIP number)	055262505
ISIN International Securities Identification Number	DE000BASF111

**International ticker symbols**

Deutsche Börse	BAS
Pink Sheets / OTCQX	BASFY (ADR)
Bloomberg (Xetra trading)	BAS GY
Reuters (Xetra trading)	BASFn.DE

**Dividend per share**

€ per share



# Business Review by Segment

## Segment overview

Million €

	Sales		EBITDA before special items		EBITDA		EBIT before special items	
	2022	2021	2022	2021	2022	2021	2022	2021
Chemicals	14,895	13,579	2,774	3,842 <sup>1</sup>	2,771	3,882 <sup>1</sup>	1,956	3,092 <sup>1</sup>
Materials	18,443	15,214	2,686	3,208	2,660	3,162	1,840	2,418
Industrial Solutions	9,992	8,876	1,437	1,343	1,443	1,344	1,091	1,006
Surface Technologies	21,283	22,659	1,464	1,277	1,264	1,243	902	800
Nutrition & Care	8,066	6,442	1,067	909	1,055	967	618	497
Agricultural Solutions	10,280	8,162	1,928	1,375	1,922	1,358	1,220	715
Other	4,368	3,666	-594	-607 <sup>1</sup>	-368	-602 <sup>1</sup>	-749	-761 <sup>1</sup>
<b>BASF Group</b>	<b>87,327</b>	<b>78,598</b>	<b>10,762</b>	<b>11,348</b>	<b>10,748</b>	<b>11,355</b>	<b>6,878</b>	<b>7,768</b>

## Segment overview

Million €

	EBIT		Assets		Investments including acquisitions <sup>2</sup>		Research and development expenses	
	2022	2021	2022	2021	2022	2021	2022	2021
Chemicals	1,758	3,115 <sup>1</sup>	10,481	10,482 <sup>1</sup>	1,701	1,157	93	97
Materials	1,776	2,345	10,864	11,286	880	709	201	193
Industrial Solutions	1,097	965	6,318	6,302	322	361	172	175
Surface Technologies	612	761	14,899	13,769	740	1,469	335	296
Nutrition & Care	605	554	8,038	7,231	642	654	172	172
Agricultural Solutions	1,221	696	17,071	15,305	414	347	944	904
Other	-523	-759 <sup>1</sup>	16,803	23,007 <sup>1</sup>	268	183	381	378
<b>BASF Group</b>	<b>6,548</b>	<b>7,677</b>	<b>84,472</b>	<b>87,383</b>	<b>4,967</b>	<b>4,881</b>	<b>2,298</b>	<b>2,216</b>

<sup>1</sup> BASF's ethylene value chain was reorganized internally as of January 1, 2022. In this connection, the polyolefins and styrenics businesses of the joint venture BASF-YPG Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division. The prior-year figures have been adjusted.

<sup>2</sup> Additions to property, plant and equipment (of which from acquisitions: €332 million in 2021) and intangible assets (of which from acquisitions: €392 million in 2021); there were no acquisitions in 2022.

# Regional Results

## Sales by location of company

Million €

	2013	2014	2015	2016	2017 <sup>1</sup>	2018 <sup>2</sup>	2019	2020	2021	2022
Europe	43,335	42,854	38,675	27,221	28,045	27,526	25,706	24,223	31,594	35,821
North America	14,573	15,467	15,665	14,682	15,937	15,900	16,420	16,440	21,935	24,343
Asia Pacific	11,679	11,643	11,712	11,512	13,658	13,454	13,384	14,895	20,632	21,309
South America, Africa, Middle East	4,386	4,362	4,397	4,135	3,583	3,340	3,806	3,591	4,437	5,854
<b>BASF Group</b>	<b>73,973</b>	<b>74,326</b>	<b>70,449</b>	<b>57,550</b>	<b>61,223</b>	<b>60,220</b>	<b>59,316</b>	<b>59,149</b>	<b>78,598</b>	<b>87,327</b>

