

To Our Shareholders ——

# Management's Report

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# **Overview**

The Management's Report comprises the chapter of the same name on pages 17 to 124, as well as the disclosures required by takeover law, the Compensation Report and the Declaration of Corporate Governance, which are presented in the Corporate Governance chapter. The nonfinancial statement (NFS) is integrated into the Management's Report.

## Nonfinancial statement (NFS) in accordance with sections 315b and 315c of the German Commercial Code (HGB)

The NFS disclosures can be found in the relevant sections of the Management's Report. A table in the section "Integration of sustainability" on page 33 indicates where the individual disclosures can be found. In addition to a description of the business model, the NFS includes disclosures on the following matters, to the extent that they are required to understand the development and performance of the business, the Group's position and the impact of business development on the following matters:

- Environmental matters
- Employee-related matters
- Social matters
- Respect for human rights
- Anti-corruption and bribery matters

Within the scope of the audit of the annual financial statements, the external auditor KPMG checked pursuant to section 317(2) sentence 4 HGB that the NFS was presented in accordance with the statutory requirements. The Supervisory Board also engaged KPMG with a substantive audit with limited assurance of the NFS. An assurance report on this substantive audit can be found online at basf.com/nfs-audit and is part of the BASF Report 2017. The audit was conducted in accordance with ISAE 3000 (Assurance Engagements other than Audits or Reviews of Historical Financial Information) and ISAE 3410 (Assurance Engagements on Greenhouse Gas Statements), the relevant international auditing standards for sustainability reporting.

# Compensation Report and disclosures in accordance with section 315a HGB

The Compensation Report can be found in the Corporate Governance chapter from page 140 onward, and the disclosures required by takeover law in accordance with section 315a(1) HGB from page 132 onward. They form part of the Management's Report audited by the external auditor.

## Declaration of Corporate Governance in accordance with section 315d HGB in connection with section 289f HGB

The Declaration of Corporate Governance can be found in the Corporate Governance chapter from page 125 onward and is a component of the Management's Report. It comprises:

- The Corporate Governance Report including the description of the diversity concept for the composition of the Board of Executive Directors and the Supervisory Board (excluding the disclosures required by takeover law in accordance with section 315a(1) HGB)
- Compliance reporting
- The Declaration of Conformity pursuant to section 161 of the German Stock Corporation Act

Pursuant to section 317(2) sentence 6 HGB, the external auditor checked that the disclosures according to section 315d HGB were made.

# The BASF Group

## Verbund concept

Intelligent networking of production, technologies, employees and partners

Employees contribute to our success and that of our customers worldwide

In 80+ countries

# **Broad portfolio**

5 segments 13 operating divisions 86 strategic business units

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 115,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is arranged into five segments: Chemicals, Performance Products, Functional Materials & Solutions, Agricultural Solutions and Oil & Gas.

### **Organization of the BASF Group**

- Thirteen divisions grouped into five segments
- Regional divisions, functional units and corporate and research units support our business

Our 13 divisions are aggregated into five segments based on their business models. The divisions bear operational responsibility and are organized according to sectors or products. They manage our 55 global and regional business units and develop strategies for the 86 strategic business units. Our regional units are responsible for optimizing local infrastructure, and contribute to tapping our market potential. For financial reporting purposes, we organize the regional divisions into four regions: Europe; North America; Asia Pacific; South America, Africa, Middle East.

Eight functional units and seven corporate units support the BASF Group's business activities. The functional and corporate units provide services in areas such as finance, investor relations, communications, human resources, engineering and site management, as well as environmental protection, health and safety. Our research and development organization has around 10,000 employees in global research units and safeguards our innovative capacity and competitiveness.

Business processes are the shared responsibility of the divisions and the functional units. They closely coordinate the procurement of raw materials and services, production and transport to customers.

For more information on the products and services offered by the segments, see page 34

#### **BASF** structure

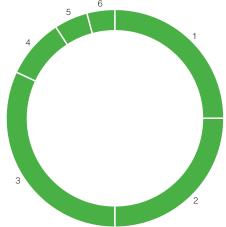
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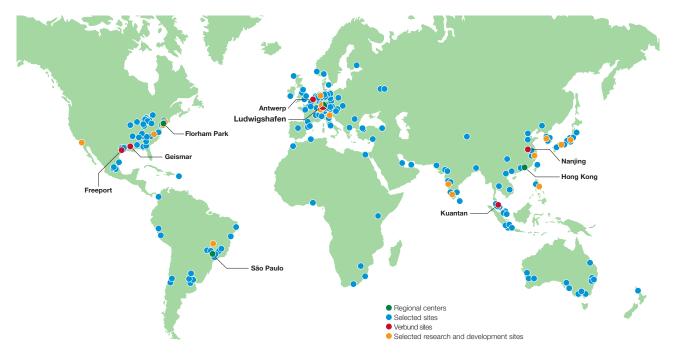
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Percentage of total sales in 2017

Chemicals	<ul><li>Petrochemicals</li><li>Monomers</li><li>Intermediates</li></ul>	25%
Performance Products	<ul> <li>Dispersions &amp; Pigments</li> <li>Care Chemicals</li> <li>Nutrition &amp; Health</li> <li>Performance Chemicals</li> </ul>	25%
Functional Materials & Solutions	<ul> <li>Catalysts</li> <li>Construction Chemicals</li> <li>Coatings</li> <li>Performance Materials</li> </ul>	32%
Agricultural Solutions	- Crop Protection	9%
Oil & Gas	– Oil & Gas	5%
Other		4%



#### **BASF** sites



### **Sites and Verbund**

- Six Verbund sites with intelligent plant networking
- 347 additional production sites worldwide
- Global Technology and Know-How Verbund

BASF has companies in more than 80 countries. We operate six Verbund sites and 347 additional production sites worldwide. Our Verbund site in Ludwigshafen, Germany, is the world's largest integrated chemical complex owned by a single company. This was where the Verbund principle was originally developed and continuously optimized before being implemented at additional sites.

The Verbund system is one of BASF's great strengths. Here, we add value as one company by using our resources efficiently. The Production Verbund intelligently links production units and their energy supply so that, for example, the waste heat of one plant provides energy to others. Furthermore, one facility's by-products can serve as feedstock elsewhere. This not only saves us raw materials and energy, it also avoids emissions, lowers logistics costs and leverages synergies.

We also make use of the Verbund principle for more than production, applying it for technologies, know-how, employees, customers and partners, as well. Expert knowledge is pooled in our global research platforms.

For more information on the Verbund concept, see basf.com/en/verbund

#### BASF sales by region 2017 (Location of customer)

1	Europe	45%	3
2	North America	24%	
3	Asia Pacific	22%	
4	South America, Africa, Middle East	9%	

#### Procurement and sales markets

- Around 130,000 customers; broad customer portfolio
- More than 70,000 suppliers

BASF supplies products and services to around 130,000 customers from various sectors in almost every country in the world. Our customer portfolio ranges from major global customers and medium-sized businesses to end consumers.

We work with over 70,000 suppliers from different sectors worldwide. They supply us with important raw materials, chemicals, investment goods and consumables, and perform a range of services. Some of our most important raw materials are naphtha, natural gas, methanol, ammonia and benzene.

C For more information on customers, see page 34; for more information on suppliers, see page 93 onward

## BASF sales by industry 2017

(Direct customers)

>20%	Chemicals and plastics
10–20%	Consumer goods   Transportation
5–10%	Agriculture   Construction   Energy and resources
<5%	Health and nutrition   Electronics

#### **Business and competitive environment**

BASF's global presence means that it operates in the context of local, regional and global developments and is bound by various conditions. These include:

- Global economic environment
- Legal and political requirements (such as European Union regulations)
- Trade agreements like the North American Free Trade Agreement (NAFTA)
- Environmental agreements (such as the E.U. Emissions Trading System)
- Social aspects (such as the U.N. Universal Declaration of Human Rights)

BASF holds one of the top three market positions in around 75% of the business areas in which it is active. Our most important global competitors include AkzoNobel, Clariant, Covestro, DowDuPont, DSM, Evonik, Formosa Plastics, Huntsman, SABIC, Sinopec, Solvay and many hundreds of local and regional competitors. We expect competitors from Asia and the Middle East in particular to gain increasing significance in the years ahead.

### **Corporate legal structure**

As the publicly traded parent company, BASF SE takes a central position: Directly or indirectly, it holds the shares in the companies belonging to the BASF Group, and is also the largest operating company. The majority of Group companies cover a broad spectrum of our business. In the BASF Group Consolidated Financial Statements, 286 companies including BASF SE are fully consolidated. We consolidate eight joint operations on a proportional basis, and account for 35 companies using the equity method.

For more information, see the Notes to the Consolidated Financial Statements from page 184 onward

# **Our strategy** Corporate strategy

## Purpose

We create chemistry for a sustainable future

Principles

As strategic basis for our success on the market

# Values

As guideline for our conduct and actions

With the "We create chemistry" strategy, BASF has set itself ambitious goals. We want to contribute to a sustainable future and have embedded this into our corporate purpose: "We create chemistry for a sustainable future."

In 2050, nearly 10 billion people will live on Earth. While the world's population and its demands will keep growing, the planet's resources are finite. On the one hand, population growth is associated with huge global challenges; and yet we also see many opportunities, especially for the chemical industry.

## Our corporate purpose

#### • We create chemistry for a sustainable future

We want to contribute to a world that provides a viable future with enhanced quality of life for everyone. We do so by creating chemistry for our customers and society and by making the best use of available resources.

We live our corporate purpose by:

- Sourcing and producing responsibly
- Acting as a fair and reliable partner
- Connecting creative minds to find the best solution for market needs

For us, this is what successful business is all about.

As an integrated global chemical company, we make important contributions in the following three areas:

- Resources, environment and climate
- Food and nutrition

World population growth

- Quality of life

In doing so, we act in accordance with four strategic principles.  $\ensuremath{\mathbb{Q}}$ 

## Our strategic principles

We add value as one company. Our Verbund concept is unique in the industry. Encompassing the Production Verbund, Technology Verbund and Know-How Verbund as well as all relevant customer industries worldwide, this sophisticated and profitable system will continue to be expanded. This is how we combine our strengths and add value as one company.

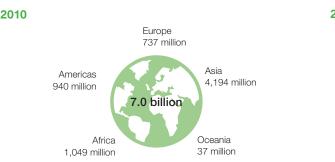
We innovate to make our customers more successful. We want to align our business optimally with our customers' needs and contribute to their success with innovative and sustainable solutions. Through close partnerships with customers and research institutes, we link expertise in chemistry, biology, physics, materials science and engineering to jointly develop customized products, functional materials, and system solutions as well as processes and technologies.

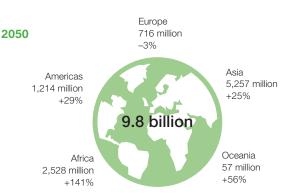
We drive sustainable solutions. In the future, sustainability will more than ever serve as a starting point for new business opportunities. That is why sustainability and innovation are becoming significant drivers for our profitable growth.

We form the best team. Committed and qualified employees around the world are the key to making our contribution to a sustainable future. Because we want to form the best team, we offer excellent working conditions and inclusive leadership based on mutual trust, respect and dedication to top performance.

For more information on innovation, see page 35 onward
 For more information on business opportunities with sustainability, see page 29 onward
 For more information on the Best Team Strategy,

see page 42 onward 🔍





#### Our values

Our conduct is critical for the successful implementation of our strategy: This is what our values represent. They guide how we interact with society, our partners and with each other.

**Creative:** In order to find innovative and sustainable solutions, we have the courage to pursue bold ideas. We link our areas of expertise from many different fields and build partnerships to develop creative, value-adding solutions. We constantly improve our products, services and solutions.

**Open:** We value diversity – in people, opinions and experiences. That is why we foster dialog based on honesty, respect and mutual trust.

**Responsible:** We act responsibly as an integral part of society. In doing so, we strictly adhere to our compliance standards. And in everything we do, we never compromise on safety.

Entrepreneurial: All employees contribute to BASF's success – as individuals and as a team. We turn market needs into customer solutions. We succeed in this because we take ownership and embrace accountability for our work.

#### Q

## Our focus areas

#### We set ourselves goals along the value chain for our focus areas

Sustainability is key to the company's long-term success and as such, is embedded into our corporate strategy. We have systematically formulated expectations for our conduct and defined focus areas to meet the growing challenges along the value chain:

- We source responsibly
- We produce safely for people and the environment
- We produce efficiently
- We value people and treat them with respect
- We drive sustainable products and solutions
- For more information on our materiality analysis, see basf.com/materiality
- $\bigcap$  For more information on our goals, see page 26 onward For more information on the integration of sustainability, see page 29 onward  $\bigcirc$

### The BASF brand

- Above-average awareness of, and trust in, BASF brand in chemical industry
- Corporate design updated

BASF's success as an integrated global chemical company relies on having a strong brand. This is derived from our strategy and our corporate purpose – "We create chemistry for a sustainable future" – as well as our strategic principles and values. "Connected" describes the essence of the BASF brand. Connectedness is one of BASF's great strengths. Our Verbund concept – realized in production, technologies, knowledge, employees, customers and partners – enables innovative solutions for a sustainable future. The claim that "We create chemistry," as stated in the BASF logo, helps us embed this solution-oriented strategy in the public perception. Our brand creates value by helping communicate its benefits for our stakeholders as well as our values.

Wherever our stakeholders encounter our brand, we want to convince them that BASF stands for connectedness, intelligent solutions, value-adding partnerships, an attractive working environment and sustainability. This contributes to our customers' confidence in their buying decisions and to our company value.

We are constantly developing our brand image. We regularly measure awareness of and trust in our brand, and therefore in our company. A global market research study conducted every two years showed in 2016 that, in terms of awareness and trust, BASF is above the industry average in numerous countries. Our goal is to continue increasing awareness of BASF in all of our relevant markets. In 2017, we updated our corporate design to be able to present our brand flexibly, uniformly and efficiently in a fast-moving media land-scape.

Q

## **Global standards**

- We act according to our values and internationally recognized standards of conduct
- We review our performance with audits

Our standards fulfill or exceed existing laws and regulations and take internationally recognized principles into account. We respect and promote:

- The 10 principles of the U.N. Global Compact
- The Universal Declaration of Human Rights and the two U.N. Human Rights Covenants
- The core labor standards of the ILO and the Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy (MNE Declaration)
- The OECD Guidelines for Multinational Enterprises
- The Responsible Care® Global Charter
- The German Corporate Governance Code

We stipulate rules for our employees with standards that apply throughout the Group. We set ourselves ambitious goals with voluntary commitments and monitor our performance in terms of the environment, health and safety using our Responsible Care Management System. In terms of labor and social standards, this takes place using three elements: the Compliance Program (including the compliance hotlines, which can be used for internal and external questions or complaints), close dialog with our stakeholders (such as with employee representatives or international organizations), and the global management process for the respect of international labor norms.

Our business partners are expected to comply with prevailing laws and regulations and to align their actions with internationally recognized principles. We have established monitoring systems to ensure this.

 For more information on labor and social standards, see page 47
 For more information on the Responsible Care Management System, see page 97

For more information on Corporate Governance, see page 127 onward

For more information on compliance, see page 135 onward

For more information on Supplier Standards, see page 93 onward  $\, {igangle}\,$ 

## Innovations for a sustainable future

Innovations in chemistry are indispensable to meeting the needs of the growing world population on a long-term basis. The development of innovative products and solutions is, therefore, of vital significance for BASF. In the long term, we aim to continue to significantly increase sales and earnings with new and improved products. Effective and efficient research lays the foundation for this. We believe that the digitalization of research offers great potential and are driving this forward around the world.

We are engaged in intensive research and development activities in our established business areas. One focus of our research is on the enhancement and innovative application of specific key technologies. They pool the diverse competencies of our international Research and Development Verbund to strengthen our competitive ability in the long-term. In addition, we are addressing clearly defined topics to drive forward innovation in new business fields and with new technologies above and beyond the current focus areas of our divisions. We are also working on overarching projects with a high technological, social or regulatory relevance. With our research, we aim to make a decisive contribution to innovative solutions for global challenges and contribute to sustainable development.

Our three global technology platforms are based in our key regions – Europe, Asia Pacific and North America: Process Research & Chemical Engineering (Ludwigshafen, Germany), Advanced Materials & Systems Research (Shanghai, China) and Bioscience Research (Research Triangle Park, North Carolina). We want to continue expanding our research and development activities on a global level. The stronger presence of our research and development in key markets opens up new opportunities to find appropriate solutions for regional markets, actively participate in worldwide innovation processes and gain access to talent.

For more information on innovation, see page 35 onward
 For more information on competition for talent, see page 43

#### Business expansion in emerging markets

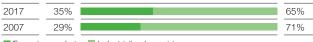
In the years ahead, we want to continue to grow in the emerging markets and expand our position there. We define the emerging markets as Greater China, the ASEAN countries,<sup>1</sup> India, Pakistan and Bangladesh; Central and South America; eastern Europe; the Middle East, Turkey and Africa. Today's emerging markets are expected to account for around 65% of global chemical production in 2025. We aim to benefit from the above-average growth in these regions, which is why we have invested more than a quarter of our capital expenditures<sup>2</sup> (excluding Oil & Gas) there in the past five years.

Growth in the emerging markets gathered pace slightly in 2017. This was attributable on the one hand to more positive developments in eastern Europe. The eastern European E.U. countries recorded dynamic growth and the Russian economy again improved slightly after two years of recession. In Brazil, too, the economic situation improved markedly over the course of the year. In China and the other Asian emerging markets, growth was slightly higher than in 2016, while India recorded a slight decline. Overall, economic growth in the region was roughly as strong as in the previous year. Growth in the Middle East slowed slightly, but increased somewhat in Africa.

Compared with 2016, sales (excluding Oil & Gas) at our companies located in the emerging markets rose by 13% to  $\in$ 16,853 million, largely as a result of significantly higher sales volumes and prices. Measured by customer location, we increased sales (excluding Oil & Gas) in the emerging markets by 15% to  $\in$ 21,496 million. This brought sales to customers in emerging markets to around 35% of total sales (excluding Oil & Gas) in 2017. In the years ahead, we want to continue expanding this percentage based on past and future investments.

 $\bigcap$  For more information on our goals, see page 26 onward  $\bigoplus$ 

#### Sales<sup>3</sup> in emerging markets



Emerging markets Industrialized countries

<sup>3</sup> Percentage of BASF Group sales (excluding Oil & Gas) by location of customer

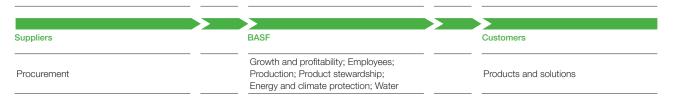
<sup>1</sup> Brunei, Indonesia, Malaysia, Myanmar, Cambodia, Laos, the Philippines, Singapore, Thailand, Vietnam

<sup>&</sup>lt;sup>2</sup> Excluding additions to property, plant and equipment resulting from acquisitions, capitalized exploration, restoration obligations and IT investments

# Goals

We carry out our corporate purpose, "We create chemistry for a sustainable future," by pursuing ambitious goals along our entire value chain. In this way, we aim to achieve profitable growth and take on social and environmental responsibility. We are focusing on issues where we as a company can make a significant contribution.

#### Goal areas along the value chain



#### **Procurement Q**

	2020 Goal	Status at end of 2017	More on
Assessment of sustainability performance of relevant suppliers; <sup>1</sup> development of action plans where improvement is necessary	70%	56%	Page 93

Our suppliers are evaluated based on risk due to the size and scale of our supplier portfolio. We define relevant suppliers as those showing an elevated sustainability risk potential as identified by our risk matrices and our purchasers' assessments. We also use further sources of information to identify relevant suppliers such as evaluations from Together for Sustainability (TfS), a joint initiative of chemical companies for sustainable supply chains.

## Growth and profitability

As determined in 2015, our aim for the years ahead is, on average, to grow sales slightly faster and EBITDA considerably faster than global chemical production (excluding pharmaceuticals; 2017: 3.5%; average change since 2015: 3.5%), and to earn a significant premium on our cost of capital. Moreover, we strive for a high level of free cash flow each year, either raising or at least maintaining the dividend at the prior-year level.

C For more information on our results of operations in 2017, see pages 51 to 55

For more information on our financial position, see pages 57 to 59

	2017	Change since 2016	Average change since 2015
Sales	€64.5 billion	12.0%	3.7% <sup>2</sup>
EBITDA	€12.7 billion	20.9%	13.1% <sup>2</sup>
Dividends per share paid out	€3.00	€0.10	
Premium on cost of capital	€2.7 billion		
Free cash flow	€4.8 billion		

<sup>2</sup> Baseline 2015: excluding the gas trading and storage business transferred to Gazprom

#### Employees Q

2021 Goal	Status at end of 2017	More on
22-24%	20.5%	Page 45
Long-term goals		
Increase in proportion of non-German senior executives (baseline 2003: 30%)	38.9%	Page 45
Proportion of senior executives with international experience over 80%	84.6%	Page 45
Systematic, global employee development as shared responsibility of employees and leaders based on relevant processes and tools	Project implemented worldwide	Page 44
	22-24%         Long-term goals         Increase in proportion of non-German senior executives (baseline 2003: 30%)         Proportion of senior executives with international experience over 80%         Systematic, global employee development as shared responsibility	22–24%       20.5%         Long-term goals

<sup>3</sup> The term "senior executives" refers to leadership levels 1 to 4, whereby level 1 denotes the Board of Executive Directors. In addition, individual employees can attain senior executive status by virtue of special expertise.

## **Production** $\bigcirc$

	2025 Goals	Status at end of 2017	More on
Reduction of worldwide lost-time injury rate per one million working hours	≤0.5	1.4	Page 98
Reduction of worldwide process safety incidents per one million working hours	≤0.5	2.0	Page 99
	Annual goal		
Health Performance Index	>0.9	0.97	Page 100

## Product stewardship $\mathsf{Q}$

	2020 Goal	Status at end of 2017	More on
Risk assessment of products that we sell in quantities of more than			
one metric ton per year worldwide	>99%	76.2%	Page 101

## Energy and climate protection $\ensuremath{\mathbb{Q}}$

	2020 Goal	Status at end of 2017	More on
Coverage of our primary energy demand by introducing certified energy management systems (ISO 50001) at all relevant sites <sup>4</sup>	90%	54.3%	Page 105
Reduction of greenhouse gas emissions per metric ton of sales product (excluding Oil & Gas, baseline 2002)	(40%)	(35.5%)	Page 105

<sup>4</sup> The selection of relevant sites is determined by the amount of primary energy used and local energy prices.

## Water $\mathbf{Q}$

	2025 Goals	Status at end of 2017	More on
Introduction of sustainable water management at all production sites in water stress areas and at all Verbund sites (excluding Oil & Gas)	100%	45.2%	Page 108

## Products and solutions $\ensuremath{\mathbb{Q}}$

	2020 Goal	Status at end of 2017	More on
Increase the proportion of sales generated by products that make a particular contribution to sustainable development (Accelerator			
products)	28%	27.3%	Page 32

# Value-based management

"We add value as one company" is one of the four principles of our "We create chemistry" strategy. To create value in the long term, a company's earnings must exceed the cost of stockholders' equity and borrowing costs. This is why we strive to earn a significant premium on our cost of capital. To ensure BASF's long-term success, we encourage and support all employees in thinking and acting entrepreneurially in line with our value-based management concept. Our goal: to create awareness as to how each and every employee can find value-oriented solutions in the company's day-to-day operations and implement these in an effective and efficient manner.

#### **EBIT** after cost of capital

#### Performance and management indicator

Income from operations (EBIT) after cost of capital is a key performance and management indicator for the BASF Group, its operating divisions and business units. This figure combines the company's economic situation as summarized in EBIT with the costs for the capital made available to us by shareholders and creditors. When EBIT exceeds cost of capital, we earn a premium on our cost of capital and exceed the return expected by our shareholders.

G For more information on the development of this key performance indicator, see the Results of Operations on page 53

#### Calculating EBIT after cost of capital

#### Cost of capital determined using cost of capital percentage and cost of capital basis

To calculate EBIT after cost of capital, we take the BASF Group's EBIT and deduct the EBIT of activities recognized under Other – not allocated to the segments – and subtract the cost of capital of the BASF Group from the resulting figure. **Cost of capital** is determined by applying the cost of capital percentage before taxes to the value of the cost of capital basis at each month-end. Monthly cost of capital is then added up over the course of the year.

The **cost of capital percentage** is determined using the weighted cost of capital from equity and borrowing costs (weighted average cost of capital, WACC). To calculate a pretax figure similar to EBIT, it is adjusted using the projected tax rate for the BASF Group for the business year. In addition, the projected net expense of Other is already provided for by an adjustment to the cost of capital percentage. The cost of equity is ascertained using the Capital Asset Pricing Model. Borrowing costs are determined based on the financing costs of the BASF Group.

The **cost of capital basis** consists of the operating assets of the segments plus the customer and supplier financing not included there. Operating assets comprise the current and noncurrent asset items used by the operating divisions.<sup>1</sup>

# Value-based management throughout the company

## Exercising a value-oriented mindset in day-to-day business by every employee

For us, value-based management means the daily focus placed on value by all of our employees. To this end, we have identified value drivers that show how each and every unit in the company can create value. We develop performance indicators for the individual value drivers that help us to plan and pursue changes.

An important factor in ensuring the successful implementation of value-based management is linking the goals of BASF to the individual target agreements of employees. In the operating units, the most important performance indicator is **EBIT after cost of capital**. By contrast, the functional units' contribution to value is assessed on the basis of effectiveness and efficiency.

All this forms a consistent system of value drivers and key indicators for the individual units and levels at BASF. In addition to EBIT after cost of capital, **EBIT and EBIT before special items** are the most significant performance indicators for measuring economic success as well as for steering the BASF Group and its operating units.

We primarily comment on EBIT before special items on a segment and division level in our financial reporting. **Special items** arise from the integration of acquired businesses, restructuring measures, impairments, gains or losses resulting from divestitures and sales of shareholdings, and other expenses and income that arise outside of ordinary business activities. Adjusting for special items makes EBIT before special items an especially suitable figure for illustrating development over time. In addition to EBIT before special items, we also report on **sales** as a further main driver for EBIT after cost of capital. BASF's nonfinancial targets are focused more on the long term, and are not used for short-term steering.

According to our value-based management concept, all employees can make a contribution in their business area to help ensure that we earn the targeted premium on our cost of capital. We pass this value-based management concept on to our team around the world through seminars and training events, thereby promoting entrepreneurial thinking at all levels within BASF.

For more information on the development of these performance indicators, see the Results of Operations on page 51 onward

# Integration of sustainability

Sustainability is an integral part of our corporate strategy. Using the various tools of our sustainability management, we carry out our company purpose: "We create chemistry for a sustainable future." We incorporate sustainability into our business. This is how we seize business opportunities and minimize risks along the value chain.

#### Strategy

- Ensuring long-term economic success
- Taking advantage of business opportunities and minimizing risks

We aim to add value in the long term for our company, the environment and society. Sustainability is at the core of what we do, a driver for growth as well as an element of our risk management. That is why we incorporate aspects of sustainability into our decision-making processes and have defined clear responsibilities in our organization. This is how we position our company for long-term economic success.

We have created structures to promote sustainable, entrepreneurial actions all the way from strategy to implementation. The Corporate Sustainability Board is BASF's central steering committee for sustainable development. It is composed of the heads of our business, corporate and functional units, and regions. A member of the Board of Executive Directors serves as chair. We have also established an external, independent Stakeholder Advisory Council. Here, international experts from academia and society contribute their perspectives to discussions with BASF's Board of Executive Directors, helping us expand our strengths and identify our potential for improvement.

Through our constant dialog with stakeholders, our internal analysis methods and our many years of experience, we are continuously refining our understanding of significant topics and trends as well as potential opportunities and risks along our value chain.

For example, we have defined sustainability focus areas within our corporate strategy. These formulate the commitments with which BASF positions itself in the market and how it aims to meet the growing challenges along the value chain:

- We source responsibly
- We produce safely for people and the environment
- We produce efficiently
- We value people and treat them with respect
- We drive sustainable products and solutions

Relevant topics resulting from these commitments – such as supply chain responsibility, responsible production, resource efficiency, energy and climate protection, water, product stewardship, employment and employability, and portfolio management – form the focal points of our reporting. We also integrate these topics into our long-term steering processes to ensure societal acceptance and take advantage of business opportunities.

- For more information on the organization of our sustainability management, see basf.com/sustainabilitymanagement
   For more information on our materiality analysis, see basf.com/materiality
- For more information on our financial and sustainability goals, see page 26 onward

#### Societal acceptance

- Constant dialog with our key stakeholders
- Global requirements for community advisory panels
- Social commitment

Sustainability management helps to minimize risks. This supports our long-term economic success and ensures societal acceptance of our business activities. We aim to reduce potential risks in the areas of environment, safety and security, health protection, product stewardship, compliance, and labor and social standards by setting ourselves globally uniform requirements. These often go beyond local legal requirements. Internal monitoring systems and grievance mechanisms enable us to check compliance with these standards: they include, for example, questionnaires, audits and compliance hotlines. All employees, managers and Board members are required to abide by our global Code of Conduct, which defines a mandatory framework for our business activities.

Our investment decisions for property, plant and equipment and financial assets also involve sustainability criteria. Our decision-making is supported by expert appraisals that assess economic implications as well as potential effects on the environment, human rights or local communities.

Our stakeholders include customers, employees, suppliers and shareholders, as well as representatives from academia, industry, politics, society and the media. Parts of our business activities, such as the use of new technologies, are frequently viewed by some stakeholders with a critical eye. In order to increase societal acceptance for our business activities, we take on these questions, assess our business activities in terms of their sustainability, and communicate this transparently. Such dialogs help us to even better understand society's expectations of us and which measures we need to pursue in order to establish and maintain trust and build partnerships.

We use a custom model to identify key stakeholders and involve them more effectively. When selecting our stakeholders, we assess factors such as their topic-specific expertise and willingness to engage in constructive dialog, for instance. We draw on the competence of global initiatives and networks, and contribute our own expertise. That is why we are involved in worldwide initiatives with various stakeholder groups, such as the U.N. Global Compact. BASF's Chairman of the Board of Executive Directors is a member of the United Nations Global Compact Board. As a member of the U.N. Global Compact LEAD initiative, we support the implementation of the Agenda 2030 and its Sustainable Development Goals. BASF is also active in local Global Compact networks.

We once again met with the Stakeholder Advisory Council in 2017 to discuss important aspects of sustainability. The main topics were strengthening sustainability in the corporate strategy and challenges in the supply chain. We received and implemented recommendations for our thematic focus areas. For example, we initiated a lighthouse project on the circular economy that is analyzing to what extent waste streams can be used as raw materials. In 2017, BASF joined the Ellen MacArthur Foundation's circular economy initiatives to drive forward existing approaches.

Our lobbying and political communications are conducted in accordance with transparent guidelines and our publicly stated positions. BASF does not financially support political parties. In the United States, employees at BASF Corporation have exercised their right to establish a Political Action Committee (PAC). The BASF Corporation Employee PAC is a voluntary, federally registered employee association founded in 1998. It collects donations for political purposes and independently decides how these are used, in accordance with U.S. law.

We have a particular responsibility toward our production sites' neighbors. With the established community advisory panels, we promote open exchange between citizens and our site management, and strengthen trust in our activities. In 2017, we updated our globally binding requirements for community advisory panels at our sites. These minimum requirements are oriented toward the grievance mechanisms outlined in the U.N. Guiding Principles for Business and Human Rights. We keep track of their implementation through the existing global databank of the Responsible Care Management System.

As a founding member of the U.N. Global Compact, we support the implementation of the United Nations' Sustainable Development Goals with our social commitment around the world. We promote social, educational, cultural, academic and sports projects as part of our social engagement strategy. The main aim of these projects is to have a lasting impact on society and offer learning opportunities for participating cooperation partners and BASF.

As a responsible neighbor, BASF strives to create a livable community for our sites' neighbors, employees and their families. To achieve this, BASF supports projects that reach out to as many people as possible and have long-term impact. One example is the Connected to Care program, where employees around the world form teams to carry out social projects together with nonprofit organizations. Employees can suggest their own ideas or get involved in BASF initiatives. We also aim to create long-term value for BASF and society with new business models and cross-industry partnerships. Our company-wide Starting Ventures program provides access to growing low-income markets. This helps people with precarious livelihoods to improve their income-earning opportunities and their quality of life. The program also strengthens our contribution to reaching the U.N. Sustainable Development Goals. In one project in Kenya and Tanzania, for example, local food supply and quality of life are improved by fortifying flour with micronutrients such as vitamin A. This reduces health risks for the population. To take advantage of these opportunities for the people there, BASF draws on an established network of local mills, nonprofit organizations and government authorities.

In the area of international development work, we support the BASF Stiftung, an independent nonprofit organization, through donations to its projects with various U.N. and nongovernmental organizations. In 2017, BASF supported various activities by the U.N. Refugee Agency (UNHCR) to give children in Kenyan refugee camps access to education with its annual year-end donation campaign to the BASF Stiftung. BASF doubled all donations by employees of German and African Group companies, bringing the total amount benefiting the refugee children in Kenya to €642,703. This total donation was again doubled to €1,285,405 by the German arm of the U.N. refugee agency.

The BASF Group spent a total of €56.0 million supporting projects in 2017; we donated 57% of this amount (2016: €47.0 million, of which 49.6% were donations).

# BASF Group donations, sponsorship and own projects in 2017 $(\mbox{million}\ \mbox{€})$

		2017	Share	6
1	Social projects	21.4	38.2%	5
2	Education	16.6	29.7%	4
3	Culture	5.1	9.1%	€56.0 million
4	Science	2.9	5.2%	3
5	Sports	2.7	4.8%	
6	Other	7.3	13.0%	
_				2

For more information on stakeholder dialog, see basf.com/en/dialog
 For more information on the Stakeholder Advisory Council, see basf.com/en/stakeholder-advisory-council
 For more information on our guidelines for responsible lobbying, see basf.com/guidelines\_political\_communication
 For more information on Starting Ventures, see basf.com/en/starting-ventures

For more information on our production standards, see page 98 onward For more information on standards in our supply chain, see page 93 onward

For more information on compliance and our Code of Conduct, see page 135 onward  $% \left( {\left[ {{{\rm{CON}}} \right]_{\rm{CON}}} \right)_{\rm{CON}} \right)$ 

#### **Responsibility for human rights**

#### Implementation of grievance mechanisms at production sites evaluated

BASF acknowledges its responsibility to respect human rights. In our own business activities, our aim is to prevent human rights abuses. As a participant in numerous global value chains, we are dependent on partners and demand that they likewise respect human rights and the associated standards. We offer to help our partners in their efforts to meet their human rights responsibilities.

We integrate human rights criteria into our business activities as standard: due diligence processes in investment, acquisition and divestiture projects, in product assessments along the product lifecycle, in supplier evaluation processes, in training for security personnel at our sites, as well as in systems to monitor labor and social standards.

Employees and third parties can report suspected or actual violations of laws or company guidelines to our compliance hotline. The hotline received 193 human rights-related complaints in 2017. All complaints received are reviewed and forwarded to the relevant departments for in-depth investigation. If justified, suitable measures are taken to address the issue.

We also documented the implementation of our minimum standards on grievance mechanisms as part of the community advisory panels at all production sites worldwide in 2017. These are based on the U.N. Guiding Principles on Business and Human Rights. Building on this, in 2018 we aim to ensure the uniform application of these standards at sites with an established local grievance mechanism.

BASF is part of the Global Business Initiative on Human Rights (GBI). This group of globally operating companies from various sectors aims to ensure implementation of the U.N. Guiding Principles on Business and Human Rights. In 2017, we again consulted with representatives of civil society at an international and national level on an ongoing basis, which provided valuable input for our measures.

- For more information on our human rights position, see basf.com/humanrights and pages 47 and 135
- G For more information on labor and social standards, see page 47 onward

For more information on our production standards, see page 98 onward For more information on standards in our supply chain,

see page 93 onward

For more information on compliance, see page 135 onward

# Measuring value added by sustainability and harnessing business opportunities

 Value to Society: method for assessing economic, environmental and social impact of business activities along the value chain

We take advantage of business opportunities by offering our customers innovative products and solutions that contribute to sustainable development. We ensure that sustainability criteria are integrated into our business units' development and implementation of strategies, research projects and innovation processes. For example, we analyze sustainability-related market trends in customer industries to systematically exploit new business opportunities.

We want to measure the value proposition of our actions along the entire value chain, aware that our business activities are connected to both positive and negative impacts on the environment and society. We strive to increase our positive contribution to society and minimize the negative effects of our business activities.

In order to achieve this, we need to understand how our actions impact society and the environment. We already have many years of experience evaluating our products and processes using methods such as eco-efficiency analyses, the Sustainable Solution Steering<sup>®</sup> portfolio analysis, or BASF's corporate carbon footprint.

Building on this, BASF has developed a method with external experts to perform a monetary assessment of the economic, ecological, and social impacts of its business activities along the value chain – the Value to Society approach. It enables a direct comparison between financial and nonfinancial effects on society, along with how these interact.

This transparency supports the integrated character of our actions, contributing to BASF's long-term success. The results of these assessments are helpful in our discussions with stakeholders, in internal progress measurements, and in decisionmaking processes.

We contribute our approach and expertise to current debates on the monetary value of the economic, environmental and social impact of business decisions. We share our experience in networks and are involved in the corresponding standardization processes within the International Organization for Standardization (ISO).

Among other initiatives, BASF has participated in the Coalition for Inclusive Capitalism's Embankment Project since 2017. In the project, leading global companies and investors are working on a common understanding of how companies can create value over the long term. The initiative aims to strengthen trust in business and in this way, generate long-term corporate value.



#### Sustainable Solution Steering®: How BASF's products contribute to sustainability

As well as measuring the impacts of our operations, our business activities are guided by sustainability considerations.

For more information on this method and the results of Value to Society, see basf.com/en/value-to-society

For more information on our sustainability instruments, see basf.com/en/measurement-methods and page 95

# Portfolio management based on sustainability performance

 Sustainable Solution Steering<sup>®</sup> method to manage our product portfolio

A significant lever for the steering of our product portfolio, based on the sustainability performance of our products, is the Sustainable Solution Steering<sup>®</sup> method.

By the end of the 2017 business year, BASF had conducted sustainability assessments and ratings for 97.5% of its entire relevant portfolio<sup>1</sup> of more than 60,000 specific product applications – which account for €58.4 billion in sales. We consider the products' application in various markets and industries. Because of increasing sustainability requirements on the market, we regularly conduct reassessments of existing product categories as well as of the relevant portfolio.

#### 2020 Goal

Increase proportion of sales generated by Accelerator products



Accelerator products make a particular contribution to sustainability in the value chain. That is why we want to increase the proportion of sales from Accelerator products to 28% by 2020.

Transitioners are products with specific sustainability challenges that are being actively tackled. We are developing plans of action for all products classified as challenged, even in the case of portfolio revisions and product reassessments. These action plans include research projects, reformulations or even replacing one product with an alternative product. At the end of 2017, action plans had been created for 100% of challenged products.

We played a leading role in the development of a crossindustry framework for portfolio sustainability assessments published by the World Business Council for Sustainable Development (WBCSD) in November 2017, contributing our many years of expertise in the application of this method.

For more information on Sustainable Solution Steering<sup>®</sup>, see basf.com/en/sustainable-solution-steering

## Nonfinancial statement (NFS) in accordance with sections 315b and 315c of the German Commercial Code (HGB)

In order to meet the new reporting requirements of the CSR Directive Implementation Act, we conducted an additional internal analysis based on the materiality criteria defined by the legislation in 2017. Findings of a systematic survey already conducted internally were used to analyze the effects of sustainability topics along the value chain on BASF's business. We were able to derive BASF's impact along the value chain on the nonfinancial matters defined by the legislation based on the results of the Value to Society method. The nonfinancial statement (NFS) in accordance with sections 315b and 315c of the German Commercial Code is integrated into the Management's Report.

The NFS disclosures can be found in the relevant sections of the Management's Report and have been prepared in accordance with the new Global Reporting Initiative Standards ("Comprehensive" application option) and the reporting requirements of the U.N. Global Compact. Both the NFS disclosures and our sustainability reporting based on the GRI standards have undergone an audit with limited assurance by our auditor.<sup>1</sup> The table below indicates the sections and subsections in which the individual NFS disclosures can be found.

- $\square$  For more information on nonfinancial disclosures, see page 19
- An assurance report on the substantive audit of the nonfinancial statement can be found online at basf.com/nfs-audit
   An assurance report on the sustainability information in the BASF Report 2017 can be found online at

basf.com/sustainability\_information

Q

### Nonfinancial statement (NFS) disclosures in the relevant chapters of the integrated report $\, \mathbb{Q}$

NFS disclosure	Topics	Concepts
Business model	The BASF Group	Page 20–22
Environmental matters	Process safety	Page 27 (goals) Pages 97 and 99 (goals, measures, results)
	Emergency response and corporate security	Pages 97 and 100 (goals, measures, results)
	Product stewardship	Page 27 (goals) Pages 97 and 101–102 (goals, measures, results)
	Transportation and storage	Pages 97 and 103 (goals, measures, results)
	Energy and climate protection	Page 27 (goals) Pages 97 and 104–107 (goals, measures, results)
	Water	Page 27 (goals) Pages 97 and 108–109 (goals, measures, results)
	Emissions to air	Pages 97 and 110 (goals, measures, results)
	Management of waste and contaminated sites	Pages 97 and 110 (goals, measures, results)
	Portfolio management	Page 27 (goals) Page 32 (goals, measures, results)
	Suppliers	Page 26 (goals) Pages 93–94 (goals, measures, results)
Employee-related matters	Occupational safety	Page 27 (goals) Pages 97, 98–99 (goals, measures, results)
	Health protection	Page 27 (goals) Pages 97 and 100 (goals, measures, results)
	Competition for talent	Page 43 (goals, measures, results)
	What we expect from our leaders	Page 44 (goals, measures, results)
	Learning and development	Page 26 (goals) Page 44 (goals, measures, results)
	Inclusion of diversity	Page 26 (goals) Page 45 (goals, measures, results)
	Compensation and benefits	Page 46 (goals, measures, results)
	Employees participate in the company's success	Page 46 (goals, measures, results)
	Dialog with employee representatives	Page 47 (goals, measures, results)
	Global labor and social standards	Page 47 (goals, measures, results)
	Suppliers	Page 26 (goals) Pages 93–94 (goals, measures, results)
Social matters	Societal acceptance	Pages 29–30 (goals, measures, results)
Respect for human rights	Responsibility for human rights	Page 31 (goals, measures, results)
isopeet for numaring its	Global labor and social standards	Page 47 (goals, measures, results)
	Suppliers	Page 26 (goals, measures, results) Pages 93–94 (goals, measures, results)
Anti-corruption and bribery matters	Compliance	Pages 135–136 (goals, measures, results)
	Suppliers	Page 26 (goals) Pages 93–94 (goals, measures, results)
		Pages 93–94 (goals, measures, results)

1 Key:

The content of this paragraph (symbol at the end of the paragraph) or section (symbol below the section) is not part of the statutory audit of the annual financial statements but has undergone a separate audit with limited assurance by our external auditor.

 $\underline{Q}$  If the symbol is underlined, it is relevant to the entire section.

# Customers

## Around 130,000

Customers from almost all sectors and countries in the world Innovative In close partnership with our customers

# Flexible

Thanks to in-depth expertise and wide range of resources

BASF supplies products and services to around 130,000 customers from various sectors in almost every country in the world. Our customer portfolio ranges from major global customers and medium-sized businesses to end consumers.

## **Customer industry orientation**

### Innovations and tailored solutions in close partnership with our customers

Our broad portfolio – from basic chemicals to high value-added products and system solutions – means that we are active in many value chains and value creation networks. As a result, we work with a wide range of business models, which we flexibly adapt to the needs of individual industries. This industry orientation is primarily driven forward and enhanced by the divisions. Around half of our business units are oriented toward specific industries.

The close alignment of our business with our customers' needs is a key element in our "We create chemistry" strategy. Our ability to combine in-depth expertise with a wide range of resources to meet specific demands enables us to position BASF as a solution-oriented system provider. We engage in close partnerships with customers in which we develop innovations and tailored solutions together and optimize processes and applications.

Our comprehensive understanding of value chains and value creation networks as well as our global setup and market knowledge are key success factors.

## Q

#### **Quality management**

Our customers' satisfaction is the basis for long-term business success, which is why quality management is of vital significance for BASF. We strive to continually improve processes and products. This is also reflected in our Global Quality Policy. The majority of BASF's production sites and business units are certified according to ISO 9001.<sup>1</sup> In addition, we also meet industry- and customer-specific quality requirements that go beyond the ISO standard.

#### Products and customer relations in the segments

The business models used in our divisions are constantly assessed and refined. We continually adapt our offering to the changing market conditions – such as growing digitalization – to secure our competitiveness.

The **Chemicals** segment comprises the classic chemicals business with basic chemicals and intermediates. The focus is on cost leadership in our value chains, efficient and reliable production and logistics processes as well as process innovation.

The **Performance Products** segment concentrates on tailored solutions. These enable our customers to improve the application properties of their products or optimize production processes, for example. Close customer contact and meeting the demanding requirements of a wide range of industries are crucial to business success.

The **Functional Materials & Solutions** segment bundles our businesses with innovative products as well as system solutions and services for specific sectors and customers. An in-depth understanding of applications, the development of innovations in close cooperation with customers and adaptation to different regional needs are key success factors.

In the **Agricultural Solutions** segment, we help farmers to be successful in the complex world of modern agriculture. We offer them innovative solutions, including solutions based on digital technologies, combined with practical, pragmatic expertise to optimize agricultural production and increase the profitability of their farms.

In the **Oil & Gas** segment, we focus on exploration and production in oil and gas-rich regions in Europe, North Africa, Russia, South America and the Middle East. We benefit from strong partnerships and our technological expertise. Together with our Russian partner Gazprom, we are also active in the transportation of natural gas in Europe.

A For more information on the segments, see pages 62, 68, 75, 81 and 85 onward

# Innovation

## Around 10,000

Employees in research and development worldwide

Spent on research and development

€1,888 million

Around 3,000 Projects in research pipeline

A growing need for food, energy and clean water, limited resources and a booming world population – reconciling all these factors is the greatest challenge of our time. Innovations based on chemistry play a key role here, as they contribute decisively to new solutions. Effective and efficient research and development is a prerequisite for innovation as well as an important growth engine for BASF. We develop innovative processes and products for a sustainable future and drive forward digitalization in research worldwide. This is how we ensure our longterm business success with chemistry-based solutions for almost all sectors of industry.

For BASF, innovation is the key to successfully standing out from the crowd in a challenging market environment. Our innovative strength is based on a global team of highly qualified employees with various specializations. We had around 10,000 employees involved in research and development in 2017. Our three global technology platforms are run from our key regions – Europe, Asia Pacific and North America: Process Research & Chemical Engineering (Ludwigshafen, Germany), Advanced Materials & Systems Research (Shanghai, China) and Bioscience Research (Research Triangle Park, North Carolina). Together with the development units in our operating divisions, they form the core of our global Know-How Verbund. BASF New Business GmbH and BASF Venture Capital GmbH supplement this network with the task of using new technologies to tap into attractive markets and new business models for BASF.

In 2017, we generated sales of over €9 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 continue significantly increasing sales and earnings with new and improved products.

#### **Global network**

#### Network with around 600 universities, research institutes and companies

Our global network of about 600 universities, research institutes and companies forms an important part of our Know-How Verbund. We collaborate with them in many different

disciplines. The direct access to external scientific expertise, new technologies and talented minds from various disciplines helps us to strengthen our portfolio with creative new projects. For instance, we are working on innovative materials for electrochemical energy storage with the Karlsruhe Institute of Technology (KIT) at the BELLA (Battery and Electrochemistry

Laboratory) joint laboratory.

We use the Creator Space® approach developed by BASF to generate innovative ideas and continuously promote dialog with customers, partners and suppliers. We draw on cutting-edge innovation methods here.

In our excellence program UNIQUE – The BASF Academic Partnership Program, we are working with fifteen leading universities around the world. BASF also runs four postdoctoral centers that pool collaborations with several research groups on a regional level.

The North American Center for Research on Advanced Materials (NORA) and the California Research Alliance (CARA) postdoctoral centers are located in the United States. In 2017, BASF extended the cooperation between NORA and its academic partners by another five years and celebrated the 10-year anniversary of the partnership with Harvard University. Focus areas include materials science, bioscience, catalysis research, digitalization and cooperation has been working on new functional materials and in the area of biosciences for three years now. It has established more than 25 research projects, which have resulted in many scientific discoveries and patent applications. In 2017, we announced that the collaboration between CARA researchers and BASF experts will continue for another five years.

The Joint Research Network on Advanced Materials and Systems (JONAS) postdoctoral center is active in Europe, while the Network for Asian Open Research (NAO) covers the Asia Pacific region. The Network for Advanced Materials Open Research was renamed the Network for Asian Open Research in 2017 after NAO's research projects were expanded to include process research, chemical engineering and biosciences.