## Sales by location of customer

Million €

	2013	2014	2015	2016	2017 <sup>1</sup>	2018 <sup>2</sup>	2019	2020	2021	2022
Europe	41,221	40,911	36,897	26,039	26,507	25,589	23,827	23,129	30,531	33,922
North America	14,272	15,213	15,390	14,042	15,357	15,388	15,948	15,709	20,867	23,869
Asia Pacific	12,450	12,341	12,334	12,165	14,343	14,210	14,203	15,406	21,234	21,823
South America, Africa, Middle East	6,030	5,861	5,828	5,304	5,016	5,033	5,338	4,905	5,965	7,712
<b>BASF Group</b>	<b>73,973</b>	<b>74,326</b>	<b>70,449</b>	<b>57,550</b>	<b>61,223</b>	<b>60,220</b>	<b>59,316</b>	<b>59,149</b>	<b>78,598</b>	<b>87,327</b>

<sup>1</sup> Figures for 2017 were restated with the presentation of the oil and gas activities as discontinued operations.

<sup>2</sup> Figures for 2018 were restated with the presentation of the construction chemicals activities as discontinued operations.

## Sales by location of company 2022

7%

South America, Africa, Middle East

24%

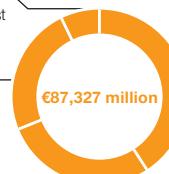
Asia Pacific

41%

Europe

28%

North America



## Sales by location of customer 2022

9%

South America, Africa, Middle East

25%

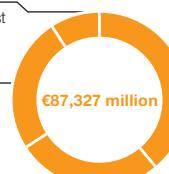
Asia Pacific

39%

Europe

27%

North America



# Factors Influencing Sales and Currency Impact

## Factors influencing sales of the BASF Group

Million €

	2013 <sup>1</sup>	2014	2015	2016	2017	2018	2019	2020	2021	2022
Volumes	5%	4%	3%	2%	4%	1%	-3%	-1%	10.6%	-7.0%
Prices	0%	-3%	-9%	-4%	8%	4%	-3%	3%	24.8%	11.9%
Currencies	-3%	-1%	6%	-1%	-1%	-4%	2%	-3%	-2.4%	6.1%
Acquisitions/divestitures	1%	0%	-5%	-15%	1%	1%	2%	1%	-0.1%	0.1%
<b>Total</b>	<b>3%</b>	<b>0%</b>	<b>-5%</b>	<b>-18%</b>	<b>12%</b>	<b>2%</b>	<b>-2%</b>	<b>0%</b>	<b>32.9%</b>	<b>11.1%</b>

<sup>1</sup> Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.

## Factors influencing sales

Compared with the previous year, sales rose by €8,729 million to €87,327 million in the 2022 business year. Sales growth was mainly driven by higher prices across almost all segments due to an increase in raw materials and energy prices. The Materials and Chemicals segments implemented the highest price increases. Currency effects considerably supported the positive sales development. Portfolio effects in the Surface Technologies segment from the acquisition of a majority shareholding in BASF Shanshan Battery Materials Co., Ltd. as of August 31, 2021, also contributed to the sales increase. This more than compensated for negative portfolio effects in the Industrial Solutions segment, mainly from the sale of the global pigments business as of June 30, 2021. Significantly lower volumes overall dampened sales growth in the BASF Group. Volumes development was primarily driven by lower sales in the Surface Technologies and Chemicals segments.

## Currency impact

Our competitiveness on global markets is influenced by fluctuations in exchange rates. For BASF's sales, opportunities and risks arise in particular when the U.S. dollar exchange rate fluctuates. A full-year appreciation of the U.S. dollar against the euro by \$0.01 would increase the BASF Group's EBIT by around €30 million, assuming other conditions remain the same. On the production side, we counter exchange rate risks by producing in the respective currency zones.

Financial currency risks result from the translation of receivables, liabilities and other monetary items in accordance with IAS 21 at the closing rate into the functional currency of the respective Group company. In addition, we incorporate planned purchase and sales transactions in foreign currencies in our financial foreign currency risk management. If necessary, these risks are hedged using derivative instruments.