#### Strategic focus

- Innovation approach with strong focus on customers and markets
- Globalizing research and strengthening regional competencies

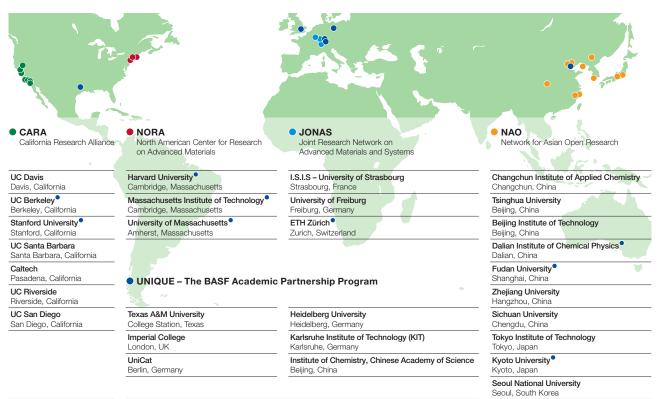
In 2017, our **research pipeline** comprised approximately 3,000 projects. **Expenses** for research and development amounted to around  $\in$ 1,888 million, just above the prior-year level ( $\in$ 1,863 million). The operating divisions accounted for 80% of total research and development expenses in 2017. The remaining 20% related to cross-divisional corporate research focusing on long-term topics of strategic importance to the BASF Group. We strive to maintain a high level of spending on research and development.

The needs of our customers are the starting point for chemistry-based innovations, requiring market-driven research and development. Creativity, efficiency and collaboration with external partners are among the most important success factors. In order to bring promising ideas to market as quickly as possible, we regularly assess our research projects using a multistep process and align our focus areas accordingly. The aim of our **innovation approach** is to increase our company's power of innovation and to secure our long-term competitiveness. We aim to achieve this by concentrating our research focus on topics that are strategically relevant for our business, strengthening our existing scientific processes and increasingly using new scientific methods and digital tools, and optimizing our organizational structures.

Our cross-divisional corporate research is closely aligned with the requirements of our operating divisions and allows considerable space to quickly review creative research approaches. We strengthen existing and continually develop new key technologies that are of central significance for our operating divisions. Examples include polymer technologies, catalyst processes or biotechnological methods.

We continued to refine our innovation approach in 2017 and have identified additional, far-sighted topics that go above and beyond the current focus areas of our divisions to drive innovation in new business fields and with new technologies. The aim is to use these to exploit new business opportunities within the next few years. We are also working on overarching projects that are highly relevant from a technological, societal or regulatory point of view.

In 2017, we continued to work on the systematic application of digital technologies in research and development. In the



#### Global network: postdoc centers and UNIQUE excellence program

Also a partner of the UNIQUE program

years ahead, we plan to consistently expand existing expertise in fields like modeling and simulation and to develop new digital applications.

Our **global research and development presence** is vital to our success. We want to continue advancing our research and development activities, particularly in Asia as well as in North America, and are adapting this to growth in regional markets. A stronger presence outside Europe creates new opportunities for developing and expanding customer relationships and scientific collaborations as well as for gaining access to talented employees. This strengthens our Research and Development Verbund and makes BASF an even more attractive partner and employer.

In addition to the Innovation Campus Shanghai (previously Innovation Campus Asia Pacific) which opened in 2015, we inaugurated the Innovation Campus Mumbai in 2017 to further increase our research capacity in Asia. The new Campus brings together existing and new research and development activities in Mumbai, India, under one roof, where up to 300 scientists focus on crop protection and process development.

Ludwigshafen remains the largest site in our Research Verbund. This is underscored by the investment in the world's largest supercomputer for research in the chemical industry, which was put into operation in 2017. With a computing power of 1.75 petaflops,<sup>1</sup> Quriosity offers around 10 times the computing power previously available to BASF researchers worldwide. In collaboration with the Hewlett Packard Enterprise group, the new supercomputer was custom designed for chemical research and will drive forward the digitalization of BASF research globally.

The number and quality of our patents also attest to our power of innovation and long-term competitiveness. We filed around 800 new patents worldwide in 2017. In 2017, we once again ranked among the leading companies in the Patent Asset Index, a method that compares patent portfolios industry-wide.

 $\bigcap$  For a multiyear overview of research and development expenditures, see the Ten-year summary on page 247

#### **Research focus areas – examples**

- Increased use of digital technologies
- Expansion of business activities in 3D printing

Our focus areas in research are derived from the three major areas in which chemistry-based innovations will play a key role in the future: resources, environment and climate; food and nutrition; and quality of life. In 2017, BASF researchers from the Process Research & Chemical Engineering technology platform demonstrated the enormous potential of **digitalization** in research. For the first time, researchers were able to systematically analyze the existing data on catalysts used in the production of the intermediate product ethylene oxide, leading to valuable insights. The correlations between the formulations and the application properties of the catalysts allow their performance and lifetime to be predicted more accurately and faster.

A further example is the data-based optimization for the production of dirt-resistant, water-based coatings used in the furniture industry, for instance. Using electronic data from previous experiments, researchers from the Advanced Materials & Systems Research technology platform were able to quickly determine a successful formulation. Through the combination of laboratory work and virtual experiments, they were able to create new coatings that meet customer demands in a very short time.

We also use data mining methods to gain new insights from very large quantities of existing data. In biotechnology, for example, data mining helps to identify promising enzymes or suitable bacteria more quickly as part of product or process development. This work comes under our Bioscience Research technology platform.

**3D** printing involves the development of innovative materials. In the chemical industry, BASF already has a broad portfolio with materials, system solutions, components and services. In 2017, BASF New Business GmbH established BASF 3D Printing Solutions GmbH in Heidelberg, Germany, to continue the targeted expansion of the business. As a wholly owned subsidiary of BASF, it works closely together with researchers and application engineers from BASF as well as external partners, such as universities and customers.

In addition, BASF New Business GmbH acquired the filament producer Innofil3D B.V. headquartered in Emmen, Netherlands, in 2017. We can now provide both plastic granulates and filaments for 3D printing. These long, thin plastic fibers are used in fused filament fabrication, a special 3D printing process that manufactures items layer by layer from meltable plastic.

Our competence in the area of material development for 3D processes is demonstrated by the filament Ultrafuse 316LX. It was specially developed for a new process on the market for metal printing and has been in use since 2017. The product makes it easier to print 3D metal parts inexpensively and reliably.

For more information on research and development, see basf.com/innovations

Research and development expenses by segment 2017



**Chemicals:** Our specialty monomers enable innovation in our customers' downstream applications. These include a new application with **tertiary butylacrylate (tBA) in decorative paints**. tBA is primarily used as a functional component in water-based exterior paints. Our customers can use tBA to fomulate dispersions that improve the specific properties of their exterior paints – such as weathering and surface adhesion – without increasing production costs.

BASF's constant stream of new ideas has secured its position as the technology leader and largest supplier of hydrosulfites for over 100 years. These bleaching and reducing agents are used in paper production, for example. The new **Adlite**<sup>®</sup>, a hydrosulfite for the paper industry, testifies to our innovative strength. Adlite<sup>®</sup> improves the entire paper production process and makes it more flexible. It enables our customers to achieve a higher degree of whiteness with the same raw materials and in this way, manufacture higher quality paper. At the same time, Adlite<sup>®</sup> saves energy and mitigates the impact on the environment, resulting in lower wastewater residues.

BASF is one of the leading global providers in the field of gas treatment. Our OASE<sup>®</sup> brand portfolio ranges from gas treatment agents to licenses for gas treatment processes and the planning of plants. We have further developed our business model and systematically expanded our service offering with the new **OASE<sup>®</sup> connect** online platform, which is particularly attractive for customers at remote locations. Special software enables them to find the optimum technical settings for their plants and manage them more efficiently, achieving energy savings of up to 20% in the form of electricity and steam and significantly reducing operating costs at the same plant output.

**Performance Products: Acronal® 6292** is a new styrene acrylic binder that enables the production of more environmentally friendly scrub resistant interior wall paints. The polymer's high pigment binding power also means that less binder is required to produce a scrub resistant paint. This offers a cost advantage for paint manufacturers. Acronal® 6292 can also be used to produce low-emission paints without biocides

- preservatives needed to prevent bacterial growth in traditional water-based paints.

Fibroblasts are important cells in the skin, which contribute to skin regeneration. When they lose their vitality, the skin loses its resilience and elasticity. **Dermagenist**<sup>®</sup>, a marjoram leaf extract developed by BASF, restores the skin's density and firmness. It inhibits the fibroblast ageing process and stimulates the cells to produce structural proteins in the connective tissue.

**Pronovum** is a new BASF technology in the area of omega-3 food supplements. Intake of Omega 3 can help improve consumers' coronary and cognitive health. Independent studies have shown that the body processes omega-3 fatty acids formulated with Pronovum four times better than conventional, highly concentrated omega-3 fatty acids in the form of the chemical compound ethyl ester. Pronovum is a patented mixture of omega-3 oils in a new formulation that can be accessed much better by digestive enzymes.

"Cool roofs" are more reflective and so do not heat up as much in direct sunlight. Roofing membranes made from thermoplastic polyolefins (TPO) are an energy-saving and cost-efficient solution here. BASF now offers new **plastic additive systems** that are customized for such TPO roof membrane applications. Combinations of the light stabilizers Chimassorb<sup>®</sup> and Tinuvin<sup>®</sup>, the antioxidants Irganox<sup>®</sup> and Irgafos<sup>®</sup> as well as customer-specific plastic additive mixtures with minimal dust formation protect TPO membranes from the damaging effects of sunlight, extending their lifetime by up to 30 years.

**Functional Materials & Solutions: Formaldpure**<sup>®</sup> is a new catalyst from BASF, which removes the pollutant formaldehyde at room temperature with high conversion efficiency. It is suitable for use in a wide range of portable and large-scale air purification equipment. Formaldehyde is used in the manufacture of building materials and household products, so it is found in homes and buildings as an indoor pollutant. BASF's Formaldpure<sup>®</sup> is a thorough, long-life technology that removes formaldehyde from indoor environments and reduces the costs otherwise associated with frequent filter changes.

BASF's **MasterSeal 7000 CR** waterproofing system protects concrete structures in wastewater and biogas plants exposed to high concentrations of chemicals such as sulfuric acid. MasterSeal 7000 CR bridges cracks in concrete to prevent penetration by aggressive substances. This prolongs the lifetime of concrete structures, contributes to sustainable water management and simultaneously reduces maintenance costs. MasterSeal 7000 CR is easy to work with and even adheres to humid substrates. The quick hardening time allows water contact only 24 hours after application, reducing downtimes – an important factor in wastewater management. Thanks to the biomass balance method developed by BASF, we are able to flexibly replace fossil resources in our current Verbund system with sustainably generated bio-based raw materials by feeding biogas and bionaphtha directly into the value chain at the very beginning. The first **biomass-balanced products** have now been introduced in the area of **automotive refinish coatings**. The share of raw materials replaced by renewable raw materials in the Production Verbund is allocated to certain refinish coating products according to certified methods. Coatings in this category add ecological value by saving on fossil-based raw materials while maintaining their usual qualities.

The specialty polyamide **Ultramid® Deep Gloss** picks up on the trend toward higher quality and functionalized surfaces in car interiors. Ultramid® Deep Gloss is suitable for high gloss yet resistant components without the need for coating. It offers excellent resistance to scratching along with high chemical and good UV resistance. The material reproduces even the smallest structures true to detail, making haptic design elements and intuitive user interfaces possible – similar to a touchscreen. Demand for new operating concepts like this will continue to grow in the transition to autonomous driving. Ultramid® Deep Gloss also takes into account the automotive industry's demands with respect to emissions and odor.

Agricultural Solutions: We are working with farmers around the globe to improve the quality and yield of their agricultural production while taking societal expectations and requirements into consideration. To achieve this, we constantly invest in our development pipeline in order to expand our portfolio both in and beyond conventional crop protection – such as in biological solutions. In 2017, we invested €507 million in research and development in the Crop Protection division, representing around 9% of sales for the segment.

Our well-stocked **innovation pipeline** comprises products with a launch date between 2017 and 2027. With a peak sales potential<sup>1</sup> of  $\in$ 3.5 billion, the pipeline includes innovations from all business areas. The first market launches of **Revysol**<sup>®</sup>, our new fungicide, are scheduled for the 2019 growing season following registration with the relevant authorities. A new herbicide with a unique mode of action to control key weeds in

cereal should come on the market in 2019. The market introduction of the new insecticide **Inscalis**<sup>®</sup> to combat piercingsucking pests is planned for 2018. Another new insecticide, **Broflanilide**, which helps farmers control chewing insects like potato beetles and caterpillars in specialty and field crops, should be on the market from 2020. In Functional Crop Care, we are pushing ahead with the market introduction of **Velondis**<sup>®</sup>, for example, a biological fungicide for seed treatment. This is planned for 2018.

Digital innovations are also a key focus in the Crop Protection division. One example from digital agriculture is the online platform **Maglis®** that was launched in 2016, which offers farmers agronomic information and combines this with IT solutions and expertise from BASF. Maglis® is used by farmers worldwide – and we are constantly enhancing it. We are already testing new applications such as the automated diagnosis of plant diseases based on photo analysis.

□ For more information on Revysol<sup>®</sup>, see page 82

**Oil & Gas:** The Wintershall Group concentrates its innovationrelated activities on improving the success rate of exploration, developing technologies for reservoirs with challenging development and production conditions, and increasing the recovery factor of reservoirs.

Wintershall is working on the development of heatresistant and salt-tolerant surfactants together with the Performance Chemicals division. These substances are used in enhanced oil recovery to mobilize the oil trapped in the pores of the rock. Conventional surfactants often cannot be used because of the high temperatures and high salt concentrations of many reservoirs, especially in regions such as the Middle East, North Africa or in the North Sea. The research project is currently in the laboratory phase.

# Investments, acquisitions and divestitures

# €4,121 million

In investments made in 2017

# €243 million

Used for acquisitions in 2017

# Optimization

Of our portfolio through acquisitions, divestitures and cooperative partnerships

### In addition to innovations, investments and acquisitions make a decisive contribution toward achieving our ambitious growth goals. We use targeted acquisitions to supplement our organic growth.

By investing in our plants, we create the conditions for our desired growth while constantly improving the efficiency of our production processes. For the period from 2018 to 2022, we have planned investments in property, plant and equipment<sup>1</sup> totaling €19.0 billion. We also continue to develop our portfolio through acquisitions that promise above-average profitable growth, are driven by innovation, offer added value for our customers, and reduce the cyclicality of our earnings. Investments and acquisitions alike are prepared by interdisciplinary teams and assessed using diverse criteria. In this way, we ensure that economic, environmental and social concerns are included in strategic decision-making.

 $\bigcap$  For more information on our investments from 2018 onward, see page 124

#### Investments and acquisitions 2017 (million ${\ensuremath{\in}})$

	Invest- ments	Acquisi- tions	Total
Intangible assets	101	235	336
Thereof goodwill	_	97	97
Property, plant and equipment <sup>2</sup>	4,020	8	4,028
Total	4,121	243	4,364

#### Investments

We invested  $\leq$ 4,020 million in property, plant and equipment in 2017. Total investments were therefore  $\leq$ 202 million lower than in the previous year and  $\leq$ 434 million above the level of depreciation<sup>3</sup> in 2017. Our investments in 2017 focused on the Chemicals, Functional Materials & Solutions and Oil & Gas segments.

In Europe, we largely concluded the investment in our integrated TDI complex at the Ludwigshafen site. We will strengthen the Ludwigshafen Verbund site by replacing our acetylene plant, which occupies a central role for many products and value chains, with a modern, highly efficient plant by 2019. We are also constructing another production plant for special zeolites in Ludwigshafen. Special zeolites are used to produce state-of-the-art exhaust catalysts for commercial vehicles and passenger cars with diesel engines. Production startup is scheduled for 2019. At the site in Antwerp, Belgium, we completed the technical retrofitting of the superabsorbent plant, where the superabsorbent products Saviva® and HySorb® can be produced.

In North America, we are constructing an ammonia production plant in Freeport, Texas, together with Yara International ASA, headquartered in Oslo, Norway. It is scheduled for completion in 2018. The expansion of the production facility for dicamba in Beaumont, Texas, is complete and operational.

In Asia, we started up two large-scale plants in Shanghai, China, in 2017: one for chemical catalysts and another for automotive coatings together with our partner Shanghai Huayi Fine Chemical Co. Ltd., based in Shanghai, China. We built a new aroma ingredients complex at the integrated chemical site in Kuantan, Malaysia, together with our partner PETRONAS Chemicals Group Berhad, headquartered in Kuala Lumpur, Malaysia. It is in the process of being started up. In Gimcheon, South Korea, we are constructing a new plant for Ultraform<sup>®</sup> together with our partner Kolon Plastics Inc., headquartered in Gimcheon, South Korea. The new plant is scheduled for completion in 2018. With these investments, we are expanding our presence in Asia.

In the Oil & Gas segment, we invested primarily in field development projects in Argentina, Norway and Russia in 2017.

 $\square$  For more information on investments within the segments,

see page 60 onward

<sup>1</sup> Excluding additions to property, plant and equipment resulting from acquisitions, capitalized exploration, restoration obligations and IT investments

<sup>2</sup> Including capitalized exploration, restoration obligations and IT investments

<sup>3</sup> Including impairments and reversals of impairments

			6
1	Chemicals	28%	5
2	Performance Products	18%	
3	Functional Materials & Solutions	22%	€4,020 million
4	Agricultural Solutions	4%	£4,020 million
5	Oil & Gas	24%	4
6	Other (infrastructure, R&D)	4%	3 2
			3

#### Additions to property, plant and equipment<sup>1</sup> by segment in 2017

#### Additions to property, plant and equipment<sup>1</sup> by region in 2017

1	Europe	56%	3
2	North America	20%	€4,020 million
3	Asia Pacific	18%	£4,020 million
4	South America, Africa, Middle East	6%	2
1 h	ncluding capitalized exploration, restoration of	oligations	

4

and IT investments

#### Acquisitions

We added €8 million worth of property, plant and equipment through several acquisitions in 2017. Additions to intangible assets including goodwill amounted to €235 million.

For more information on acquisitions, see the Notes to the Consolidated Financial Statements from page 187 onward

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's global polyamide business. The aim is to close the transaction in the third quarter of 2018 after regulatory approvals have been obtained and the consent of a joint venture partner has been received. The acquisition would complement our engineering plastics portfolio and expand our position as a solutions provider for the transportation, construction and consumer goods industries as well as for other industrial applications. We plan to integrate the global polyamide business into the Performance Materials and Monomers divisions. The purchase price excluding adjustments is €1.6 billion.

On October 13, 2017, we signed an agreement with Bayer AG, Leverkusen, Germany, on the acquisition of significant parts of Bayer's seed and non-selective herbicide businesses. The agreement covers Bayer's global glufosinate-ammonium non-selective herbicide business, commercialized under the Liberty<sup>®</sup>, Basta<sup>®</sup> and Finale<sup>®</sup> brands, as well as its seed businesses for key row crops in selected markets. The acquisition also covers Bayer's trait research and breeding capabilities for these crops. Closing is expected in the first half of 2018, subject to Bayer's acquisition of Monsanto and approval by the relevant authorities. The purchase price amounts to €5.9 billion, subject to certain adjustments at closing.

For more information on agreed transactions, see the Notes to the Consolidated Financial Statements from page 189 onward

#### Divestitures

On September 29, 2017, we transferred our leather chemicals business to the Stahl group. In return, we received a minority share in the Stahl group as well as a payment. Furthermore, in the medium to long term, we will supply the Stahl group with significant volumes of leather chemicals from remaining plants.

For more information on divestitures, see the Notes to the Consolidated Financial Statements from page 188 onward

#### Intended transactions

On December 7, 2017, we signed a letter of intent with the LetterOne group on the merger of our respective oil and gas businesses including BASF's gas transportation business in a joint venture, which would operate under the name Wintershall DEA. The merger is designed to optimize the portfolio footprint of the combined business and exploit synergies. Wintershall DEA would have significant growth potential and be one of the largest independent European exploration and production companies. BASF shall initially hold 67% and LetterOne 33% of the shares in Wintershall DEA.<sup>2</sup> Following the closing of the transaction, we expect to account for our interest in the joint venture using the equity method in the Consolidated Financial Statements. In the medium term, BASF and LetterOne aim to list Wintershall DEA on the stock markets by way of an initial public offering. The definitive transaction agreements are to be negotiated over the coming months. There is no assurance that we will reach an agreement with LetterOne and that the intended transaction will be consummated

♀ For more information, see page 86 onward

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<sup>2</sup> BASF's gas transportation business is not included in this shareholding ratio. As of closing, Wintershall DEA would issue a mandatory convertible bond to BASF reflecting the value of BASF's gas transportation business.
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# Working at BASF

## 115,490

Employees around the world

# Life-long learning

On center stage

3,103

Apprentices<sup>1</sup> in around 50 occupations

Our employees are key to implementing the "We create chemistry" strategy. 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

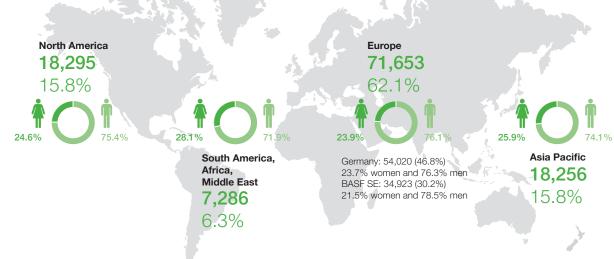
 Best Team Strategy focuses on excellent people, workplace and leaders

The Best Team Strategy is derived from our corporate strategy and plays a key role in achieving our goals. We want to form the best team. To achieve this, we focus on three strategic directions: excellent people, excellent place to work and excellent leaders. Emphasis is placed on our attractiveness in worldwide labor markets, personal and professional development, lifelong learning, and supporting and developing our leaders. We are committed to complying with internationally recognized labor and social standards worldwide. In addition, BASF reacts early to external trends and challenges such as the advance of globalization and the increasingly rapidly changing environment, especially as this relates to the digitalization of work.

The Best Team Strategy also addresses the balance needed between the inherently local nature of human resources issues and regional or global requirements (concept, structure, process) for the human resources topics that are of overriding importance for BASF.

#### Number of employees

At the end of 2017, BASF had 115,490 employees (2016: 113,830); of these, 3,103 were apprentices (2016: 3,120). The higher headcount was primarily due to the acquisitions of Grupo Thermotek, Monterrey, Mexico, Rolic AG, Allschwil, Switzerland, and the western European building material business for professional users from the Henkel group.



(Total: 115,490, thereof 24.6% women, as of December 31, 2017)

BASF Group employees by region

#### **Competition for talent**

- Positioning as an attractive employer
- Focus on social media and online marketing

Our aim is to position BASF as an attractive employer and recruit qualified talent in the global competition for the best skilled employees and leaders. To this end, we are constantly working on measures to increase BASF's appeal in the global labor markets and to help create a compelling total offer package for employees. We are increasingly using digital platforms such as our country-specific career websites as well as global and regional social networks to reach potential candidates. This enables us to address specific target groups. For instance, we increased awareness of BASF among digital specialists in particular with a global campaign on various social media. In Brazil, we used Snapchat - a special instant messenger to send images and other media - for the first time in 2017 to directly address candidates for the trainee program and give them a better understanding of the company. In Germany, we held the first BASF hackathon. Around 50 university students solved a specific problem from our divisions within 24 hours and presented their solutions to a panel of BASF experts. In North America, the Diverse Leaders program was initiated to attract talented leadership candidates with an MBA from different backgrounds. We once again achieved high scores in a number of employer rankings in 2017. For example, in a study conducted by Universum, BASF was again selected by engineering and IT students as one of the 50 most attractive employers in the world. In North America, BASF was rated one of the top 50 employers on the employer rating website glassdoor.com. In Asia, Top Employer recognized BASF China as one of the best employers for the seventh time in succession.

#### BASF Group new hires in 2017

	December 31, 2017	Thereof women %
Europe	3,987	29.3
North America	2,002	30.1
Asia Pacific	2,141	24.9
South America, Africa, Middle East	786	38.8
Total	8,916	29.3

The BASF Group hired 8,916 new employees in 2017. The average percentage of employees who resigned during their first three years of employment was 1.3% worldwide in 2017. This turnover rate was 0.7% in Europe, 1.9% in North America, 3.0% in Asia Pacific and 2.1% in South America, Africa, Middle East. Our early turnover rate is therefore at a desirable low level.

#### **Vocational training**

- 3,103 apprentices in around 50 occupations worldwide
- Around €106 million spent on vocational training

Our vocational training plays a key role in securing qualified employees at our largest site in Ludwigshafen, Germany, as well as at many other Group companies. We give school students in the career orientation phase insights into different training paths with target group-specific measures such as the *Wunschberuf im Praxistest* ("Test Drive Your Dream Job") day, which is held several times a year.

Digitalization is also changing vocational training at BASF. Course content is adapted to include new Industry 4.0 topics such as modules on data management or automation, and modern communication technologies make new learning methods possible. Young people train for their future profession in modern workshops and laboratories, where they use digital technologies from the start.

In 2017, 831 apprentices started their vocational training at BASF SE and at German Group companies, filling almost all available vocational program slots in Germany. As of December 31, 2017, the BASF Group was training 3,103 people in 15 countries and around 50 occupations. We spent a total of around €106 million on vocational training in 2017.

#### BASF Group employees by contract type (total: 115,490)

	December 31, 2017	Thereof women %
Permanent staff	109,837	24.1
Apprentices	3,103	24.3
Temporary staff	2,550	43.9

We also foster social integration, particularly of young low achievers and refugees. Examples of this include the *Start in den Beruf, Anlauf zur Ausbildung* and *Start Integration* programs in the Rhine-Neckar metropolitan region. In 2017, 284 young people in the BASF Training Verbund participated in these programs in cooperation with partner companies. The goal of these programs is to prepare participants for a subsequent apprenticeship within one year, and ultimately secure the long-term supply of qualified employees in the region. Since being launched at the end of 2015, BASF's *Start Integration* program has supported 250 refugees with a high probability of being granted the right to remain in Germany, helping to integrate them into the labor market. We spent around  $\in$ 6 million on the BASF Training Verbund in 2017 as part of our social commitment.

 $\Box$  For more information, see basf.com/apprenticeship Q

Q

#### What we expect from our leaders

- Leaders as role models
- Multifaceted offers for leadership development

Our leaders and their teams should make a sustainable contribution to BASF's success and to safeguarding its future. We expect our leaders to serve as role models by developing and implementing business strategies in line with our corporate values. They should also have a positive impact on shaping day-to-day business, motivating employees and fostering their development. These expectations are part of the standard global nomination criteria for leadership candidates. Our leadership culture is founded on BASF's strategic principles and values, which are set out in specific behavioral standards in the global Competency Model, as well as our global Code of Conduct.

We offer our leaders learning and development opportunities for all phases of their career, as well as various formats that enable them to share knowledge and learn from one another. Global, regional and local offerings are coordinated. For instance, the European Emerging Leader program prepares leadership candidates from all over Europe for a leadership role. The global New Leader Program is a basic qualification to get new leaders off to a good start in their new, more responsible role. The modular structure of the program means that it can be adapted to regional needs. One example of the development of experienced leaders is a program developed in North America where experienced leaders from BASF are brought together with leaders from other companies. This broadens participants' perspectives, promotes dialog and builds networks beyond company borders.

Regular feedback plays an important role in the development of leaders. One tool is Global Leadership Feedback, where leaders receive feedback from their employees, managers, colleagues and customers on their conduct.

Leadership	responsibility in the BASF Group	
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	December 31, 2017	Thereof women %
Professionals <sup>1</sup>	37,642	29.7
(Senior) executives <sup>2</sup>	9,388	20.5

<sup>1</sup> Specialists without disciplinary leadership responsibilities

<sup>2</sup> Employees with disciplinary leadership responsibilities

#### Q

#### Learning and development

- Life-long learning concept
- Focus on virtual learning and digitalization

Learning and development are essential success factors for a strong company culture. The skills and competencies of our employees are critical for profitable growth and lasting success. For this reason, we want to further modernize our learning culture and step up our efforts to promote lifelong, selfdirected learning as part of the Best Team Strategy.

This learning culture is based on systematic employee development. In our understanding, there is more to development than a promotion or a job change – it encompasses all forms of further development of personal experience and abilities. We have derived specific day-to-day behavioral standards from our corporate strategy and integrated these into our global Competency Model. In regular development meetings, which are held as part of our annual employee dialogs, employees outline prospects for their individual development together with their leaders and determine specific measures for further training and development, which focus on personal and professional competencies. We have now implemented our employee development concept worldwide using a structured process and appropriate tools and have introduced personal development meetings for all employees.

Our learning activities follow the "70-20-10" philosophy: We apply the elements "learning from experience" (70%), "learning from others" (20%) and "learning through courses and media" (10%). Our learning and development offerings cover a range of learning goals: starting a career, expanding knowledge, personal growth and leadership development. Virtual learning is playing an increasingly important role here. In Asia, a Virtual Week was held for the first time in 2017, where over 1,100 employees from 15 countries virtually discussed topics such digitalization, sustainability and change management. In addition, more and more of our academies in the divisions and functional units, which teach specific professional content, offer virtual training. One example of a successful development measure in the area of virtual learning is Virtual Presence, in which employees learn how to communicate effectively in virtual meetings in an increasingly digital world. Initially offered to leaders, this training will be available to all employees starting in 2018. In North America, we expanded our learning offering with a flexible and efficient new learning platform that offers compact modules for all employees. Q

#### Inclusion of diversity

#### Promoting diversity is part of our company culture

The strong global character of our markets translates into different customer requirements - and we want to reflect this diversity in our workforce, too. For us, diversity is first and foremost about bringing together employees with different backgrounds who can draw on different perspectives to grow our business. At the same time, we want to better understand our customers' expectations. Diversity also boosts our teams' performance and power of innovation, and increases creativity, motivation and identification with the company. Promoting diversity is an integral part of our corporate culture and as such, it is also anchored in the global Competency Model as one of the behaviors expected of employees and leaders. This is how we promote the appreciation and inclusion of diversity. Leaders play an important role in its implementation. We support them by integrating topics such as inclusive leadership into our leadership development courses. Special seminars are held to sensitize leaders to the issue of unconscious bias. The aim is to help leaders remain as objective as possible when making personnel decisions, for example, to avoid unconscious biases in favor of or against candidates with certain characteristics or views.

## 2021 Goal Proportion of women in leadership positions with disciplinary responsibility 22-24%

Since 2015, BASF has set itself global quantitative goals for increasing the percentage of women in leadership positions. In the BASF Group, the global proportion of female leaders with disciplinary responsibility was 20.5% at the end of 2017 (2016: 19.8%). We aim to increase this ratio to 22-24% worldwide by 2021, so that the proportion of women in leadership positions reflects that of women in the global company workforce. Considering the relatively low rate of turnover in the BASF Group's leadership team, this is an ambitious goal that we want to achieve through various measures. One example is the KarrierePlus program, which supports leaders and future leaders with young children in their professional development with mentoring, networking events and training. The mentors gain insights into successful models for flexible work and leadership. BASF has been a member of the Chefsache initiative since 2016, a network of leaders from industry, academia, the public sector and media. The initiative aims to initiate social change such as increasing the percentage of women in leadership positions in Germany. Furthermore, BASF wants to continue increasing the percentage of senior executives<sup>1</sup> that

come from countries other than Germany. This figure was at 38.9% at the end of 2017 (2016: 36.4%). Moreover, we intend to maintain the proportion of senior executives with international experience at over 80%. We exceeded this figure again in 2017, reaching 84.6%. With these goals, we continue to drive our globally integrated approach to promoting diversity and leadership development.

- For more information, see basf.com/diversity
- $\bigcap$  For more information on diversity in the Board of Executive Directors and the Supervisory Board, see page 131 onward Q

#### Managing demographic change

### Leadership duties include "leadership in times of demographic change"

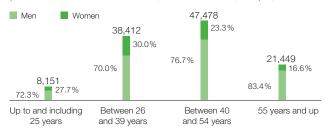
Our aim is to create a suitable framework to help maintain the employability of our personnel at all stages of life and ensure the availability of qualified employees – particularly in a technological environment – over the long term. We are working intensively on future trends like new technologies and digitalization (Industry 4.0). We see digitalization as an opportunity to meet the challenges of demographic change.

The demographic situation within the BASF Group varies widely by region. The ever-increasing delay of retirement and the aging employee population are relevant issues, particularly in Germany and North America. We address these different challenges with various measures to manage demographic change such as health and exercise programs, flexible working arrangements, age-appropriate workplaces and knowledge management. Demographic analyses for our sites, for individual plants and specific job profiles make each demographic situation transparent for the responsible leaders. For plants and profiles with a particularly critical age structure, we immediately derive specific measures such as direct knowledge transfer programs or succession planning. Given the special role that our leaders assume, the topic "leadership in times of demographic change" forms a part of many of our leadership programs.

 $\square$  For more information on health protection, see page 100  $\bigcirc$ 

#### BASF Group employee age structure

(Total: 115,490, thereof 24.6 % women, as of December 31, 2017)



#### Balancing personal and professional life

#### Wide range of offerings for different phases of life

Our identity as an employer includes our belief in supporting our employees worldwide in balancing their personal and professional lives. We lay the foundation with a wide range of offerings to help our employees meet their individual needs and overcome challenges in different phases of life. We want to strengthen their identification with the company and bolster our position as an attractive employer in the competition for qualified personnel. Our offering includes flexible working hours, part-time employment and mobile working. Regional initiatives specifically address the needs of our employees at a local level. In the United States, a new family-friendly leave program was introduced in 2017 that enables employees to concentrate solely or primarily on their families for a certain period of time in important life-changing situations. Our Work-Life Management employee center in Ludwigshafen (LuMit) offers a number of services under one roof: childcare, fitness and health, social counseling and coaching as well as other programs to help employees balance professional and personal life. We also provide social counseling at the Münster and Schwarzheide sites in Germany as well as in Asia, South Africa and North America to help employees overcome difficult life situations and maintain their employability.

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#### **Compensation and benefits**

#### Compensation based on employee's position and individual performance as well as company's success

We want to attract committed and qualified employees, retain them and motivate them to achieve top performance with an attractive package including market-oriented compensation, individual development opportunities and a good working environment. Our employees' compensation is based on market-, position- and performance-related global compensation principles. By linking compensation to both company and individual performance, employees can participate in the company's success and be rewarded for their individual performance. As a rule, compensation comprises fixed and variable components as well as benefits that often exceed legal requirements. In many countries, these include company pension benefits, supplementary health insurance and share programs. We regularly review our compensation systems at local and regional levels.

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## Employees participate in the company's success

#### Return on assets determines variable compensation

We want our employees to contribute to the company's longterm success. This is why the compensation granted to 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. The same principles basically apply for all employees worldwide. The amount of the variable component is determined by the company's economic success (measured by the return on assets1 of the BASF Group) as well as the employee's individual performance. Individual performance is assessed as part of a globally consistent performance management process. In numerous BASF Group companies, employees are offered the chance to purchase shares. Our plus share program ensures employees' longterm participation in the company's success through incentive shares: A portion of the variable compensation can be invested in BASF shares in order to profit from BASF's long-term development. In 2017, for example, 23,700 employees worldwide (2016: approximately 24,000) participated in the plus share program.

BASF offers senior executives the opportunity to participate in a share price-based compensation program. This longterm incentive (LTI) program ties a portion of their annual variable compensation to the longterm performance of BASF shares by making an individual investment in the company's stock. In 2017, 92% of the approximately 1,200 people eligible to participate in the LTI program worldwide did so, investing up to 30% of their variable compensation in BASF shares.

A For more information, see the Notes to the Consolidated Financial Statements from page 231 onward Q

#### Personnel expenses

In 2017, the BASF Group spent €10,610 million on wages and salaries, social security contributions and expenses for pensions and assistance (2016: €10,165 million). Personnel expenses thus rose by 4.4%. As well as wage and salary increases, this was primarily attributable to a higher average headcount following the acquisition of Chemetall. The partial release of provisions for the long-term incentive program and currency effects had an offsetting effect.

#### BASF Group personnel expenses (million €)

	2017	2016	Change in %
Wages and salaries	8,471	8,170	3.7
Social security contributions and expenses for pensions			
and assistance	2,139	1,995	7.2
Thereof for pension benefits	705	627	12.4
Total personnel expenses	10,610	10,165	4.4

For more information, see the Notes to the Consolidated Financial Statements from page 200 onward

#### **Global Employee Survey**

The BASF Group's Global Employee Survey is an important feedback tool and is used to actively involve employees in shaping their working environment. We have conducted the Global Employee Survey on a regular basis since 2008; the next one is scheduled for 2018. The results of the 2015 survey were presented to the Board of Executive Directors and the Supervisory Board. Employees and leaders in all regions then discussed the results and identified the necessary improvement measures. These related to topics such as supporting employees in their professional development, intensifying feedback, or supporting leaders and their teams in driving change and innovation.

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#### **Dialog with employee representatives**

Trust-based cooperation with employee representatives is an important component of our corporate culture. Our open and ongoing dialog lays the foundation for balancing the interests of the company and its employees, even in challenging situations. If restructuring leads to staff downsizing, for example, we involve employee representatives to develop socially responsible implementation measures at an early stage. This is done in accordance with the respective legal regulations and the agreements reached. It is important to us that this dialog is based on the specific operational situation. For example, in 2017 we developed a qualification concept and derived qualification measures from this together with the employee representatives at the Ludwigshafen site to familiarize employees with new digital working practices in production and support the introduction of applications for mobile devices. By focusing our discussions on the local and regional situations, we aim to find tailored solutions to the different challenges and legal considerations for each site. The BASF Europa Betriebsrat (European Works Council) addresses cross-border matters in Europe. The Diálogo Social has established a platform for dialog in South America.

 $\Box$  For more information, see basf.com/employeerepresentation Q

#### Global labor and social standards

- Alignment with U.N. Guiding Principles on Business and Human Rights
- Adjusted management process for monitoring adherence to labor and social standards

As an integral part of society, we act responsibly toward our employees. Part of this is our voluntary commitment to respecting international labor and social standards, which we have embedded in our global Code of Conduct. 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). BASF is committed to upholding these standards worldwide. We mainly approach our adherence to international labor and social standards using three elements: the Compliance Program (including external compliance hotlines), close dialog with our stakeholders (such as with employee representatives or international organizations) and the global management process for the respect of international labor norms.

We completed the restructuring of our management process in 2017. A Group-wide guideline now sets out a BASF standard for compliance with international labor and social standards.<sup>1</sup> A compliance risk management process monitors its implementation. We completed a risk-based assessment of all the countries in which BASF operates by the end of 2017. In countries where the guideline cannot be readily implemented because of national laws, rules or practices, we will evaluate to what extent meaningful adaptations can be made within the scope of local requirements. A centralized due diligence system is used to regularly assess and document this information, as well as the set targets and measures to implement the guideline. Starting in 2018, the degree of compliance with the guideline in BASF Group companies will be reviewed using internal control processes such as compliance audits.

- For more information on labor and social standards,
- see basf.com/labor\_social\_standards

For more information on global standards, see page 24
 For more information on our sustainability-related risk management, see page 29
 For more information on compliance, see page 135 onward

Q ()

# The BASF Group business year

Economic environment

## 3.1%

Growth in global gross domestic product **3.3%** Growth in global

industrial production

3.5%

Growth in the global chemical industry

Global economic expansion in 2017 was stronger than we expected at the beginning of 2017. Both the advanced economies and the emerging markets posted significantly higher growth compared with the previous year. The economy gained momentum in almost all European Union (E.U.) countries. In China, economic growth was slightly stronger than in the previous year on the back of government investment incentives. This benefited the neighboring Asian countries in particular. China's robust economy also had a positive impact on raw materials exporters worldwide, enabling Russia and Brazil to shake off recession, for example. Overall, global gross domestic product (GDP) grew by 3.1%, significantly faster than in 2016 (+2.4%). The average price for a barrel of Brent blend crude oil rose to \$54 per barrel (2016: \$44 per barrel).

G For the outlook on the economic environment in 2018, see page 119 onward

## Trends in the global economy in 2017

After moderate growth in the previous year, the global economy improved steadily in 2017. This trend was supported by monetary and fiscal policy framework conditions. Interest rates remained at a very low level in Europe and Japan. In the United States, the Federal Reserve's policy rate hikes only led to a moderate increase in long-term interest rates. Global prices for industrial and energy raw materials rose moderately, which helped to stabilize the economic situation in the exporting countries. At the same time, the price level remained low enough so as not to dampen economic development in the importing countries. Consumer and investor sentiment continued to brighten against this backdrop.

#### Gross domestic product

(Real change compared with previous year<sup>1</sup>)

World	2017	3.1%
	2016	2.4%
European Union	2017	2.5%
	2016	1.9%
United States	2017	2.3%
	2016	1.5%
Emerging markets	2017	6.3%
of Asia	2016	6.1%
Japan	2017	1.6%
	2016	0.9%
South America	2017	0.8%
	2016	(2.9%)

<sup>1</sup> Figures that refer to previous years may deviate from last year's report due to statistical revisions.

## Economic trends by region

- Stronger economic growth in the E.U.
- Economy firms in the United States
- Stable growth in Asia
- Slight recovery in South America

In the E.U., GDP growth rose from 1.9% in 2016 to 2.5% in 2017. The upturn extended to almost all E.U. countries and was supported by higher consumption and growing investment. Driven by the more stable global economy, export activities also provided positive momentum. Germany's economy saw comparatively strong growth, at 2.5%. Growth rates in France (+1.9%) and Italy (+1.5%) also exceeded the previous years' averages. The independence conflict in Catalonia has had little impact on the Spanish economy (+3.1%) so far. Growth in the United Kingdom (+1.8%) remained on a level with the previous year amid uncertainty about the further course of Brexit negotiations and rising inflation. The central and eastern E.U. countries recorded dynamic growth of 4.5% thanks to the upturn at trading partners in western Europe and the higher absorption of E.U. funds. Russia's GDP rose by 1.7% after a slight decline in the previous year, primarily due to the recovery in the price of oil and the stabilization of the ruble.

In the **United States**, growth remained modest at the beginning of 2017 but stabilized over the course of the year. This was mainly attributable to strong private consumption on the back of the solid labor market situation. Higher levels of investment also contributed to the positive economic trend. The hurricanes in Texas and Florida in the fall did not dampen growth significantly. Overall, the U.S. economy expanded by 2.3% in 2017, considerably faster than in 2016 (+1.5%).

At 6.3%, growth in the **emerging markets of Asia** was slightly higher than in the previous year (+6.1%). In China, government investment incentives compensated for a slow-down. The Chinese economy grew by 6.9% overall, slightly faster than in 2016 (+6.7%). In 2017, this was primarily driven by the electronics industry, while the automotive industry saw much slower growth than in the previous year. The robust upward trend in the Chinese construction industry weakened only slightly. Against this background, GDP in the remaining emerging markets of Asia rose by 5.5% (2016: +5.3%).

**Japan** saw much stronger growth than in the previous year, at 1.6% (2016: +0.9%). The weaker yen and the recovery of the global economy stimulated demand for Japanese exports. Private consumption was buoyed by the strong labor market and a declining savings rate.

**South America** overcame the severe recession of the previous year, with GDP rising by 0.8% (2016: -2.9%). In Argentina, the economy picked up significantly as a result of economic reforms and grew by 2.8% (2016: -2.2%). The Brazilian economy also expanded, with growth of 1.0% (2016: -3.6%) on the back of higher agricultural exports and an increase in industrial production. With the exception of Venezuela, where the economy again contracted significantly, average growth in the other countries in the region was on a level with the previous year.

#### Trends in key customer industries

- Growth in global industrial production significantly higher than in 2016
- Mixed trends in key customer sectors

Global industrial production grew by 3.3% in 2017, significantly faster than in the previous year (+2.1%). Growth in the advanced economies accelerated particularly strongly (2017: +2.6%; 2016: +0.8%) and the emerging markets also posted a slight increase (2017: +4.0%; 2016: +3.5%).

The uptick in growth was especially pronounced in the E.U. (2017: +3.3%; 2016: +1.4%) and Japan (2017: +3.9%; 2016: +0.3%). North America saw noticeable growth based on the low prior-year level (2017: +1.6%; 2016: +0.3%). In the emerging markets of Asia, growth in industrial production was down slightly on the previous year, at 5.5% (2016: +5.8%). Industry growth remained stable in China but cooled somewhat in the other countries. At 0.2%, industrial production in South America returned to slow growth (2016: -4.6%).

The chemical industry's key customer sectors saw very mixed trends: Global automotive production only grew by 2.5% in 2017, considerably less than in the previous year (+4.8%). Growth declined in both China and western Europe; automotive production contracted in the United States. By contrast, the industry experienced an upturn in Japan. Compared with the low prior-year level, production increased significantly in Brazil and Russia. At 2.9%, growth in the construction industry was down only slightly compared with the previous year (+3.1%). The E.U. saw a strong increase in construction activity. Growth in the United States again slowed considerably. Housing construction expanded strongly, while construction of other structures declined slightly. There was a significant decline in infrastructure investment. In Asia, growth in the construction industry was slightly slower but remained at a high level. After weather-related weaknesses in the previous year, agricultural output again rose by around 3.1%. Starting from a low base, South America in particular saw a recovery (2017: +8.8%; 2016: -3.4%).

#### Growth in key customer industries

(Real change compared with previous year<sup>1</sup>)

Industry total	2017	3.3%
	2016	2.1%
Transportation	2017	2.6%
	2016	2.7%
Energy and	2017	1.6%
resources	2016	0.2%
Construction	2017	2.9%
	2016	3.1%
Consumer goods	2017	3.1%
	2016	2.3%
Electronics	2017	7.9%
	2016	4.5%
Health and nutrition	2017	4.1%
	2016	3.6%
Agriculture	2017	3.1%
	2016	1.7%

<sup>1</sup> Figures that refer to previous years may deviate from last year's report due to statistical revisions.

#### Trends in the chemical industry

#### Global growth in line with expectations

The global chemical industry (excluding pharmaceuticals) grew by 3.5%, roughly on a level with our expectations at the beginning of 2017 (+3.4%) as well as the 2016 level (+3.4%). Chemical production in the E.U. expanded at a much faster rate as a result of growing demand from local customer industries and higher exports (2017: +3.8%; 2016: +0.4%). By contrast, the chemical industry in Asia saw lower growth (2017: +4.1%; 2016: +5.2%). Unusually strong growth in Japan, primarily from higher exports to China, was unable to completely offset the decline of growth in China. In North America, chemical production was negatively impacted by Hurricane Harvey, which led to significant production outages in the United States in the third quarter. Chemical production in the United States nevertheless rose by 2.9%.

#### Chemical production (excluding pharmaceuticals) (Real change compared with previous year<sup>1</sup>)

World	2017	3.5%
	2016	3.4%
European Union	2017	3.8%
	2016	0.4%
United States	2017	2.9%
	2016	1.0%
Emerging markets	2017	3.8%
of Asia	2016	5.8%
Japan	2017	7.2%
	2016	1.7%
South America	2017	0.5%
	2016	(0.8%)

<sup>1</sup> Figures that refer to previous years may deviate from last year's report due to statistical revisions.

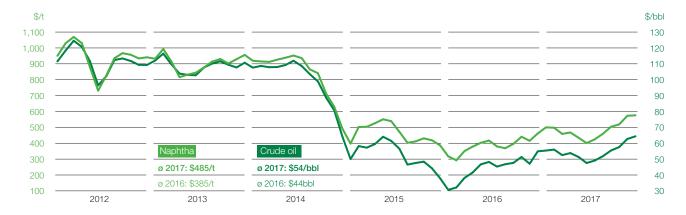
#### Important raw material price developments

- Higher prices for crude oil and naphtha
- Year-on-year increase in gas prices, but with wide regional variance

Averaging around \$54 per barrel in 2017, the price of Brent blend **crude oil** rose by about 23% compared with the previous year (\$44 per barrel). The average monthly oil price fluctuated over the course of the year between \$47 per barrel in June and \$64 per barrel in December.

The average monthly price for the chemical raw material **naphtha** ranged over the course of 2017 between \$401 per metric ton in June and \$576 per metric ton in December. At \$485 per metric ton, the annualized average price of naphtha in 2017 was higher than in 2016 (\$385 per metric ton).

The average price of **gas** in the United States was \$2.97 per mmBtu, above the level of the previous year (\$2.49 per mmBtu). In Europe, the average price of gas on the spot market was significantly higher than in 2016, at \$5.71 per mmBtu (2016: \$4.62 per mmBtu).<sup>2</sup> Gas prices in China averaged around \$6.24 per mmBtu nationally (2016: \$6.54 per mmBtu), while the average price in the coastal regions was \$7.43 per mmBtu (2016: \$7.72 per mmBtu).



## Price trends for crude oil (Brent blend) and naphtha (\$/barrel, \$/metric ton)

In contrast to prior-year reports, we refer here to the prices quoted by the Title Transfer Facility (TTF) in the Netherlands. The TTF is the trading point with the largest trading volume for natural gas in Europe. The previously referenced average of several spot market prices in 2017 was \$5.76 per mmBtu (2016; \$4.58 per mmBtu).

# Results of operations

The world economy and global industrial production saw much stronger growth in 2017 than in 2016, while growth in the global chemical industry (excluding pharmaceuticals) was roughly on a level with the previous year. Overall, our business performed extremely well in this market environment, with considerable sales and earnings increases. The Chemicals segment made a particularly strong contribution.

Business reviews by segment can be found from page 60 onward

#### Sales

#### ■ Sales growth of 12% to €64,475 million

Sales rose by €6,925 million to €64,475 million in 2017. This was mainly attributable to significantly higher sales prices in the chemicals business,<sup>1</sup> especially in the Chemicals segment, as well as volumes growth in all segments. The Chemetall business, which was acquired from Albemarle in December 2016, also had a positive impact. Sales were reduced by slightly negative currency effects in all segments.