### Annual impact of US\$/€ exchange rate change on BASF Group

(exchange rate: - \$0.01 per €)

Sales  
€275 million

EBIT  
€30 million

# Financing

**Our financing policy aims to ensure our solvency at all times, limiting the risks associated with financing and optimizing our cost of capital. We preferably meet our external financing needs on the international capital markets. We strive to maintain a solid A rating, which ensures unrestricted access to financial and capital markets. Our financing measures are aligned with our operational business planning as well as the company's strategic direction and also ensure the financial flexibility to take advantage of strategic options.**

## Financing policy

We have solid financing, both for ongoing business and for investment projects initiated or planned. Corporate bonds form the basis of our medium to long-term debt financing. These are issued in euros and other currencies with different maturities as part of our €20 billion debt issuance program. The goal is to create a balanced maturity profile, diversify our financing and optimize our debt capital financing conditions.

For short-term financing, we use BASF SE's global commercial paper program, which has an issuing volume of up to \$12.5 billion. As of December 31, 2022, commercial paper with a carrying amount of €654 million was outstanding under this program. A firmly committed, syndicated credit line of €6 billion with a term until 2026 covers the repayment of outstanding commercial paper. It can also be used for general company purposes. The credit line and another short-term credit line of €3 billion that was taken out in April 2022 were not used at any point in 2022. Our external financing is therefore largely independent of short-term fluctuations in the credit markets.

BASF Group's most important financial contracts contain no side agreements with regard to specific financial ratios (financial covenants) or compliance with a specific rating (rating trigger).

To minimize risks and leverage internal optimization potential within the Group, we bundle the financing, financial investments and foreign currency hedging of BASF SE's subsidiaries within the BASF Group where possible. Foreign currency risks are primarily hedged centrally using derivative financial instruments in the market.

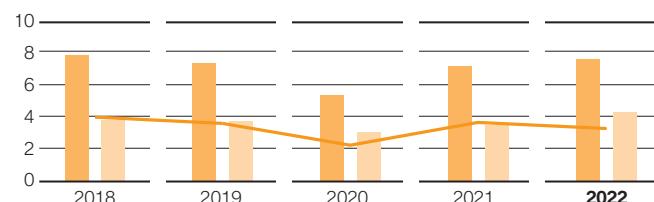
## Cash flows from operating activities and free cash flow

Cash flows from operating activities amounted to €7,709 million, compared with €7,245 million in the previous year. The improvement was primarily due to lower cash tied up in net working capital as well as to higher depreciation and amortization. Net income declined by €6,150 million year on year to –€627 million. The loss is mainly attributable to the negative equity-accounted earnings contribution from Wintershall Dea AG (–€4,853 million), which is eliminated as a noncash effect in miscellaneous items. Depreciation and amortization of property, plant and equipment and intangible assets was €514 million above the prior-year figure.

Free cash flow, which remains after deducting payments made for property, plant and equipment and intangible assets from cash flows from operating activities, represents the financial resources remaining after investments. It amounted to €3,333 million in 2022 after €3,713 million in the previous year.

## Cash flow

Billion €



- Cash flows from operating activities
- Payments made for property, plant and equipment and intangible assets
- Free cash flow

## Good credit ratings and solid financing

BASF enjoys good credit ratings, especially compared with competitors in the chemical industry. Standard & Poor's most recently confirmed BASF's A/A-1/outlook negative rating on March 3, 2023. Moody's confirmed its rating for BASF of A3/P-2/outlook stable on January 18, 2023. Fitch maintained its rating of A/F1/outlook stable on November 30, 2022.

## Credit Ratings

Agency	Rating
Standard & Poor's	A/A-1/outlook negative
Moody's	A3/P-2/outlook stable
Fitch	A/F1/outlook stable