#### Sales (million €)



#### Factors influencing sales of the BASF Group

	Change in million €	Change in %
Volumes	2,647	4
Prices	4,595	8
Currencies	(732)	(1)
Acquisitions	873	2
Divestitures	(460)	(1)
Changes in scope of consolidation	2	_
Total change in sales	6,925	12

#### Income from operations

- 32% increase in EBIT before special items to €8,328 million
- Considerable growth in EBIT and EBIT after cost of capital

Income from operations (EBIT) before special items rose by €2,019 million to €8,328 million, thanks in particular to the contribution from the Chemicals segment. Earnings generated by the Oil & Gas segment and Other also improved considerably. In the Agricultural Solutions segment, EBIT before special items was only slightly below the prior-year figure after a strong fourth quarter of 2017. The Performance Products and Functional Materials & Solutions segments recorded a considerable decrease. This was due to lower margins resulting from the increase in raw materials prices and fixed costs from factors such as the startup of new plants.

 $\bigcap$  For an explanation of the indicator EBIT before special items, see page 28

#### EBIT before special items (million €)

2017	8,328
2016	6,309
2015	6,739
2014	7,357
2013	7,077

**Special items** in EBIT totaled €194 million in 2017, compared with minus €34 million in the previous year.

Various restructuring measures led to special items of minus €133 million, after minus €394 million in 2016.

At  $\in$ 52 million, integration costs for acquired businesses exceeded the prior-year level (2016:  $\in$ 27 million), largely as a result of the integration of Chemetall.

Divestitures in 2017 resulted in an earnings contribution of  $\in$ 145 million compared with  $\in$ 431 million in the previous year. This was mainly due to the transfer of our leather chemicals business to the Stahl group in the Performance Products segment, which contributed  $\in$ 195 million.

The special items recognized in other charges and income amounted to  $\in$ 234 million in 2017. This figure included reversals of impairments and impairments totaling  $\in$ 197 million in the Oil & Gas and Functional Materials & Solutions segments. In the previous year, other charges and income amounted to minus  $\in$ 44 million.

 $\bigcap$  For the definition of special items, see page 28

#### Sales and earnings (million €)

	2017	2016	Change in %
Sales	64,475	57,550	12.0
Income from operations before depreciation and amortization (EBITDA) and special items	12,527	10,327	21.3
EBITDA	12,724	10,526	20.9
EBITDA margin %	19.7	18.3	
Amortization and depreciation <sup>1</sup>	4,202	4,251	(1.2)
Income from operations (EBIT)	8,522	6,275	35.8
Special items	194	(34)	
EBIT before special items	8,328	6,309	32.0
Financial result	(722)	(880)	18.0
Income before taxes and minority interests	7,800	5,395	44.6
Income before minority interests	6,352	4,255	49.3
Net income	6,078	4,056	49.9
Earnings per share €	6.62	4.42	49.8
Adjusted earnings per share $\in$	6.44	4.83	33.3

#### Sales and earnings by quarter in 2017² (million ${\ensuremath{\in}})$

	1st quarter	2nd quarter	3rd quarter	4th quarter	Full year
Sales	16,857	16,264	15,255	16,099	64,475
Income from operations before depreciation and amortization (EBITDA)	·				
and special items	3,507	3,291	2,793	2,936	12,527
EBITDA	3,502	3,233	3,007	2,982	12,724
Amortization and depreciation <sup>1</sup>	1,051	1,052	1,049	1,050	4,202
Income from operations (EBIT)	2,451	2,181	1,958	1,932	8,522
Special items	(6)	(70)	198	72	194
EBIT before special items	2,457	2,251	1,760	1,860	8,328
Financial result	(152)	(174)	(185)	(211)	(722)
Income before taxes and minority interests	2,299	2,007	1,773	1,721	7,800
Net income	1,709	1,496	1,336	1,537	6,078
Earnings per share €	1.86	1.63	1.45	1.68	6.62
Adjusted earnings per share €	1.97	1.78	1.40	1.29	6.44

#### Sales and earnings by quarter in 2016<sup>2</sup> (million €)

	1st quarter	2nd quarter	3rd quarter	4th quarter	Full year
Sales	14,208	14,483	14,013	14,846	57,550
Income from operations before depreciation and amortization (EBITDA) and special items	2,843	2,674	2,490	2,320	10,327
EBITDA	2,812	2,790	2,437	2,487	10,526
Amortization and depreciation <sup>1</sup>	946	1,072	973	1,260	4,251
Income from operations (EBIT)	1,866	1,718	1,464	1,227	6,275
Special items	(40)	11	(52)	47	(34)
EBIT before special items	1,906	1,707	1,516	1,180	6,309
Financial result	(188)	(177)	(283)	(232)	(880)
Income before taxes and minority interests	1,678	1,541	1,181	995	5,395
Net income	1,387	1,092	888	689	4,056
Earnings per share	1.51	1.19	0.97	0.75	4.42
Adjusted earnings per share	1.64	1.30	1.10	0.79	4.83

<sup>1</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

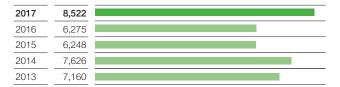
<sup>2</sup> Quarterly results not audited

#### Special items (million €)

	2017	2016
Restructuring measures	(133)	(394)
Integration costs	(52)	(27)
Divestitures	145	431
Other charges and income	234	(44)
Total special items in EBIT	194	(34)
Special items reported in financial result	-	
Total special items in income before taxes and minority interests	194	(34)

At €8,522 million, **EBIT** for the BASF Group in 2017 was considerably higher than the previous year's level (2016: €6,275 million). Included in this figure is income from companies accounted for using the equity method, which rose from €307 million to €571 million.

#### **EBIT** (million €)



We once again earned a significant premium on our cost of capital in 2017. **EBIT after cost of capital** amounted to  $\notin 2,727$  million, compared with  $\notin 1,136$  million in the previous year. The cost of capital rose by  $\notin 364$  million year-on-year. This was primarily attributable to the increase in noncurrent assets since the acquisition of Chemetall in December 2016, as well as the higher level of capital tied up in trade accounts receivable as a result of sales growth.

 $\bigcap$  For an explanation of the indicator EBIT before special items, see page 28

The calculation of EBIT as part of our statement of income is shown in the Consolidated Financial Statements on page 168

#### EBIT after cost of capital (million €)

	2017	2016
EBIT of BASF Group	8,522	6,275
– EBIT of Other	(799)	(1,091)
– Cost of capital <sup>1</sup>	6,594	6,230
EBIT after cost of capital	2,727	1,136

1 In 2016 and 2017, the cost of capital percentage was 10%.

#### EBIT after cost of capital (million €)

2017	2,727	
2016	1,136	
2015	194	
2014	1,368	
2013	1,768	

#### Financial result and net income

- Considerable year-on-year increase in financial result and net income
- Earnings per share rise from €4.42 to €6.62

The **financial result** improved to minus €722 million in 2017, compared with minus €880 million in the previous year.

Net income from shareholdings decreased from minus €17 million in 2016 to minus €29 million as a result of lower income from shareholdings.

The interest result improved from minus €482 million in 2016 to minus €334 million. Interest expenses declined due to the overall decrease in liabilities to credit institutions, the scaling back of the U.S. dollar commercial paper program and the associated hedging transactions. We also generated higher interest income from interest/cross-currency swaps and granting loans.

The other financial result amounted to minus €359 million, compared with minus €381 million in the previous year.

**Income before taxes and minority interests** rose from €5,395 million in the previous year to €7,800 million in 2017.

Income taxes increased from €1,140 million in 2016 to €1,448 million in 2017. At 18.6%, the tax rate was below the prior-year level (21.1%), mainly as a result of one-off deferred tax income in the total amount of €416 million from tax reforms, of which €379 million in the United States.

Income before minority interests rose from  $\notin$ 4,255 million to  $\notin$ 6,352 million. Minority interests amounted to  $\notin$ 274 million, compared with  $\notin$ 199 million in 2016.

At  $\epsilon$ 6,078 million, **net income** was considerably higher than the prior-year figure of  $\epsilon$ 4,056 million. **Earnings per share** increased from  $\epsilon$ 4.42 to  $\epsilon$ 6.62.

For information on the items in the statement of income, see the Notes to the Consolidated Financial Statements from page 194 onward
 For information on the tax rate, see the Notes to the Consolidated Financial Statements from page 198 onward

## Additional indicators for results of operations

- EBITDA before special items and EBITDA considerably higher
- Adjusted earnings per share increase from €4.83 to €6.44

Aside from EBIT, EBIT before special items and EBIT after cost of capital – key performance indicators drawn upon to steer the BASF Group – we also provide additional performance indicators in this report that are not defined by IFRS. They should not be viewed in isolation, but treated as supplementary information.

## EBITDA before special items (million €)

	2017	2016
EBIT	8,522	6,275
– Special items	194	(34)
EBIT before special items	8,328	6,309
+ Amortization, depreciation and valuation allowances on intangible assets and property,		
plant and equipment before special items	4,199	4,018
EBITDA before special items	12,527	10,327

### EBITDA (million €)

	2017	2016
EBIT	8,522	6,275
+ Amortization, depreciation and valuation allowances on intangible assets and property,		
plant and equipment	4,202	4,251
EBITDA	12,724	10,526

Income from operations before depreciation, amortization and special items (EBITDA before special items) and income from operations before depreciation and amortization (EBITDA) are indicators that describe operational performance independent of age-related amortization and depreciation of assets and extraordinary valuation allowances (impairments or reversals of impairments). Both figures are therefore particularly useful in cross-company comparisons. EBITDA before special items is also highly useful in making comparisons over time.

**EBITDA before special items** rose by  $\notin 2,200$  million yearon-year to  $\notin 12,527$  million in 2017. At  $\notin 12,724$  million, **EBITDA** exceeded the prior-year figure by  $\notin 2,198$  million.

#### Return on assets (million €)

	2017	2016
Income before taxes and minority interests	7,800	5,395
+ Interest expenses	560	661
Income before taxes and minority interests		
and interest expenses	8,360	6,056
Total assets as of January 1	76,496	70,836
Total assets as of December 31	78,768	76,496
Average assets employed	77,632	73,666
Return on assets %	10.8	8.2

We calculate return on assets as income before taxes and minority interests, plus interest expenses, as a percentage of average assets employed. This indicator reflects the return independently of capital structure. The **return on assets** was 10.8%, compared with 8.2% in the previous year. The considerable increase in income before taxes and minority interests with a simultaneous decrease in interest expenses more than offset the rise in average assets employed.

#### Adjusted earnings per share (million €)

	2017	2016
Income before taxes and minority interests	7,800	5,395
– Special items	194	(34)
+ Amortization and valuation allowances on intangible assets	616	560
<ul> <li>Amortization and valuation allowances on intangible assets contained in special items</li> </ul>	59	52
Adjusted income before taxes and minority interests	8,163	5,937
– Adjusted income taxes <sup>1</sup>	1,971	1,300
Adjusted income before minority interests	6,192	4,637
– Adjusted minority interests	277	197
Adjusted net income	5,915	4,440
Weighted average number of outstanding shares in thousands	918,479	918,479
Adjusted earnings per share €	6.44	4.83

Compared with earnings per share, this figure has been adjusted for special items as well as amortization of and valuation allowances (impairments and reversals of impairments) on intangible assets. Amortization of intangible assets primarily results from the purchase price allocation following acquisitions and is therefore of a temporary nature. The effects of these adjustments on income taxes and on minority interests are also eliminated. This makes adjusted earnings per share a suitable measure for making comparisons over time and predicting future profitability.

In 2017, adjusted earnings per share amounted to  $\in$ 6.44 compared with  $\in$ 4.83 in the previous year.

For information on the earnings per share according to IFRS, see the Notes to the Consolidated Financial Statements on page 194

#### Forecast/actual comparison<sup>1</sup>

	Sa	Sales		Income from operations (EBIT) before special items		
	2017 forecast	2017 actual	2017 forecast	2017 actual		
Chemicals	considerable increase	considerable increase	at prior-year level	considerable increase		
Performance Products	slight increase	slight increase	slight increase	considerable decrease		
Functional Materials & Solutions	considerable increase	considerable increase	slight increase	considerable decrease		
Agricultural Solutions	considerable increase	slight increase	slight increase	slight decrease		
Oil & Gas	considerable increase	considerable increase	considerable increase	considerable increase		
Other	considerable increase	considerable increase	considerable increase	considerable increase		
BASF Group	considerable increase	considerable increase	slight increase <sup>2</sup>	considerable increase		

<sup>1</sup> For sales, "slight" represents a change of 1–5%, while "considerable" applies to changes of 6% and higher. "At prior-year level" indicates no change (+/–0%). For earnings, "slight" means a change of 1–10%, while "considerable" is used for changes of 11% and higher. "At prior-year level" indicates no change (+/–0%).

<sup>2</sup> We most recently revised our forecast in October 2017 to a considerable increase in EBIT before special items.

# Actual development compared with outlook for 2017

In 2017, BASF Group sales rose considerably in line with our forecast. EBIT before special items also increased considerably in 2017 and was higher than the slight growth forecast at the beginning of the year. This was primarily attributable to the sales and earnings development in the Chemicals segment, which exceeded our expectations. As a result, we also saw considerable growth in EBIT in 2017, instead of the slight increase we had anticipated. We likewise recorded a considerable increase in EBIT after cost of capital, contrary to our prediction of a considerable decrease. As well as the higher EBIT generated by the segments, this was also due to the cost of capital, which did not increase as strongly as expected due to currency effects.<sup>3</sup>

Sales in the **Chemicals** segment increased considerably as forecast, whereby we achieved higher prices than expected. EBIT before special items was expected to be on a level with the previous year. However, the higher margins, especially for the isocyanates business in the Monomers division, significantly exceeded our expectations. Margins were also stronger in the Petrochemicals and Intermediates divisions. As a result, EBIT before special items was considerably higher than the 2016 figure.

We slightly increased sales in the **Performance Products** segment in line with our forecast. Contrary to our expectations, there was a considerable decline – rather than a slight increase – in EBIT before special items. This was primarily attributable to softer margins, mainly as a result of higher raw materials prices, which would not be fully passed on via sales prices.

Sales in the **Functional Materials & Solutions** segment rose considerably, as predicted. EBIT before special items did not increase slightly as expected, but declined considerably despite sales growth. The decrease was due to lower margins and higher fixed costs.

We had forecast considerable growth for sales in the **Agricultural Solutions** segment. However, sales only rose slightly as the higher volumes were partially offset by price declines, particularly in South America, and negative currency effects. The lower average margin and the difficult market environment in Brazil had a stronger impact on earnings development than anticipated. Our earnings were also reduced by the shutdowns of our production facilities in Beaumont, Texas, and Manatí, Puerto Rico, because of the hurricanes. As a result, EBIT before special items did not increase slightly, but declined slightly.

In the **Oil & Gas** segment, sales and EBIT before special items rose considerably as expected.

Both sales and EBIT before special items rose considerably in **Other** and thus corresponded to our forecast.

In 2017, we invested a total of €3.7 billion in capital expenditures,<sup>4</sup> less than the anticipated level of around €3.9 billion. **Investments** in the Chemicals and Oil & Gas segments in particular were below the values considered in our planning.

<sup>3</sup> We most recently revised our forecast in October 2017 to a significant increase in EBIT before special items, EBIT and EBIT after cost of capital.

<sup>4</sup> Excluding additions to property, plant and equipment resulting from acquisitions, capitalized exploration, restoration obligations and IT investments

# Net assets

#### Assets

	December 31, 2017		December 31, 2016	
	Million €	%	Million €	%
Intangible assets	13,594	17.3	15,162	19.8
Property, plant and equipment	25,258	32.0	26,413	34.5
Investments accounted for using the equity method	4,715	6.0	4,647	6.1
Other financial assets	606	0.8	605	0.8
Deferred tax assets	2,118	2.7	2,513	3.3
Other receivables and miscellaneous assets	1,332	1.7	1,210	1.6
Noncurrent assets	47,623	60.5	50,550	66.1
Inventories	10,303	13.1	10,005	13.1
Accounts receivable, trade	11,190	14.2	10,952	14.3
Other receivables and miscellaneous assets	3,105	3.9	3,078	4.0
Marketable securities	52	0.1	536	0.7
Cash and cash equivalents	6,495	8.2	1,375	1.8
Current assets	31,145	39.5	25,946	33.9
Total assets	78,768	100.0	76,496	100.0

## Assets

- Growth in total assets primarily attributable to higher cash and cash equivalents
- Decline in noncurrent assets mainly due to currency effects

Total assets amounted to €78,768 million, up €2,272 million on the prior-year figure.

Noncurrent assets decreased by €2,927 million to €47,623 million, mostly as a result of currency effects. The value of intangible assets declined by €1,568 million to €13,594 million. Additions amounted to €336 million, €97 million of which was goodwill. Currency effects reduced intangible assets by €1,071 million, amortization<sup>1</sup> by €616 million and disposals by €43 million.

The value of property, plant and equipment declined by  $\in 1,155$  million to  $\in 25,258$  million. Additions amounted to  $\in 4,028$  million,  $\in 4,020$  million of which was attributable to investments. Depreciation<sup>1</sup> reduced property, plant and equipment by  $\in 3,586$  million, currency effects by  $\in 1,663$  million and disposals by  $\in 118$  million.

Investments accounted for using the equity method rose by  $\in 68$  million to  $\notin 4,715$  million. This was primarily due to the acquisition of a  $\notin 184$  million minority interest in the Stahl group, to which we transferred our leather chemicals business. Currency effects of minus  $\notin 143$  million in particular had an offsetting effect.

Other financial assets were on a level with the previous year, at  $\in$ 606 million. Deferred tax assets declined by  $\in$ 395 million to  $\in$ 2,118 million, primarily from the tax reform in the United States and lower provisions for pensions and similar obligations. Other receivables and miscellaneous assets rose by  $\in$ 122 million year-on-year to  $\in$ 1,332 million, mainly due to higher loan receivables.

Current assets increased by  $\in$ 5,199 million to  $\in$ 31,145 million. This was largely attributable to cash and cash equivalents. At  $\in$ 6,495 million, these were up  $\in$ 5,120 million on the figure as of December 31, 2016 and were primarily increased in view of payment of the purchase prices for the planned acquisition of significant parts of the seed and non-selective herbicide businesses from Bayer and the global polyamide business from Solvay.

The €238 million increase in trade accounts receivable was attributable to higher sales compared with the previous year. Inventories rose by €298 million; other receivables and miscellaneous assets increased by €27 million. Marketable securities declined by €484 million, mostly from the €500 million contribution to BASF Pensionstreuhand e.V., Ludwigshafen am Rhein, Germany.

A For more information on the composition and development of individual asset items, see the Notes to the Consolidated Financial Statements from page 201 onward

# Financial position

## Equity and liabilities

	December 31, 2017		December 31, 2016	
	Million €	%	Million €	%
Paid-in capital	4,293	5.4	4,306	5.6
Retained earnings	34,826	44.2	31,515	41.2
Other comprehensive income	(5,282)	(6.7)	(4,014)	(5.2)
Minority interests	919	1.2	761	1.0
Equity	34,756	44.1	32,568	42.6
Provisions for pensions and similar obligations	6,293	8.0	8,209	10.7
Other provisions	3,478	4.4	3,667	4.8
Deferred tax liabilities	2,731	3.5	3,317	4.3
Financial indebtedness	15,535	19.7	12,545	16.4
Other liabilities	1,095	1.4	873	1.2
Noncurrent liabilities	29,132	37.0	28,611	37.4
Accounts payable, trade	4,971	6.3	4,610	6.0
Provisions	3,229	4.1	2,802	3.7
Tax liabilities	1,119	1.4	1,288	1.7
Financial indebtedness	2,497	3.2	3,767	4.9
Other liabilities	3,064	3.9	2,850	3.7
Current liabilities	14,880	18.9	15,317	20.0
Total equity and liabilities	78,768	100.0	76,496	100.0

# **Equity and liabilities**

- Equity ratio at 44.1%, compared with 42.6% in previous year
- Higher financial indebtedness in preparation for planned acquisitions

Equity rose by  $\notin 2,188$  million year-on-year to  $\notin 34,756$  million. Retained earnings increased by  $\notin 3,311$  million to  $\notin 34,826$  million. Other comprehensive income declined by  $\notin 1,268$  million to minus  $\notin 5,282$  million. This decrease was mainly due to currency effects, primarily as a result of the weaker U.S. dollar. The remeasurement of defined benefit plans in particular had an offsetting effect. The equity ratio was 44.1% (2016: 42.6%).

Compared with the end of 2016, noncurrent liabilities grew by  $\in$ 521 million to  $\in$ 29,132 million. This was primarily attributable to noncurrent financial indebtedness, which increased by  $\in$ 2,990 million. New bonds in EUR, USD, NOK and GBP were issued in 2017 with an aggregate carrying amount of  $\in$ 4,852 million at the year-end and maturities of between two and 20 years; they serve general company purposes and to finance the planned acquisitions of significant parts of the seed and nonselective herbicide businesses from Bayer and the global polyamide business from Solvay. These also included bonds with nondilutive warrants due in 2023 with a carrying amount of  $\in$ 664 million. Upon exercise, the warrants will be cash-settled only; no new shares will be issued, nor will existing shares of BASF SE be serviced. As a hedge, BASF has purchased corresponding call options. Three eurobonds due in 2018 with an aggregate carrying amount of €1,773 million were reclassified to current financial indebtedness. Noncurrent liabilities to banks rose by €170 million, mainly as a result of loans taken out with the European Investment Bank and the Kreditanstalt für Wiederaufbau, a German government development bank. The partial transfer of the financing for gas transportation activities to a newly established equity-accounted company had an offsetting effect. Provisions for pensions and similar obligations decreased by €1,916 million, mainly as a result of the positive performance of plan assets. Noncurrent other provisions declined by €189 million. The €586 million decrease in deferred tax liabilities was largely due to the reduction in the U.S. corporate tax rate from 35% to 21%, which accounted for €653 million of this figure. Noncurrent other liabilities rose by €222 million.

Current liabilities declined by €437 million to €14,880 million. This was primarily attributable to the €1,270 million decrease in current financial indebtedness, mostly from the scheduled repayment of four bonds in EUR and GBP with an aggregate carrying amount of €1,359 million, as well as the the complete scaling back of our U.S. dollar commercial paper program, which accounted for €1,033 million. Current liabilities to banks declined by €646 million; this mainly related to loans in Brazil. The reclassification of the above bonds increased current financial indebtedness accordingly. Current tax liabilities declined by €169 million. Trade accounts payable rose by €361 million, current provisions by €427 million and current other liabilities by €214 million.

Overall, financial indebtedness grew by €1,720 million to €18,032 million. Net debt declined by €2,916 million to €11,485 million. This is calculated by subtracting marketable securities and cash and cash equivalents from current and noncurrent financial indebtedness. This balance-related indicator provides information on effective indebtedness.

For more information on the development of the balance sheet, see the Ten-Year Summary on page 248

#### Net debt (million €)

	Dec. 31, 2017	Dec. 31, 2016
Noncurrent financial indebtedness	15,535	12,545
+ Current financial indebtedness	2,497	3,767
Financial indebtedness	18,032	16,312
- Marketable securities	52	536
- Cash and cash equivalents	6,495	1,375
Net debt	11,485	14,401

# Financing policy and credit ratings

## Financing principles remain unchanged

# "A" ratings confirmed

Our financing policy is aimed at ensuring 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 at least 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.

### Maturities of financial indebtedness (million €)

2018	2,497	
2019	2,052	
2020	1,845	
2021	1,140	
2022	1,781	
2023 and beyond	8,717	

Rated "A1/P-1/outlook stable" by Moody's, "A/A-1/outlook stable" by Standard & Poor's and "A/S-1/outlook stable" by Scope, BASF enjoys good credit ratings, especially compared with competitors in the chemical industry. These ratings were most recently confirmed by the above agencies in the fourth quarter of 2017 (Moody's: December 19; Standard & Poor's and Scope: October 18).

We have solid financing. 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 investor base and optimize our debt capital financing conditions.

For short-term financing, we use BASF SE's U.S. dollar commercial paper program, which has an issuing volume of up to \$12.5 billion. As of December 31, 2017, no commercial paper was outstanding under this program (December 31, 2016: \$1,089 million). Firmly committed, syndicated credit lines of €6 billion serve to cover the repayment of outstanding commercial paper, and can also be used for general company purposes. These credit lines were not used at any point in 2017. Our external financing is therefore largely independent of short-term fluctuations in the credit markets.

#### Financing instruments (million €)

1	Bonds and other liabilities			
	to the capital market	15,653	C10.000	
2	U.S. dollar commercial paper		€18,032 million	
3	Liabilities to banks	2,379		

Off-balance-sheet financing tools, such as leasing, are of minor importance to us. 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).

A For more information on the financing tools used, see Note 24 from page 218 onward and Note 27 from page 222 onward in the Notes to the Consolidated Financial Statements

To minimize risks and exploit 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 by means of derivative financial instruments in the market.

Our interest risk management generally pursues the goal of reducing interest expenses for the BASF Group and limiting interest risks. Interest rate hedging transactions are therefore conducted with banks in order to turn selected liabilities to the capital market from fixed interest to variable rates or vice versa.

For more information on the composition and development of individual equity and liability items, see the Notes to the Consolidated Financial Statements from page 209 onward

## Statement of Cash Flows

# Cash provided by operating activities and free cash flow significantly above previous year

**Cash provided by operating activities** improved by €1,068 million year-on-year to €8,785 million in 2017. This was due to higher net income. In contrast with the previous year, the change in net working capital reduced cash flow. This was largely attributable to the higher level of cash tied up in inventories and trade accounts receivable for operational reasons. Miscellaneous items in 2017 mainly related to the adjustment of earnings contributions from investments accounted for using the equity method. In the previous year, this item primarily included the transfer of disposal gains to cash used in investing activities.

**Cash used in investing activities** amounted to €3,958 million in 2017 compared with €6,490 million in 2016. Payments made for property, plant and equipment and intangible assets amounted to €3,996 million, below both the prioryear figure (€4,145 million) and the level of amortization and depreciation of intangible assets, property, plant and equipment, and financial assets (€4,213 million).

Acquisitions and divestitures in 2017 resulted in net payments received of  $\in$ 27 million. In comparison, net payments of  $\in$ 2,164 million were made in 2016, primarily as a result of the acquisition of Chemetall.

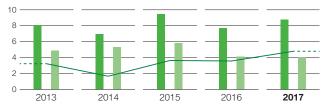
The cash inflow from financial assets and other items in 2017 amounted to  $\in$ 11 million. In the previous year, the acquisition of marketable securities in particular led to net payments made of  $\in$ 181 million.

For more information on investments and acquisitions, see page 40 onward **Cash provided by financing activities** amounted to €394 million in 2017, compared with cash used in financing activities of €2,160 million in the previous year. Changes in financial liabilities resulted in a cash inflow of €3,248 million. This was mainly due to the issue of bonds with a volume of around €5 billion. The main offsetting factors were the scheduled repayment of four bonds and the scaling back of BASF SE's U.S. dollar commercial paper program. In 2017, dividends of €2,755 million were paid to shareholders of BASF SE and €118 million to minority interests.

**Cash and cash equivalents** amounted to  $\in$ 6,495 million as of December 31, 2017. They rose by a cash-effective amount of  $\in$ 5,221 million in 2017, largely in preparation for payment of the purchase prices for the planned transactions with Bayer and Solvay.

Free cash flow represents the financial resources remaining after deducting payments made for property, plant and equipment and intangible assets from cash provided by operating activities. It rose to  $\notin$ 4,789 million compared with  $\notin$ 3,572 million in the previous year, primarily due to the increase in cash provided by operating activities.

#### Cash flow (billion €)



Cash provided by operating activities

Payments made for property, plant and equipment and intangible assets<sup>1</sup>
 Free cash flow

<sup>1</sup> Including investments to the extent that they already had an effect on cash

## Statement of cash flows (million ${\ensuremath{\in}}$ )

	2017	2016
Net income	6,078	4,056
Depreciation and amortization of intangible assets, property, plant and equipment, and financial assets	4,213	4,291
Changes in net working capital	(1,167)	104
Miscellaneous items	(339)	(734)
Cash provided by operating activities	8,785	7,717
Payments made for property, plant and equipment and intangible assets	(3,996)	(4,145)
Acquisitions/divestitures	27	(2,164)
Financial assets and other items	11	(181)
Cash used in investing activities	(3,958)	(6,490)
Capital increases/repayments and other equity transactions	19	28
Changes in financial liabilities	3,248	579
Dividends	(2,873)	(2,767)
Cash provided by/used in financing activities	394	(2,160)
Net changes in cash and cash equivalents	5,221	(933)
Cash and cash equivalents at the beginning of the year and other changes	1,274	2,308
Cash and cash equivalents at the end of the year	6,495	1,375

# Business review by segment

# Segment overview (million €)

	Sales		depreciation an	Income from operations before depreciation and amortization (EBITDA)		Income from operations (EBIT) before special items	
	2017	2016	2017	2016	2017	2016	
Chemicals <sup>1</sup>	16,331	12,905	5,374	3,114	4,233	2,032	
Performance Products <sup>1</sup>	16,217	15,558	2,427	2,577	1,416	1,777	
Functional Materials & Solutions	20,745	18,732	2,251	2,906	1,617	1,946	
Agricultural Solutions	5,696	5,569	1,282	1,305	1,033	1,087	
Oil & Gas	3,244	2,768	2,069	1,596	793	517	
Other	2,242	2,018	(679)	(972)	(764)	(1,050)	
	64,475	57,550	12,724	10,526	8,328	6,309	

#### Segment overview (million €)

	Income from op (EBIT)	erations	Assets	5	Investments including acquisitions <sup>2</sup>	
	2017	2016	2017	2016	2017	2016
Chemicals <sup>1</sup>	4,208	1,953	13,233	13,124	1,149	1,185
Performance Products <sup>1</sup>	1,510	1,678	14,432	14,911	800	892
Functional Materials & Solutions	1,545	2,199	17,364	17,359	1,056	3,679
Agricultural Solutions	1,015	1,037	8,096	8,899	185	266
Oil & Gas	1,043	499	11,967	12,829	988	1,115
Other	(799)	(1,091)	13,676	9,374	186	121
	8,522	6,275	78,768	76,496	4,364	7,258

## Contributions to total sales by segment

Chemicals	25%	
Performance Products	25%	
Functional Materials & Solutions	32%	
Agricultural Solutions	9%	
Oil & Gas	5%	
Other	4%	

## Contributions to EBITDA by segment

Chemicals	42%	
Performance Products	19%	
Functional Materials & Solutions	18%	
Agricultural Solutions	10%	
Oil & Gas	16%	
Other	(5%)	

<sup>1</sup> On January 1, 2017, the Monomers and Dispersions & Pigments divisions' activities for the electronics industry were merged into the global Electronic Materials business unit and allocated to the Dispersions & Pigments division. For better comparability, the affected figures for 2016 have been adjusted accordingly.

<sup>2</sup> Additions to property, plant and equipment (thereof from acquisitions: €8 million in 2017 and €155 million in 2016) and intangible assets (thereof from acquisitions: €235 million in 2017 and €2,789 million in 2016)

## Sales<sup>1</sup> (million €)

	1st quarter		2nd quarter		3rd quarter		4th quarter	
	2017	2016	2017	2016	2017	2016	2017	2016
Chemicals <sup>2</sup>	4,105	3,019	4,045	3,236	4,023	3,227	4,158	3,423
Performance Products <sup>2</sup>	4,260	3,913	4,142	3,983	3,983	3,921	3,832	3,741
Functional Materials & Solutions	5,198	4,408	5,261	4,703	4,975	4,660	5,311	4,961
Agricultural Solutions	1,855	1,780	1,526	1,459	987	1,049	1,328	1,281
Oil & Gas	829	611	814	617	739	618	862	922
Other	610	477	476	485	548	538	608	518
	16,857	14,208	16,264	14,483	15,255	14,013	16,099	14,846

# Income from operations (EBIT) before special items<sup>1</sup> (million €)

	1st quarter		2nd quarter		3rd quarter		4th quarter	
	2017	2016	2017	2016	2017	2016	2017	2016
Chemicals <sup>2</sup>	958	457	1,120	458	1,102	488	1,053	629
Performance Products <sup>2</sup>	515	555	405	512	385	473	111	237
Functional Materials & Solutions	531	456	422	535	397	497	267	458
Agricultural Solutions	533	591	272	320	21	97	207	79
Oil & Gas	170	66	183	94	180	194	260	163
Other	(250)	(219)	(151)	(212)	(325)	(233)	(38)	(386)
	2,457	1,906	2,251	1,707	1,760	1,516	1,860	1,180

# Income from operations (EBIT)<sup>1</sup> (million €)

	1st quarter		2nd quarter		3rd quarter		4th quarter	
	2017	2016	2017	2016	2017	2016	2017	2016
Chemicals <sup>2</sup>	974	460	1,119	458	1,089	490	1,026	545
Performance Products <sup>2</sup>	499	543	363	495	567	467	81	173
Functional Materials & Solutions	521	452	427	531	357	492	240	724
Agricultural Solutions	531	590	270	288	20	93	194	66
Oil & Gas	169	66	183	93	255	178	436	162
Other	(243)	(245)	(181)	(147)	(330)	(256)	(45)	(443)
	2,451	1,866	2,181	1,718	1,958	1,464	1,932	1,227

### Contributions to EBIT before special items by segment

Chemicals	51%	
Performance Products	17%	
Functional Materials & Solutions	19%	
Agricultural Solutions	12%	
Oil & Gas	10%	
Other	(9%)	

### Contributions to EBIT by segment

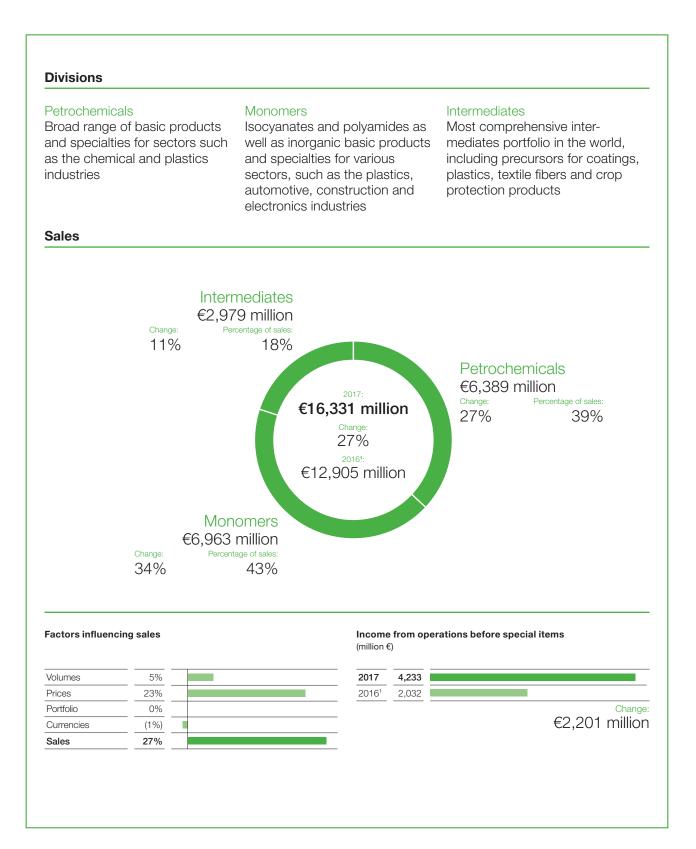
Chemicals	49%	
Performance Products	18%	
Functional Materials & Solutions	18%	
Agricultural Solutions	12%	
Oil & Gas	12%	
Other	(9%)	

<sup>1</sup> Quarterly results not audited

<sup>2</sup> On January 1, 2017, the Monomers and Dispersions & Pigments divisions' activities for the electronics industry were merged into the global Electronic Materials business unit and allocated to the Dispersions & Pigments division. For better comparability, the affected figures for 2016 have been adjusted accordingly.

# Chemicals

The Chemicals segment consists of the Petrochemicals, Monomers and Intermediates divisions. In our integrated production facilities – our Verbund – we produce a broad range of basic chemicals and intermediates in Europe, Asia, North America and South America.



## How we create value – an example

# **Ultramid® Flex F38**

High-performance copolyamide for more sustainable packaging solutions

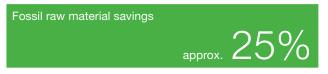
# Value for BASF

Expected average sales growth by 2025



Ultramid<sup>®</sup> Flex F38 gives plastics – like those used in food packaging – exceptional properties such as high tear resistance, transparency and softness even at lower temperatures. The innovative copolyamide is partly made from renewable raw materials, enabling our customers to offer more sustainable packaging solutions. We expect the product to generate average sales growth of over 25% by 2025.

# Value for the environment and society



BASF uses a monomer made from a regionally-grown rapeseed oil in the production of Ultramid<sup>®</sup> Flex F38. This reduces the consumption of fossil raw materials by around 25% compared with conventional polyamides, and also cuts greenhouse gas emissions of CO<sub>2</sub> equivalents<sup>1</sup> by 25% in the production process. These emissions are already lower than industry standards in BASF's Verbund production.

### Strategy

- Integrated production facilities form core of Verbund
- Technology and cost leadership provide most important competitive edge

With its production facilities, the Chemicals segment is at the heart of the Verbund structure and supplies BASF's segments with basic chemicals for the production of downstream products. We add value with innovations in processes and production, and invest in future markets. As a reliable supplier, we provide chemicals of consistent quality and market them to customers in downstream industries. We continually improve our value chains and are expanding our market position – particularly outside Europe – with new processes and technologies, as well as through investments and collaborations in future markets.

We invest in research and development in order to develop new technologies and to make our existing technologies even more efficient. Cost leadership and a clear orientation along individual value chains are among our most important competitive advantages. We concentrate on the critical success factors of the classic chemicals business: making use of economies of scale, the advantages of our Verbund, high capacity utilization, continuous optimization of access to raw materials, lean processes, and reliable, cost-effective logistics. Furthermore, we are constantly improving our global production structures and aligning these with regional market requirements. In Ludwigshafen, Germany, we will strengthen the Verbund by replacing our acetylene plant, which plays a central role for many products and value chains, with a modern, highly efficient plant by 2019.

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's global polyamide business by BASF. Solvay and BASF aim to close the transaction in the third quarter of 2018 after regulatory approvals have been obtained and the consent of a joint venture partner has been received. The purchase would strengthen our polyamide 6.6 value chain through increased polymerization capacities and the backward integration into the key raw material ADN (adipodinitrile). BASF plans to integrate Solvay's global polyamide business into the Monomers and Performance Materials divisions.

# Products, customers and applications

Division	Products	Customer industries and applications
Petrochemicals	Basic products: ethylene, propylene, butadiene, benzene, alcohols, solvents, plasticizers, alkylene oxides, glycols and	Use in the BASF Verbund
	acrylic monomers	Chemical and plastics industry, detergent, hygiene, automotive, packaging and textile industries; production of
	Specialties: special plasticizers, special acrylates	paints, coatings, and cosmetics as well as oilfield, construction and paper chemicals
Monomers	Basic products: isocyanates (MDI, TDI), ammonia, caprolactam, adipic acid, chlorine, urea, glues and	Use in the BASF Verbund
	impregnating resins, caustic soda, polyamides 6 and 6.6, standard alcoholates, sulfuric and nitric acid	Industries such as plastics, electronics, lumber, furniture, packaging, textile, construction and automotive
Intermediates	Basic products: butanediol and derivatives, alkylamines and alkanolamines, neopentyl glycol, formic and propionic acid	Use in the BASF Verbund
		Plastics, coatings and pharmaceutical industries, production
	Specialties: specialty amines such as tertiary butylamine and polyetheramine, gas treatment chemicals, vinyl monomers, acid chlorides, chloroformates, chiral intermediates	of detergents and cleaners as well as crop protection products and textile fibers

# Production capacities of significant products<sup>1</sup>

Product	Europe	North America	Asia Pacific	South America, Africa, Middle East	Annual capacity (metric tons)
Acrylic acid					1,510,000
Alkylamines					250,000
Formic acid					305,000
Ammonia					1,525,000
Benzene					910,000
Butadiene					680,000
Butanediol equivalents					670,000
Chlorine					385,000
Ethanolamines and derivatives					430,000
Ethylene					3,480,000
Ethylene oxide					1,445,000
Urea					545,000
Isocyanates					2,610,000
Caustic soda					360,000
Neopentyl glycol					205,000
Oxo-C4 alcohols (calculated as butyraldehyde)					1,625,000
Polyamide 6 and 6.6					820,000
Polyamide precursors					910,000
PolyTHF®					350,000
Propionic acid					150,000
Propylene					2,610,000
Propylene oxide					675,000
Sulfuric acid					920,000
Plasticizers					595,000

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

## Investments

Location	Project	Additional annual capacity through expansion (metric tons)	Total annual capacity (metric tons)	Startup
Freeport, Texas	Construction: ammonia plant <sup>1</sup>		750,000	2018
Ludwigshafen, Germany	Replacement: acetylene plant		90,000	2019
Nanjing, China	Construction: specialty amines plant	21,000	n/a	2019
	Expansion: propionic acid plant <sup>2</sup>	30,000	69,000	2019
Pasadena, Texas	Changeover of plasticizers production to dioctyl terephthalate (DOTP)		60,000	2017
Shanghai, China	Expansion: MDI plant <sup>3</sup>	240,000	480,000	2017

<sup>1</sup> Operated by an associated company with Yara International ASA

<sup>2</sup> Operated by a joint venture with Sinopec
 <sup>3</sup> Operated by an associated company with Huntsman, Shanghai Hua Yi (Group) Company, Shanghai Chlor-Alkali Chemical Co. Ltd. and Sinopec Group Assets Management Corp.

#### Segment data<sup>1</sup> (million €)

	2017	2016	Change in %
Sales to third parties	16,331	12,905	27
Thereof Petrochemicals	6,389	5,035	27
Monomers	6,963	5,189	34
Intermediates	2,979	2,681	11
Intersegmental transfers	6,063	4,832	25
Sales including intersegmental transfers	22,394	17,737	26
Income from operations before depreciation and amortization (EBITDA)	5,374	3,114	73
EBITDA margin	6 32.9	24.1	
Amortization and depreciation <sup>2</sup>	1,166	1,161	0
Income from operations (EBIT)	4,208	1,953	115
Special items	(25)	(79)	68
EBIT before special items	4,233	2,032	108
EBIT after cost of capital	2,895	690	320
Assets	13,233	13,124	1
Investments including acquisitions <sup>3</sup>	1,149	1,185	(3)
Research and development expenses	128	145	(12)

<sup>1</sup> On January 1, 2017, the Monomers and Dispersions & Pigments divisions' activities for the electronics industry were merged into the global Electronic Materials business unit and allocated to the Dispersions & Pigments division. For better comparability, the affected figures for 2016 have been adjusted accordingly.

<sup>2</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

<sup>3</sup> Additions to intangible assets and property, plant and equipment

## **Chemicals segment**

- Sales grow by 27% to €16,331 million, mainly due to higher prices
- Stronger margins increase EBIT before special items by 108% to €4,233 million

In the Chemicals segment, sales to third parties increased by  $\in$ 3,426 million to  $\in$ 16,331 million in 2017 (volumes 5%, prices 23%, portfolio 0%, currencies –1%). This was primarily attributable to higher prices, especially in the Monomers division. We increased volumes in all divisions.

Income from operations (EBIT) before special items rose by €2,201 million to €4,233 million, mainly as a result of higher margins for isocyanates in the Monomers division. Stronger margins in the Petrochemicals and Intermediates divisions also contributed to the increase in earnings; slightly higher fixed costs had an offsetting effect. The negative impact on earnings in 2017 caused by the North Harbor accident at the Ludwigshafen site in October 2016 was compensated by insurance payments. EBIT rose by €2,255 million to €4,208 million. Overall, special items did not have a substantial impact.

 $\bigcirc$  For the Outlook for 2018, see page 123

## Petrochemicals

- Sales rise by 27% to €6,389 million, primarily as a result of price increases
- Considerable increase in EBIT before special items due to higher margins

Sales to third parties in the Petrochemicals division rose by €1,354 million to €6,389 million in 2017. This was mainly due to significantly higher sales prices in all regions and in almost all strategic business units, particularly for steam cracker products. Prices largely followed the higher raw materials prices for naphtha and butane, our most important feedstock. Sales volumes rose overall. Volumes rose significantly in North America, mainly as a result of higher capacity utilization of the steam cracker and the condensate splitter in Port Arthur, Texas. In Europe, sales volumes were up slightly from the previous year: Higher volumes, especially for steam cracker products, were able to compensate for the limited volumes growth for plasticizers and in the alcohols and solvents business following the accident at the North Harbor.

#### Petrochemicals - Factors influencing sales

Volumes	8%	
Prices	20%	
Portfolio	0%	
Currencies	(1%)	
Sales	27%	

#### Petrochemicals – Sales by region (Location of customer)

1	Europe	55%			
2	North America	34%		€6,389 million	
3	Asia Pacific	8%	2	£0,369 minion	
4	South America, Africa, Middle East	3%			

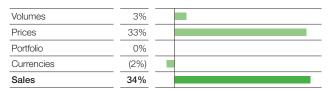
EBIT before special items considerably exceeded the 2016 figure as a result of higher margins. In Europe in particular, margins for steam cracker products as well as for alkylene oxides and glycols rose significantly. Margins for acrylic monomers and oxo alcohols also developed positively overall, mainly due to strong demand and low product availability. The negative impact on earnings in 2017 caused by the North Harbor accident was offset by insurance payments.

## Monomers

- Sales up 34% at €6,963 million, mainly due to higher prices
- Considerable increase in EBIT before special items, primarily from stronger isocyanate margins

Sales to third parties in the Monomers division rose by  $\in 1,774$  million to  $\in 6,963$  million in 2017, largely as a result of higher prices. Robust demand and the temporary product shortages on the market led to a strong price increase, especially in the isocyanates business. Sales prices for polyamides also rose. We achieved year-on-year volumes growth with our new production facilities.

#### Monomers - Factors influencing sales



#### Monomers – Sales by region (Location of customer)

1	Europe	39%		
2	North America	20%	3	66 062
3	Asia Pacific	34%		€6,963
4	South America, Africa, Middle East	7%		
_				



Stronger margins and volumes for isocyanates were the main reason for the considerable increase in EBIT before special items in the Monomers division. Earnings were also positively impacted by the restructuring of our caprolactam production in Europe. Fixed costs exceeded the prior-year level, mainly from our new production facilities.

# Intermediates

- Sales growth of 11% to €2,979 million due to higher prices and volumes
- EBIT before special items slightly above the prior-year level due to margin and volumes growth

Sales to third parties in the Intermediates division rose by €298 million year-on-year to €2,979 million. This was mainly due to higher prices, particularly in the butanediol and derivatives as well as the acids and polyalcohols businesses. We were able to raise volumes in all regions in 2017. The amines business in Europe and Asia showed especially strong growth. Negative exchange rate effects and the divestiture of the inorganic specialties business in the first quarter of 2017, which included the site in Evans City, Pennsylvania, slightly dampened sales growth.

#### Intermediates – Factors influencing sales

Volumes	4%	
Prices	10%	
Portfolio	(1%)	
Currencies	(2%)	
Sales	11%	

#### Intermediates – Sales by region (Location of customer)

(Location of edistomer)

1	Europe	42%		
2	North America	17%	3	€2.979
3	Asia Pacific	38%		€2,975
4	South America, Africa, Middle East	3%		

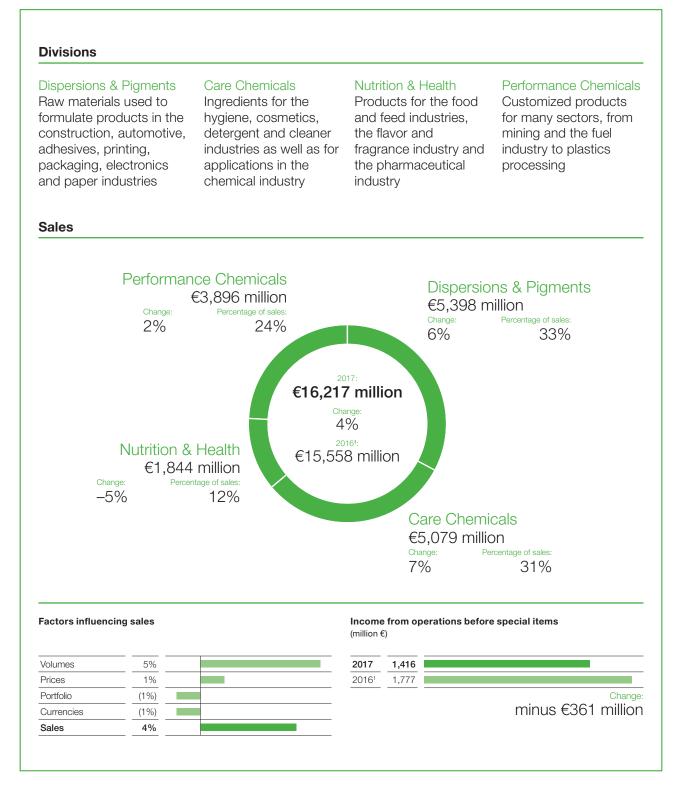


EBIT before special items in 2017 was up slightly from the previous year: Improved margins and higher sales volumes more than compensated for the rise in fixed costs. The year-on-year increase in fixed costs was primarily due to a higher number of plant maintenance activities, the startup of new production plants in all regions, as well as unplanned repairs.

The construction of the new acetylene plant in Ludwigshafen, Germany, is progressing on schedule.

# Performance Products

The Performance Products segment consists of the Dispersions & Pigments, Care Chemicals, Nutrition & Health and Performance Chemicals divisions. Our offerings enhance the performance of industrial and consumer products worldwide. With our tailor-made solutions, our customers can make their production processes more efficient and give their products improved application properties.