# Ten-Year Summary

Million €

	2013 <sup>1</sup>	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Statement of income</b>										
Sales	73,973	74,326	70,449	57,550	61,223 <sup>2</sup>	60,220 <sup>3</sup>	59,316	59,149	78,598	87,327
Income from operations (EBIT)	7,160	7,626	6,248	6,275	7,587 <sup>2</sup>	5,974 <sup>3</sup>	4,201	-191	7,677	6,548
Income before income taxes	6,600	7,203	5,548	5,395	6,882 <sup>2</sup>	5,233 <sup>3</sup>	3,302	-1,562	7,448	1,190
Income after taxes from continuing operations	-	-	-	-	5,592 <sup>2</sup>	4,116 <sup>3</sup>	2,546	-1,471	6,018	-391
Income after taxes from discontinued operations	-	-	-	-	760 <sup>2</sup>	863 <sup>3</sup>	5,945	396	-36	-
Income after taxes	5,113	5,492	4,301	4,255	6,352	4,979	8,491	-1,075	5,982	-391
Net income	4,792	5,155	3,987	4,056	6,078	4,707	8,421	-1,060	5,523	-627
Income from operations before depreciation and amortization (EBITDA)	10,432	11,043	10,649	10,526	10,765 <sup>2</sup>	8,970 <sup>3</sup>	8,185	6,494	11,355	10,748
EBIT before special items	7,077	7,357	6,739	6,309	7,645 <sup>2</sup>	6,281 <sup>3</sup>	4,643	3,560	7,768	6,878
<b>Capital expenditures, depreciation and amortization</b>										
Additions to property, plant and equipment and intangible assets	7,726	7,285	6,013	7,258	4,364	10,735	4,097	4,869	4,881	4,967
of which property, plant and equipment	6,428	6,369	5,742	4,377	4,028	5,040	3,842	4,075	4,410	4,842
Depreciation and amortization of property, plant and equipment and intangible assets	3,272	3,417	4,401	4,251	4,202	3,750	4,146	6,685	3,678	4,200
of which property, plant and equipment	2,631	2,770	3,600	3,691	3,586	3,155	3,408	5,189	3,064	3,549
<b>Employees at year-end</b>	<b>112,206</b>	<b>113,292</b>	<b>112,435</b>	<b>113,830</b>	<b>115,490</b>	<b>122,404</b>	<b>117,628</b>	<b>110,302</b>	<b>111,047</b>	<b>111,481</b>
<b>Personnel expenses</b>	<b>9,285</b>	<b>9,224</b>	<b>9,982</b>	<b>10,165</b>	<b>10,610</b>	<b>10,659</b>	<b>10,924</b>	<b>10,576</b>	<b>11,097</b>	<b>11,400</b>
<b>Research and development expenses</b>	<b>1,849</b>	<b>1,884</b>	<b>1,953</b>	<b>1,863</b>	<b>1,843<sup>2</sup></b>	<b>1,994<sup>3</sup></b>	<b>2,158</b>	<b>2,086</b>	<b>2,216</b>	<b>2,298</b>

<sup>1</sup> Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.

<sup>2</sup> Figures for 2017 were restated with the presentation of the oil and gas activities as discontinued operations.

<sup>3</sup> Figures for 2018 were restated with the presentation of the construction chemicals activities as discontinued operations.

Million €

	2013 <sup>1</sup>	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Balance sheet (IFRS)</b>										
Total assets	64,204	71,359	70,836	76,496	78,768	86,556	86,950	80,292	87,383	84,472
Noncurrent assets	38,253	43,939	46,270	50,550	47,623	43,335	55,960	50,424	52,332	47,050
of which intangible assets	12,324	12,967	12,537	15,162	13,594	16,554	14,525	13,145	13,499	13,273
of which property, plant and equipment	19,229	23,496	25,260	26,413	25,258	20,780	21,792	19,647	21,553	22,967
Current assets	25,951	27,420	24,566	25,946	31,145	43,221	30,990	29,868	35,051	37,422
of which inventories	10,160	11,266	9,693	10,005	10,303	12,166	11,223	10,010	13,868	16,028
of which accounts receivable, trade	10,233	10,385	9,516	10,952	10,801	10,665	9,093	9,466	11,942	12,055
of which cash and cash equivalents	1,827	1,718	2,241	1,375	6,495	2,300	2,427	4,330	2,624	2,516
Equity	27,673	28,195	31,545	32,568	34,756	36,109	42,350	34,398	42,081	40,923
Total liabilities	36,531	43,164	39,291	43,928	44,012	50,447	44,600	45,894	45,301	43,550
of which financial indebtedness	14,407	15,384	15,197	16,312	18,032	20,841	18,377	19,214	17,184	19,016

<sup>1</sup> Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.