## How we create value – an example

## Hydraulan<sup>®</sup> 406 ESI

New low-viscous brake fluid for enhanced driving safety

# Value for BASF

Market growth compared with the market for brake fluids as a whole



BASF has developed and sold brake fluids for the automotive industry for over 60 years. Hydraulan<sup>®</sup> 406 ESI enables us to secure a leading position in the attractive market segment for low-viscous brake fluids, which is growing twice as fast as the market as a whole. The new product meets several international market standards<sup>1</sup> as well as the new requirements of automotive manufacturers, particularly with respect to assisted and autonomous driving.

# Value for our customers

Lower viscosity compared with standard products

>50%

As electronic systems become more and more complex, the demands on the braking system also increase. Brake fluids are a safety factor – they must ensure fast signal processing and breaking reactions. A low viscosity is crucial here. With a viscosity that is more than 50% lower than standard products,<sup>2</sup> Hydraulan<sup>®</sup> 406 ESI significantly improves braking safety – even under difficult conditions.

## Strategy

- Tailor-made products and solutions improve our customers' applications and processes
- Global presence ensures reliable supply to customers in all regions

We take on the challenges posed by important future issues, especially population growth: scarce resources, environmental and climatic stressors, greater demand for food and the desire for better quality of life. In doing so, we focus on research and development and maintain close relationships to leading companies in our customer industries. We position ourselves globally in order to reliably supply customers in all regions. We invest in the development of innovations that enable our products and processes – as well as our customers' applications and processes – to make a contribution to sustainability: for example, by allowing resources to be used more efficiently.

Our products create additional value for our customers, providing a competitive advantage. We develop new solutions together with our customers and strive for long-term partnerships that create profitable growth opportunities for both sides. In this way, we aim to strengthen our focus on highly specialized applications in the business fields of displays and semi-conductors in the electronics industry, for example.

A different business model is pursued for standard products such as vitamins or dispersions for paper coatings. Here, efficient production setups, backward integration in our Production Verbund's value chains, capacity management, and technology and cost leadership are all essential.

We support our customers by serving as a reliable supplier with consistently high product quality, good value for money and lean processes. In the Dispersions & Pigments division, for instance, we draw on our in-depth knowledge of the areas of application and technological innovations to strengthen customer relationships in key industries.

At the Caojing site in Shanghai, China, we are planning a new plant for plastic additives (antioxidants), which is expected to be completed in 2019. We are expanding our existing ibuprofen production capacities in Bishop, Texas, and are planning the construction of a new world-scale ibuprofen plant in Ludwigshafen, Germany, scheduled for startup in 2021.

<sup>1</sup> DOT 3, DOT 4, DOT 5.1

<sup>&</sup>lt;sup>2</sup> Brake fluids in accordance with DOT 3 and DOT 4

# Products, customers and applications

Division	Products	Customer industries and applications
Dispersions & Pigments	Polymer dispersions, pigments, resins, high-performance additives, formulation additives, electronic materials	Raw materials used to formulate products for industries such as construction, automotive, adhesive, printing, packaging, electronics and paper
Care Chemicals	Ingredients for skin and hair cleansing and care products, such as emollients, cosmetic active ingredients, polymers and UV filters	Cosmetics industry, hygiene industry, detergent and cleaner industry, agricultural industry and technical applications
	Ingredients for detergents and cleaners in household, institution or industry, such as surfactants, enzymes, chelating agents, polymers, biocides and products for optical effects	
	Solvents and other ingredients for crop protection product formulations, as well as products for concrete additives and chemical processes such as metal surface treatments or textile processing	
	Superabsorbents for baby diapers, incontinence products and feminine hygiene articles	
Nutrition & Health	Additives for the food and feed industries, such as vitamins, carotenoids, sterols, enzymes, emulsifiers and omega-3 fatty acids	Food and feed industries, flavor and fragrance industry and pharmaceutical industry
	Flavors and fragrances, such as geraniol, citronellol, L-menthol and linalool	
	Excipients for the pharmaceutical industry and selected, high-volume active pharmaceutical ingredients, such as ibuprofen and omega-3 fatty acids	
Performance Chemicals	Antioxidants, light stabilizers and flame retardants for plastic applications	Plastics processing industry, automotive industry, fuel and lubricant industry, oil and gas industry, mining industry, municipal and industrial water treatment as well as paper
	Fuel and refinery additives, polyisobutene, brake fluids and engine coolants, lubricant additives and basestocks, components for metalworking fluids and compounded lubricants	industry and packaging made of paper
	Process chemicals for the extraction of oil, gas, metals and minerals, chemicals for enhanced oil recovery	
	Functional chemicals and process chemicals for the production of paper and cardboard, water treatment chemicals, membrane technologies, kaolin minerals	

## Production capacities of significant products<sup>1</sup>

Europe	North America	Asia Pacific	South America, Africa, Middle East	Annual capacity (metric tons)
				600,000
				78,000
				170,000
				30,000
				630,000
				265,000
				590,000
	Europe		Sites       Europe     North America     Asia Pacific       Image: Sites     Image: Sites     Image: Sites       Image: Sites     Image: Sites     Image: Sites <td>South America,</td>	South America,

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

## Investments

Location	Project	Startup
Antwerp, Belgium	Flexibilization: superabsorbent plant	2017
Besigheim, Germany	Expansion: production plant for bismuth vanadate pigments	2017
Kuantan, Malaysia	Construction: aroma ingredients complex	2017/2018
	Construction: polyisobutene plant	2017
Ludwigshafen, Germany	Expansion: polyvinylpyrrolidone plant	2017
	Expansion: production plant for resins (Basonat®)	2017
	Expansion: production plant for dispersions	2018
	Construction: production plant for vitamin A	2020
	Construction: production plant for ibuprofen	2021
Nanjing, China	Construction: production plant for bio-acrylamide	2017
	Expansion: polyacrylamide plant	2018
Shanghai, China	Construction: production plant for emollients and waxes	2017
	Construction: production plant for plastic additives	2019

## Segment data<sup>1</sup> (million €)

	2017	2016	Change in %
Sales to third parties	16,217	15,558	4
Thereof Dispersions & Pigments	5,398	5,086	6
Care Chemicals	5,079	4,735	7
Nutrition & Health	1,844	1,932	(5)
Performance Chemicals	3,896	3,805	2
Intersegmental transfers	506	469	8
Sales including intersegmental transfers	16,723	16,027	4
Income from operations before depreciation and amortization (EBITDA)	2,427	2,577	(6)
EBITDA margin %	15.0	16.6	-
Amortization and depreciation <sup>2</sup>	917	899	2
Income from operations (EBIT)	1,510	1,678	(10)
Special items	94	(99)	
EBIT before special items	1,416	1,777	(20)
EBIT after cost of capital	26	205	(87)
Assets	14,432	14,911	(3)
Investments including acquisitions <sup>3</sup>	800	892	(10)
Research and development expenses	395	399	(1)

<sup>1</sup> Effective January 1, 2017, the Chemicals and Performance Products segments' activities for the electronics industry were merged and allocated to the Performance Products segment as the Electronic Materials global business unit. To facilitate comparability, the relevant figures for 2016 have been adjusted accordingly.

<sup>2</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

<sup>3</sup> Additions to intangible assets and property, plant and equipment

# **Performance Products segment**

- Sales up 4% at €16,217 million, mainly driven by higher volumes
- EBIT before special items decreases by 20% to €1,416 million as a result of lower margins

At €16,217 million, sales to third parties in the Performance Products segment were €659 million above the prioryear figure in 2017 (volumes 5%, prices 1%, portfolio –1%, currencies –1%). This is mainly attributable to volumes growth in all divisions. Higher sales prices in the Care Chemicals and Dispersions & Pigments divisions also had a positive impact on sales. Portfolio measures and negative currency effects in all divisions reduced sales slightly.

Income from operations (EBIT) before special items declined by  $\notin$ 361 million year-on-year to  $\notin$ 1,416 million. This was largely due to lower margins, primarily as a result of higher raw materials prices that could not be fully passed on via sales prices. Compared with 2016, EBIT declined by  $\notin$ 168 million to  $\notin$ 1,510 million. Special income in the Performance Chemicals division from the transfer of BASF's leather chemicals business to the Stahl group only partially compensated for the margin-related decline in earnings.

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## **Dispersions & Pigments**

- Higher volumes and prices lift sales by 6% year-on-year to €5,398 million
- EBIT before special items considerably below prior-year level, mainly due to lower margins

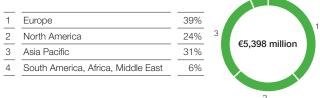
Sales to third parties in the Dispersions & Pigments division amounted to  $\in$ 5,398 million, up  $\in$ 312 million from the previous year. This positive development was driven by volumes growth and higher sales prices in the dispersions business. Portfolio and currency effects were slightly negative overall. The acquisition of Rolic AG, Allschwil, Switzerland, in February 2017, had a positive impact on sales, while the divestiture of the photoinitiator business in August 2016 had a dampening effect.

This divestiture reduced sales in the additives business; sales increased in all other business areas. Our sales volumes rose in all business areas, particularly in the dispersions and electronic materials businesses. Sales prices in the dispersions business increased on the back of higher raw materials prices. In the remaining business areas, particularly electronic materials and pigments, sales prices were pushed down by stronger market competition.

#### **Dispersions & Pigments – Factors influencing sales**

Volumes	6%	
Prices	2%	
Portfolio	(1%)	
Currencies	(1%)	
Sales	6%	

#### Dispersions & Pigments – Sales by region (Location of customer)



4

Despite the rise in sales and volumes, EBIT before special items declined considerably compared with 2016. This was mainly due to lower margins as a result of the oil price-related increase in raw materials prices as well as slightly higher fixed costs.

## Care Chemicals

- 7% increase in sales to €5,079 million largely due to volumes growth
- Considerable decline in EBIT before special items attributable to lower margins

In the Care Chemicals division, sales to third parties rose by €344 million to €5,079 million in 2017. This was predominantly the result of higher sales volumes, particularly in the hygiene business and of ingredients for the detergents and cleaners industries as well as for the cosmetics industry. Price increases on the back of higher raw materials prices, especially for oleochemical surfactants and fatty alcohols, also had a positive effect on sales. Currency effects reduced sales slightly.

Sales rose in all regions, buoyed by strong demand. Higher volumes led to sales growth in Europe in particular.

### Care Chemicals - Factors influencing sales

Volumes	5%	
Prices	3%	
Portfolio	0%	
Currencies	(1%)	
Sales	7%	

#### Care Chemicals – Sales by region (Location of customer)

1	Europe	50%	3		
2	North America	22%		65.070 million	
3	Asia Pacific	18%	-	€5,079 million	
4	South America, Africa, Middle East	10%			

EBIT before special items declined considerably compared with 2016. This was mainly due to the ongoing pressure on margins for superabsorbents and lower margins for oleochemical surfactants. Fixed costs increased slightly as a result of additional maintenance costs and higher production volumes. Special charges were predominantly attributable to restructuring measures in North America.

In November 2017, we completed the technical retrofitting of the superabsorbent plant at the site in Antwerp, Belgium, where the superabsorbent products Saviva® and HySorb® can be produced.

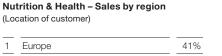
# **Nutrition & Health**

- Sales decline 5% to €1,844 million, primarily as a result of divestitures
- EBIT before special items considerably below the 2016 figure due to higher fixed costs

Sales to third parties in 2017 declined by  $\in 88$  million to  $\in 1,844$  million in the Nutrition & Health division. This was primarily attributable to portfolio effects. Sales were also reduced by slightly lower sales prices, especially for vitamins, as well as negative currency effects. Higher volumes in almost all business areas had an offsetting effect.

#### Nutrition & Health – Factors influencing sales

Volumes	2%	
Prices	(1%)	
Portfolio	(5%)	
Currencies	(1%)	
Sales	(5%)	



2	North America	18%	€1,844 million
3	Asia Pacific	30%	£1,044 IIIIII0II
4	South America, Africa, Middle East	11%	

EBIT before special items declined considerably compared with 2016. This was mainly due to higher fixed costs from the gradual startup of our new aroma ingredients complex in Kuantan, Malaysia, as well as the expansion of capacities at our ibuprofen production facility in Bishop, Texas. Earnings were also reduced by lower margins, especially for vitamins.

On October 31, 2017, a fire occurred during startup of the citral plant in Ludwigshafen, Germany. As a result, we had to declare Force Majeure for all citral- and isoprenolbased aroma ingredients, and consequently for vitamin A, vitamin E and several carotenoid products as well.

## **Performance Chemicals**

- Sales growth of 2% to €3,896 million from higher volumes
- Considerable decline in EBIT before special items due to lower margins

In the Performance Chemicals division, sales to third parties rose by €91 million to €3,896 million compared with 2016. This was due to higher sales volumes in all regions and businesses. Volumes growth led to higher sales, especially in the lubricant and mineral oil additive businesses as well as in plastic additives. Sales were also positively impacted by the recovery of the markets for oilfield and mining chemicals. Lower sales prices, particularly in Asia and South America, negative currency effects and the transfer of BASF's leather chemicals business to the Stahl group reduced sales.

#### Performance Chemicals – Factors influencing sales

Volumes	6%	
Prices	(1%)	
Portfolio	(2%)	
Currencies	(1%)	
Sales	2%	

#### Performance Chemicals – Sales by region (Location of customer)

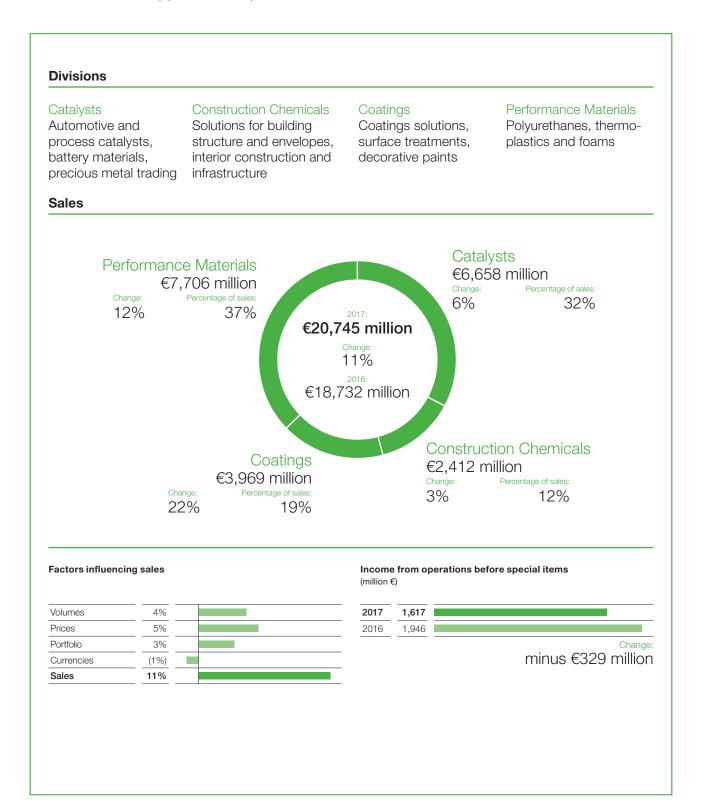
1	Europe	39%			1
2	North America	26%	3	62 000 million	Δ.
3	Asia Pacific	25%		€3,896 million	
4	South America, Africa, Middle East	10%			

EBIT before special items declined considerably compared with the previous year. The softer margins resulting from higher raw materials prices were only partially offset by volumes growth and lower fixed costs.

We generated special income of €195 million from the transfer of BASF's leather chemicals business to the Stahl group.

# Functional Materials & Solutions

The Functional Materials & Solutions segment comprises the Catalysts, Construction Chemicals, Coatings and Performance Materials divisions. They develop and market system solutions, services and innovative products for specific sectors and customers, particularly for the automotive, electronics, chemical and construction industries as well as for household applications, sports and leisure.



## How we create value – an example

# **Borocat**®

A new generation of high-performance refining catalysts

# Value for BASF

Expected sales growth with Borocat<sup>®</sup> through 2022



Refineries use fluid catalytic cracking (FCC) catalysts to extract high-value products like gasoline, diesel or liquid gas from the residues of crude oil distillation. Borocat<sup>®</sup>, our new generation of FCC catalysts, increases the yield of valuable hydrocarbons – especially from heavy crude oil with metal contaminants. As more and more crude oil of this type is being produced and processed, we expect sales growth of over 50% for Borocat<sup>®</sup> through 2022.

# Value for our customers and the environment

Unwanted by-product hydrogen reduced by up to 25%

The metals contained in crude oil present a particular challenge to further processing as they catalyze the generation of unwanted by-products like hydrogen, reducing the yield of valuable substances. Our new boron-based catalyst technology hampers these chemical by-reactions so that up to 25% less hydrogen is produced. This enables refineries to process heavier, more contaminated crude oil and use these resources more efficiently.

## Strategy

- Development of innovative products and technologies in close collaboration with our customers
- Focus on specialties and system solutions that allow our customers to stand out from the competition

We develop innovative products and technologies in close cooperation with our customers. Our aim is to find the best solution in terms of cost and functionality, helping our customers to drive forward innovation in their industries and contribute to sustainable development. For instance, the transformation of mobility is a key trend in the automotive industry. To address this, we are developing solutions in the areas of battery materials, emission control, lightweight engineering concepts and coatings together with our customers. Our specialties and system solutions enable customers to stand out from the competition.

One focus of our strategy is the ongoing optimization of our product and services portfolio and our structures according to different regional market requirements as well as trends in our customer industries. We are positioning ourselves to grow profitably and faster than the market.

We aim to secure our leading market position in Europe, to profitably expand our position in the North American market and to purposefully extend our activities in the growth regions of Asia, South America, eastern Europe and the Middle East. New business fields such as battery materials play a particularly important role here.

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's integrated polyamide business. The aim is to close the transaction in the third quarter of 2018 after regulatory approvals have been obtained and the consent of a joint venture partner has been received. The acquisition would complement our engineering plastics portfolio and expand our position as a solutions provider for the transportation, construction and consumer goods industries as well as for other industrial applications. We plan to integrate the global polyamide business into the Performance Materials and Monomers divisions.

# Products, customers and applications

Division	Products	Customer industries and applications
Catalysts	Automotive and process catalysts	Automotive and chemical industries, refineries, battery manufacturers
	Battery materials	
	Precious and base metal services	Solutions for the protection of air quality as well as the production of fuels, chemicals, plastics and battery materials
Construction Chemicals	Concrete admixtures, cement additives, underground construction solutions, flooring systems, sealants, solutions for the protection and repair of concrete, high-performance	Cement and concrete producers, construction companies, craftspeople, builders' merchants
	mortars and grouts, tile-laying systems, exterior insulation and finishing systems, expansion joints, wood protection	Solutions for new building construction, maintenance, repair and renovation of commercial and residential buildings as well as infrastructure
Coatings	Coatings solutions for automotive applications, technology and system solutions for surface treatments, decorative paints	Automotive industry, body shops, steel industry, aviation, aluminum applications in the architecture and construction industries, household appliances, painting businesses and private consumers
Performance Materials	Engineering plastics, biodegradable plastics, standard foams, foam specialties, polyurethanes	Automotive manufacture, electrical engineering, packaging, games, sports and leisure, household, mechanical engineering, construction, medical technology, sanitation and water industry, solar thermal energy and photovoltaics

### Investments

Location	Project	Startup
Brighton, Colorado	Capacity expansion: plant for sealants	2019
Dahej, India	Capacity expansion: for Cellasto®	2019
Gimcheon, South Korea	Construction: plant for Ultraform®	2018
Greenville, Ohio	Capacity expansion: resin plant	2019
Hamm, Germany	Capacity expansion: logistics for floor installation systems	2018
Ludwigshafen, Germany	Construction: specialty zeolites plant for emissions catalysts	2019
Münster, Germany	Construction: plant for functional film coatings	2018
Onoda, Japan	Capacity expansion: plant for cathode materials	2017
Rayong, Thailand	Construction: plant for automotive emissions catalysts	2018
Shanghai, China	Construction: chemical catalysts plant	2017
	Construction: automotive coatings plant	2017
	Construction: technical competence center for automotive coatings	2018
Schwarzheide, Germany	Capacity expansion: compounding plant for Ultramid <sup>®</sup> and Ultradur <sup>®</sup>	2017
Środa Śląska, Poland	Capacity expansion: plant for emissions catalysts	2020
Tultitlán, Mexico	Capacity expansion: automotive coatings plant	2018
Yangon, Myanmar	Construction: plant for concrete additives	2017
Yeosu, South Korea	Capacity expansion: plant for Ultrason®	2017

#### Segment data (million €)

	2017	2016	Change in %
Sales to third parties	20,745	18,732	11
Thereof Catalysts	6,658	6,263	6
Construction Chemicals	2,412	2,332	3
Coatings	3,969	3,249	22
Performance Materials	7,706	6,888	12
Intersegmental transfers	805	736	9
Sales including intersegmental transfers	21,550	19,468	11
Income from operations before depreciation and amortization (EBITDA)	2,251	2,906	(23)
EBITDA margin %	10.9	15.5	-
Depreciation and amortization <sup>1</sup>	706	707	0
Income from operations (EBIT)	1,545	2,199	(30)
Special items	(72)	253	
EBIT before special items	1,617	1,946	(17)
EBIT after cost of capital	(190)	813	
Assets	17,364	17,359	0
Investments including acquisitions <sup>2</sup>	1,056	3,679	(71)
Research and development expenses	431	393	10

<sup>1</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

<sup>2</sup> Additions to intangible assets and property, plant and equipment

# **Functional Materials & Solutions segment**

- Sales growth of 11% to €20,745 million, mainly from higher prices and volumes
- EBIT before special items down 17% to €1,617 million due to lower margins and rising fixed costs

In the Functional Materials & Solutions segment, sales to third parties increased by €2,013 million to €20,745 million. This was due to higher prices and volumes as well as the Chemetall business, which was acquired from Albemarle in December 2016; sales were slightly reduced by currency effects (volumes 4%, prices 5%, portfolio 3%, currencies -1%). The volumes growth was largely attributable to higher demand for our products for the automotive and construction industries.

At €1,617 million, income from operations (EBIT) before special items was down €329 million on the 2016 figure, primarily due to lower margins and higher fixed costs. Special charges in 2017 mainly related to integration costs in connection with the Chemetall acquisition as well as the acquisition of the western European building material business for professional users from the Henkel group. In 2016, special income arose from the divestiture of the industrial coatings business in the Coatings division. EBIT declined by €654 million to €1,545 million in 2017.

C For the Outlook for 2018, see page 123

## Catalysts

- Sales increase of 6% to €6,658 million largely driven by higher prices
- Considerable improvement in EBIT before special items, mainly from volumes growth

Sales to third parties in the Catalysts division rose by €395 million to €6,658 million in 2017. This was primarily due to higher sales prices on the back of an increase in precious metal prices and increased volumes of mobile emissions catalysts. Currency effects and the divestiture of the polyolefin catalysts business in June 2016 had a negative impact on sales.

We increased sales volumes for battery materials and chemical catalysts, while volumes declined in the refining catalysts business. In precious metal trading, sales rose by  $\in$ 182 million to  $\in$ 2,518 million. Higher prices more than offset the decline in volumes.

#### Catalysts - Factors influencing sales

Volumes	1%	
Prices	8%	
Portfolio	(1%)	
Currencies	(2%)	
Sales	6%	

#### Catalysts – Sales by region (Location of customer)



We considerably increased EBIT before special items year-onyear, mainly thanks to higher sales volumes.

# **Construction Chemicals**

- Sales up 3% year-on-year at €2,412 million as a result of acquisitions and higher volumes
- Considerable decline in EBIT before special items due to increase in raw materials prices

In the Construction Chemicals division, sales to third parties rose by €80 million as against the previous year to €2,412 million. This was partly attributable to the acquisition of the Henkel group's western European building material business for professional users in early 2017, as well as the acquisition of the waterproofing systems supplier Grupo Thermotek, Monterrey, Mexico, in September 2017. We also increased our sales volumes. Overall, prices remained on a level with the previous year.

The aforementioned acquisition of the construction chemicals business and higher volumes led to sales growth in Europe. In North America, the acquisition of Thermotek only partially compensated for declining volumes and negative currency effects. Sales in Asia rose year-on-year due to volumes growth. In the region South America, Africa, Middle East, sales decreased as a result of negative currency effects and slightly lower volumes and prices. Demand in the Middle East in particular did not meet our expectations.

#### **Construction Chemicals – Factors influencing sales**

Volumes	2%	
Prices	0%	
Portfolio	4%	
Currencies	(3%)	
Sales	3%	

#### Construction Chemicals – Sales by region (Location of customer)

 1
 Europe
 38%

 2
 North America
 30%

 3
 Asia Pacific
 19%

 4
 South America, Africa, Middle East
 13%



EBIT before special items was considerably below the 2016 figure, primarily as a result of higher raw materials prices. Special charges mainly arose in connection with the acquisition of the western European building material business for professional users from the Henkel group.