		2013 <sup>1</sup>	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Key data</b>											
Earnings per share	€	5.22	5.61	4.34	4.42	6.62 <sup>2</sup>	5.12	9.17	-1.15	6.01	-0.70
Adjusted earnings per share	€	5.31	5.44	5.00	4.83	6.44 <sup>2</sup>	5.87	4.00	3.21	6.76	6.96
Cash flows from operating activities	million €	8,100	6,958	9,446	7,717	8,785	7,939	7,474	5,413	7,245	7,709
EBITDA margin	%	14.1	14.9	15.1	18.3	17.6 <sup>2</sup>	14.9 <sup>3</sup>	13.8	11.0	14.4	12.3
Return on assets	%	11.5	11.7	8.7	8.2	9.5 <sup>2</sup>	7.1	4.5	-1.2	9.5	2.1
Return on equity after tax	%	19.2	19.7	14.4	13.3	18.9	14.1	21.6	-2.8	15.6	-0.9
Return on capital employed (ROCE)	%	–	–	–	–	15.4	12.0 <sup>3</sup>	7.7	1.7	13.7 <sup>4</sup>	10.0
<b>Appropriation of profits</b>											
Net income of BASF SE <sup>5</sup>	million €	2,826	5,853	2,158	2,808	3,130	2,982	3,899	3,946	3,928	3,849
Dividend	million €	2,480	2,572	2,664	2,755	2,847	2,939	3,031	3,031	3,072	3,035 <sup>6</sup>
Dividend per share	€	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.30	3.40	3.40
<b>Number of shares as of December 31</b>	<b>million</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>918.5</b>	<b>893.9</b>

<sup>1</sup> Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.

<sup>2</sup> Figures for 2017 were restated with the presentation of the oil and gas activities as discontinued operations.

<sup>3</sup> Figures for 2018 were restated with the presentation of the construction chemicals activities as discontinued operations.

<sup>4</sup> The polyolefins and styrenics businesses of the joint venture BASF-YPG Company Ltd., Nanjing, China, which were previously reported under Other, were allocated to the Petrochemicals division as of January 1, 2022. The prior-year figure has been adjusted.

<sup>5</sup> Calculated in accordance with German GAAP

<sup>6</sup> Based on the number of outstanding shares as of December 31, 2022 (893,854,929) minus the number of treasury shares held by BASF SE (1,332,765) on the day of the dividend payment

# Selected Key Figures Excluding Precious Metals

The IFRS figures correspond to the amounts presented in the Consolidated Financial Statements. The adjusted figures exclude sales in precious metal trading and precious metal sales in the automotive catalysts business.

## BASF Group

Million €

	2022		2021	
	IFRS figure	Adjusted figure	IFRS figure	Adjusted figure
Sales	87,327	74,990	78,598	62,872
Volume growth	-7.0%	-3.6%	10.6%	10.5%
EBITDA before special items	10,762	10,762	11,348	11,348
EBITDA margin before special items	12.3%	14.4%	14.4%	18.0%

## Surface Technologies

Million €

	2022		2021	
	IFRS figure	Adjusted figure	IFRS figure	Adjusted figure
Sales	21,283	8,947	22,659	6,933
Volume growth	-13.0%	3.9%	12.2%	14.0%
EBITDA before special items	1,464	1,464	1,277	1,277
EBITDA margin before special items	6.9%	16.4%	5.6%	18.4%

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Half-Year Financial Report 2023

# July 28, 2023

Quarterly Statement Q3 2023

# October 31, 2023

BASF Report 2023

# February 23, 2024

Quarterly Statement Q1 2024 / Annual Shareholders' Meeting 2024

# April 25, 2024

Half-Year Financial Report 2024

# July 26, 2024



BASF supports the chemical industry's global Responsible Care initiative.

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## Further Information

### More publications

- BASF Report 2022
- Quarterly Statements
- Capital Market Story
- ESG Investment Story
- Roadshow Presentations
- Capital Markets Day Presentations
- Investor Update Presentations

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