## Coatings

- Sales growth of 22% to €3,969 million from Chemetall acquisition and higher volumes
- EBIT before special items considerably below prior-year figure due to higher fixed costs and lower margins

In the Coatings division, sales to third parties in 2017 grew by  $\in$ 720 million to  $\in$ 3,969 million, mainly as a result of the Chemetall business acquired in December 2016. We increased sales volumes in Asia and Europe in particular. Sales were reduced by negative currency effects, especially in Asia and North America, as well as slightly lower prices.

Sales of automotive OEM coatings increased thanks to higher volumes in all regions. We recorded slight sales growth in the automotive refinish coatings business, as we were able to more than offset the negative currency effects with higher sales volumes and the acquisition of Guangdong Yinfan Chemistry, Jiangmen, China, in September 2016. In the decorative paints business in Brazil, sales were up slightly on the prior-year figure: currency effects and slight price increases had a positive impact, while demand declined slightly.

#### **Coatings – Factors influencing sales**

Volumes	4%		
Prices	(1%)		
Portfolio	20%		
Currencies	(1%)		
Sales	22%		

39%

22%

24%

#### Coatings – Sales by region (Location of customer)

(\_\_\_\_\_)

- 1 Europe
- 2 North America
- 3 Asia Pacific
- 4 South America, Africa, Middle East 15%



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EBIT before special items in the Coatings division declined considerably. The Chemetall business made a positive contribution to earnings but was unable to compensate for the decline in the businesses not affected by the portfolio measures. The decrease in the latter was mainly due to higher fixed costs and lower margins as a result of the increase in raw materials prices. Special charges arose from the integration of the Chemetall business and the restructuring in connection with the divestiture of the industrial coatings business, which was completed in December 2016 and led to special income in the prior year.

In November 2017, we inaugurated a new large-scale automotive coatings plant at the Caojing site in Shanghai, China, to complement our existing automotive coatings plant there. We also inaugurated a production facility for automotive OEM coatings in Bangpoo, Thailand. With the expansion, we aim to even better serve the growing automobile market in Asia Pacific, especially in China.

## **Performance Materials**

- Sales growth of 12% to €7,706 million mainly due to price developments
- Considerable decrease in EBIT before special items, primarily as a result of lower margins

The Performance Materials division increased sales to third parties by  $\notin$ 818 million to  $\notin$ 7,706 million in 2017. This was largely thanks to price increases on the back of a significant rise in raw materials prices. Higher sales volumes to the automotive, consumer goods and construction industries also contributed to sales growth, while currency effects had a negative impact.

There was strong growth in sales to the automotive industry in Europe and Asia in particular thanks to higher prices and greater demand for polyurethane systems and engineering plastics. The increase in sales volumes in North and South America also contributed to the positive sales development.

In the consumer goods industry, sales were likewise up significantly year-on-year, mainly as a result of higher volumes in Asia and Europe. We recorded volumes growth, particularly in our businesses with polyurethane systems, thermoplastic polyurethanes and biopolymers. Significantly higher prices in the polyurethane systems business also had a positive effect.

Sales to the construction sector grew, mainly as a result of the significant increase in sales prices for polyurethane systems and styrene foams in Europe and Asia. Higher volumes in all regions also boosted sales.

#### Performance Materials - Factors influencing sales

Sales	12%	
Currencies	(1%)	
Portfolio	0%	
Prices	7%	
Volumes	6%	

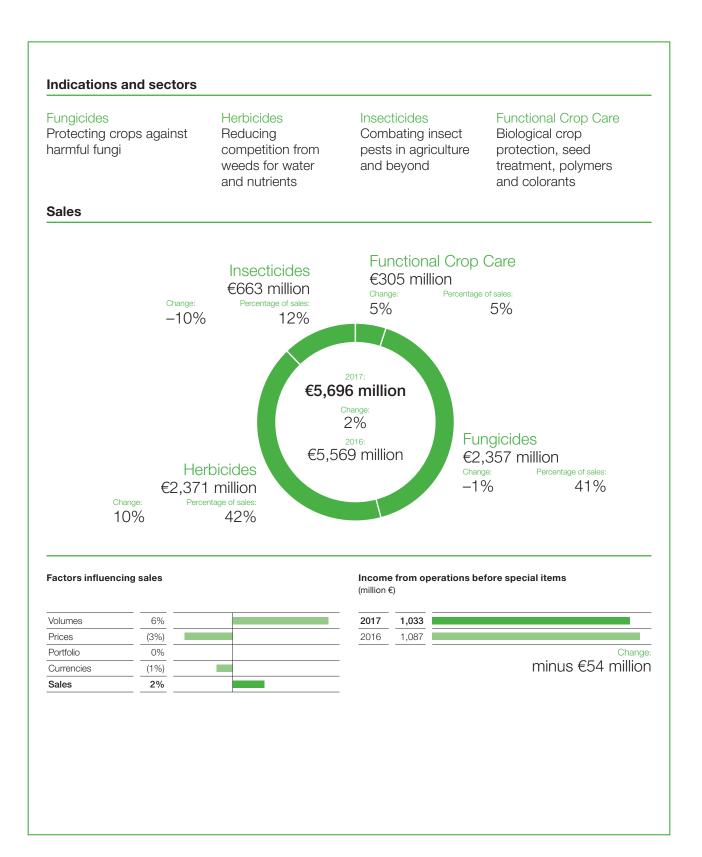
#### Performance Materials – Sales by region (Location of customer)

1	Europe	48% 3	
2	North America	21%	€7,706 million
3	Asia Pacific	28%	£7,700 million
4	South America, Africa, Middle East	3%	

EBIT before special items was considerably below the prioryear figure. This was mainly attributable to lower margins: The increase in raw materials prices could only be partially offset by the higher sales prices. Earnings were also reduced by higher production costs from the startup of new plants. EBIT before special items in the previous year also included positive one-off effects from insurance payments and the release of provisions.

# Agricultural Solutions

The Agricultural Solutions segment consists of the Crop Protection division. We develop and produce innovative solutions for the improvement of crop health and yields, and market them worldwide.



## How we create value – an example

## **Revysol®**

BASF's new blockbuster fungicide

# Value for BASF

Peak sales potential >€1 billion

Revysol<sup>®</sup> will play a key role in our fungicide portfolio in many crops for farmers around the world. We are driving forward the approval process in all regions – in more than 60 countries and for more than 240 crops. The first products based on Revysol<sup>®</sup> are to be launched on the market for the 2019 growing season following registration with the relevant authorities. This will give farmers a new active ingredient that offers exceptional biological performance and provides additional resistance management opportunities in agriculture. We are aiming for a peak sales potential of over €1 billion with Revysol<sup>®</sup>. Value for our customers and the environment

Stronger activity than existing triazoles up to 100 times

Revysol<sup>®</sup> is an innovative fungicide active ingredient from the triazole chemical class. It binds to the fungus enzyme up to 100 times more strongly than the products currently on the market, making it significantly more effective. Farmers can thus also safely manage those plant diseases that have become resistant to the triazoles used in the past. At the same time, Revysol<sup>®</sup> has better toxicological properties than other standard triazoles and is another important building block for sustainable agriculture. Farmers around the world will benefit from Revysol<sup>®</sup>-based products, which safeguard and improve yield quality.

# Strategy

- Long-term innovation strategy ensures future growth
- Development of solutions that go beyond conventional crop protection
- Agreement on acquisition of significant parts of Bayer's seed and non-selective herbicide businesses

Natural resources such as land and arable area are limited, while the world's population and its demand for food continue to grow. This means that farmers around the world face the challenge of increasing their crop yields with limited resources. We offer our customers innovative solutions combined with practical, down-to-earth advice so that they can produce more – and more nutritious – food as efficiently as possible.

We are committed to the responsible treatment of our products and the preservation of a healthy environment. We also constantly invest in our development pipeline to offer our customers an increasingly wide range of integrated solutions for crop protection and beyond.

Our research and development activities range from solutions for guarding plants against fungi, insects and weeds, to seeds and improved soil management, and supporting plant health. For example, the Functional Crop Care business unit provides products for improving seeds and innovations for better nitrogen and water management in soil. It also offers biological and chemical technologies that make plants better able to withstand stress factors like heat, cold and nutrient deficiency.

The success of our customers depends on many factors such as weather, plant health, soil conditions and prices for agricultural products. As a result, modern farmers have to analyze more and more data of increasing complexity to make the right cultivation decisions. BASF's innovative digital applications help our customers to use these data to their advantage as a basis for making better decisions, ensuring more efficient and sustainable resource allocation.

One example of our strategic investments in digital solutions is the acquisition of ZedX Inc., Bellefonte, Pennsylvania, in May 2017. ZedX is a leader in the development of information technology products and services for the agriculture sector. The company develops agronomic weather, crop and pest models that can rapidly translate data into insights for more efficient agricultural production.

Our aim is to offer farmers a wider range of solutions going forward to even better meet the growing demand for high-

quality seeds as well as chemical and biological crop protection. We therefore signed an agreement to acquire significant parts of the seed and non-selective herbicide businesses from Bayer AG, Leverkusen, Germany, in October 2017. The transaction is expected to close in the first half of 2018, subject to the closing of Bayer's acquisition of Monsanto and approval by the relevant authorities. The planned acquisition includes attractive businesses in important field crops and markets. With the acquisition, we aim to expand our crop protection business, strengthen our herbicide portfolio and enter the seed business in key agricultural markets. It will also strengthen our global innovation potential.

The agreement covers Bayer's global glufosinate-ammonium non-selective herbicide business, commercialized under the Liberty<sup>®</sup>, Basta<sup>®</sup> and Finale<sup>®</sup> brands, as well as its seed businesses for key row crops in selected markets. These include canola hybrids in North America under the InVigor<sup>®</sup> brand using the LibertyLink<sup>®</sup> trait technology, as well as the oilseed rape business mainly in the European markets, cotton in the Americas and Europe, and soybean in the Americas. The agreed transaction also includes Bayer's trait research and breeding capabilities for these crops and the LibertyLink<sup>®</sup> trait and trademark.

## Investments

In 2017, we invested €114 million in property, plant and equipment. Major projects included the startup of our expanded production capacities for dicamba in Beaumont, Texas, as well as new production capacities for our fungicide Revysol<sup>®</sup> and our insecticide Inscalis<sup>®</sup>. In the area of Functional Crop Care, we expanded our capacities for biological seed treatments and soil management in Saskatoon, Canada. We also invested in infrastructure, in particular at our plants in North America. In

Products, customers and applications

order to continue meeting the ongoing high demand for our innovative solutions in the future, we will invest around €780 million in developing and expanding our infrastructure and in our production and formulation capacities for active ingredients between 2018 and 2022.

## Plant biotechnology at BASF

Our activities in the field of plant biotechnology are part of the Bioscience Research technology platform. Research and development expenses, sales, earnings and all other data are not included in the Agricultural Solutions segment; they are reported under Other.

With our network of research sites, we help farmers meet the growing demand for increased agricultural productivity as well as better nutrition. With a pioneering platform for gene identification, we have specialized in the development of plant characteristics such as higher yield, herbicide tolerance, disease resistance and quality traits. Our goal is to optimize crops so that farmers can achieve greater and more secure yields. In this way, we make an important contribution to securing a better food supply for a growing world population. We also contribute to sustainable agriculture, as the cultivation of these plants significantly reduces the amount of land, water and energy required to produce each metric ton of harvested crops.

Together with Cargill, we are developing a rapeseed oil that represents a new source of heart-healthy omega-3 fatty acids, for example. The first regulatory dossier was submitted to the U.S. Department of Agriculture in November 2017. Market launch is planned from 2020, subject to regulatory approval. We are also working on a soybean that is resistant to the devastating Asian soybean rust disease. A number of lead genes have been successfully tested in field trials in Brazil.

Indications and sectors	Applications	Example products
Fungicides	Protecting crops from harmful fungal infections; improving plant health	Boscalid, metiram, dimethomorph, Initium®, metrafenone, F 500®, Xemium®, AgCelence® (umbrella brand)
Herbicides	Reducing competition from weeds for water and nutrients	Kixor <sup>®</sup> , Engenia <sup>®</sup> , pendimethalin, imazamox, topramezone, Clearfield <sup>®</sup> herbicide tolerance system, dimethenamid-P
Insecticides	Combating insect pests in agriculture and beyond, such as in the fields of public health, professional pest control and landscape maintenance	Fipronil, alpha-cypermethrin, chlorfenapyr, teflubenzuron, Nealta®, Termidor® to guard against termite infestation, Interceptor® mosquito nets to protect against malaria
Functional Crop Care	Products for plant health and increased yield potential that go beyond traditional crop protection, such as biological crop protection, seed treatments, polymers and colorants	Vizura®, Limus®, Systiva®, Vault® HP, Nodulator® PRO, Flo Rite®, Integral®, Serifel®

#### Segment data (million €)

		2017	2016	Change in %
Sales to third parties		5,696	5,569	2
Intersegmental transfers		36	33	9
Sales including intersegmental transfers		5,732	5,602	2
Income from operations before depreciation and amortization (EBITDA)		1,282	1,305	(2)
EBITDA margin	%	22.5	23.4	
Depreciation and amortization <sup>1</sup>		267	268	0
Income from operations (EBIT)		1,015	1,037	(2)
Special items		(18)	(50)	64
EBIT before special items		1,033	1,087	(5)
EBIT after cost of capital		171	172	(1)
Assets		8,096	8,899	(9)
Investments including acquisitions <sup>2</sup>		185	266	(30)
Research and development expenses		507	489	4

<sup>1</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

<sup>2</sup> Additions to intangible assets and property, plant and equipment

## Agricultural Solutions segment

- Sales improve by 2% to €5,696 million as a result of higher volumes
- EBIT before special items down 5% year-on-year at €1,033 million due to lower margins

Sales to third parties in the Agricultural Solutions segment rose by  $\in$ 127 million to  $\in$ 5,696 million in 2017 as a result of higher sales volumes. In an ongoing difficult market environment for crop protection products, sales growth was negatively impacted by price declines, especially in South America, and negative currency effects.

In **Europe**, sales increased by €25 million to €1,983 million. Volumes growth, especially in oilseed herbicides in eastern and southern Europe, more than compensated for declines in western and northern Europe, particularly in fungicides.

At €2,003 million, sales in **North America** exceeded the prior-year figure by €202 million. We were able to considerably increase sales volumes, especially for herbicides in the United States. The successful market launch of our new herbicide Engenia<sup>®</sup> contributed substantially to sales growth. Strong demand for fungicides in Canada also had a positive impact.

Sales in Asia rose by €33 million to €582 million. We achieved particularly strong volumes growth for fungicides in China and India, particularly with innovations such as our new product portfolio for rice. In Southeast Asia, sales volumes increased, especially for fungicides and herbicides.

In the region **South America, Africa, Middle East**, sales declined by  $\in$ 133 million to  $\in$ 1,128 million. This was largely due to lower prices for fungicides and insecticides, negative currency effects and the reduction of inventories at our customers in Brazil. Here, we were able to increase sales volumes despite the ongoing difficult business environment for crop protection products. The positive trend in Argentina also contributed to volumes growth in the region.

#### Agricultural Solutions – Factors influencing sales

Volumes	6%	
Prices	(3%)	
Portfolio	0%	
Currencies	(1%)	
Sales	2%	

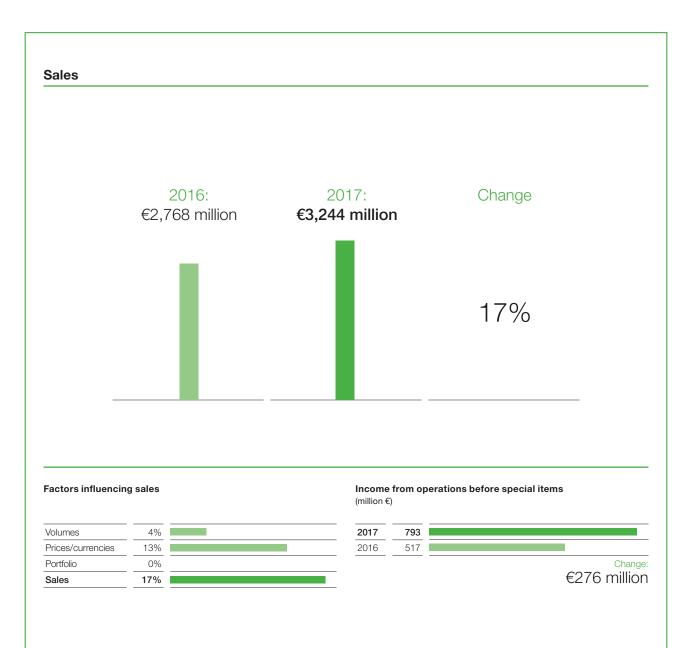
#### Agricultural Solutions – Sales by region (Location of customer)

1	Europe	35%		1	l
2	North America	35%	3	€5,696 million	
3	Asia Pacific	10%	3	£3,696 million	
4	South America, Africa, Middle East	20%			

Income from operations (EBIT) before special items was  $\in$ 1,033 million, down  $\in$ 54 million on the prior-year figure. The slight decline was mainly due to the lower average margins from a different product mix and the difficult market situation in Brazil. Earnings were also negatively impacted by the shutdowns of our production facilities in Beaumont, Texas, and Manatí, Puerto Rico, because of the hurricanes. Fixed costs rose slightly. EBIT declined by  $\notin$ 22 million to  $\notin$ 1,015 million.

# Oil & Gas

BASF's oil and gas activities are bundled in the Wintershall Group. We focus on exploration and production in oil and gas-rich regions in Europe, North Africa, Russia, South America and the Middle East – focus regions in which Wintershall has a high level of regional and technological expertise. We are also active in the transportation of natural gas in Europe with our Russian partner Gazprom.



# How we create value – an example

## **Resource-efficient oil production**

Use of associated gas from test production reduces energy demand and emissions

# Value for BASF



Wintershall developed a mobile test production unit equipped with three micro gas turbines during the revaluation of the German oil field Suderbruch. For the first time, this made it possible to use the associated gas from test production in plant operations, reducing energy demand by around 40%.

# Value for the environment

CO<sub>2</sub> emissions reduced by



The unit's innovative design enabled us to implement our voluntary commitment – to using the associated gas from oil production in efficient and environmentally friendly ways in routine operations – in test production as well. The resulting lower energy demand reduces  $CO_2$  emissions by over 50%. The unit will also be used in future projects.

## Strategy

- Growth through exploration, acquisitions, strategic partnerships and technological expertise
- Contribution to securing Europe's natural gas supply
- Intention to merge Wintershall Group with LetterOne's oil and gas business

In the future, crude oil and natural gas will continue to contribute significantly toward covering the rising energy demand of a growing world population. That is why we invest in the exploration and production of oil and gas, primarily in our core regions Europe, North Africa, Russia and South America. We want to establish the Middle East as another core region in our portfolio.

Selected collaborations and strategic partnerships, innovative technologies and the responsible development and production of hydrocarbons all form the basis of our growth-oriented strategy. Through the continuous optimization of our cost structure and portfolio of oil and gas activities, we ensure our competitiveness, even in times when oil and gas prices are low. Measured by production volumes, gas activities comprised around 70% of our portfolio.

Handling hydrocarbons in a responsible manner demands special measures for the protection of people and the environment. We therefore carefully assess the potential effects of every project before we begin. Together with experts, contractors and relevant stakeholders, we develop methods and carry out measures for using resources even more efficiently and minimizing impact on the environment. This includes acting in accordance with international agreements, legal requirements and our own, self-imposed high standards.

On December 7, 2017, BASF signed a letter of intent with the LetterOne group on the merger of their respective oil and gas businesses in a joint venture, which would operate under the name Wintershall DEA. The oil and gas activities of BASF bundled in the Wintershall Group comprise Wintershall Holding GmbH, based in Kassel, Germany, and its subsidiaries including the gas transportation business. LetterOne's oil and gas business comprises Hamburg-based DEA Deutsche Erdoel AG and its subsidiaries. According to the plan, Wintershall DEA is to be created by LetterOne contributing all its shares in DEA Deutsche Erdoel AG to Wintershall against issuance of new shares to LetterOne. BASF shall initially hold 67% and LetterOne 33% of the shares in Wintershall DEA.1 Following the closing of the transaction, we expect to account for our interest in the joint venture using the equity method in the Consolidated Financial Statements.

Wintershall DEA would have significant growth potential and be one of the largest independent European exploration and production companies. Production volumes of Wintershall and DEA in 2016 corresponded to around 590,000 barrels of oil equivalent (BOE) per day; the proven reserves at the end of 2016 amounted to 2.1 billion BOE.

The merger is designed to optimize the portfolio footprint of the combined business and exploit synergies. In the medium term, we aim to take Wintershall DEA public together with LetterOne.

<sup>&</sup>lt;sup>1</sup> Wintershall's gas transportation business is not included in this shareholding ratio. As of closing, Wintershall DEA would issue a mandatory convertible bond to BASF reflecting the value of Wintershall's gas transportation business.

The definitive transaction agreements are to be negotiated over the coming months; the transaction could be expected to close in the second half of 2018, subject to the customary regulatory approvals. There is no assurance that we will enter into definitive transaction agreements with LetterOne or that the intended transaction will be consummated.

# **Exploration and production**

## Active portfolio management, including expansion of our position in Norway

**Europe:** The Mittelplate field off the North Sea coast is the cornerstone of our crude oil production in Germany. We own a 50% share in the development of this largest known oil deposit in the country. Some 30 million metric tons of oil have already been extracted there. We have completed and started up all 12 new wells at the Emlichheim site. A new drilling campaign with a total of five new production wells started at the Bockstedt oilfield. The first wells have already started operation. We conducted a seismic survey at the Landau concession in early 2017 and are currently evaluating the results.

In Norway, oil production from the Maria field in the Norwegian Sea started in 2017. It is the first project in Norway that Wintershall has operated from the discovery of the field to the start of production. Rather than building a new production platform, we implemented an innovative development concept for Maria: The production equipment was installed directly on the seabed and connected underwater with three nearby platforms operated by our cooperation partner Statoil. Production started a year earlier than originally planned and costs were more than a fifth lower than expected. Development of the Ivar Aasen and Edvard Grieg fields continued with additional wells drilled. As the operator of the Nova field (previously: Skarfjell), we are in the process of finalizing the development concept. This proposes to connect the oil and gas reservoir with the nearby Giøa platform via a subsea tieback. In January 2017, Wintershall was granted shares in five new exploration licenses on the Norwegian continental shelf from the Ministry of Petroleum and Energy. Wintershall will take over operatorship of two licenses.

In early 2017, Wintershall Noordzee B.V., Rijswijk, Netherlands, started production from the Ravn oilfield as operator. It is the first oilfield operated by the company in Denmark. Technical difficulties arose in production in mid-August; we are still working on a solution. **Russia:** The Yuzhno Russkoye natural gas field in western Siberia, in which Wintershall has a 35% economic interest, has been producing at plateau since 2009. We hold a 50% share in the development of Block IA of the Achimov formation in the Urengoy field in western Siberia. The gradual development of this field was continued and 88 wells were producing at the end of 2017. We will develop blocks IV and V of the Achimov formation with our partner Gazprom. We are also active in exploration and production in the Volgograd region together with the LUKOIL group.

North Africa / Middle East: In Libya, we are the operator of eight oilfields in the onshore concessions 96 and 97. Crude oil production was temporarily suspended in both concessions in March 2017. Based on an agreement with the government-owned National Oil Corporation (NOC), we were able to resume production from June to October: 55,000 barrels of oil per day (BOPD) for concession 96 and 10,000 BOPD for concession 97. Production in concession 96 then halted due to a strike. We are currently negotiating with NOC on the framework of our future cooperation. At the Al Jurf oilfield off the coast of Libya, in which we hold a share, operations could be continued without interruption in 2017.

In Abu Dhabi, Wintershall successfully completed the first offshore exploration well in the Shuwaihat field.

**South America:** We hold shares in a total of 15 onshore and offshore fields in Argentina. In the Neuquén province, we drilled three pilot wells as an operator in the Bandurria Norte block. The first exploration well in the CN-V block in the Mendoza province found oil. In Tierra del Fuego, work began on the expansion of the gas treatment facilities for the Cuenca Marina Austral 1 concession.

In the Neuquén province, Wintershall reduced its interest in the Aguada Pichana concession. Its share in the Aguada Pichana Oeste (West) block was sold to Pan American Energy LLC, Buenos Aires, Argentina, and YPF S.A., Buenos Aires, Argentina. Wintershall reduced its interest in the Aguada Pichana Este (East) block through the sale of shares to Total Austral S.A., Buenos Aires, Argentina, at the beginning of 2018.

 $\,\,\fbox$   $\,$  For information on current reserves, see pages 89 and 237  $\,$ 

#### Investments

Location	Project	Plateau/peak production per year <sup>1</sup>	Startup
Argentina	Development of Aguada Pichana Este	7 million BOE	2017/2024 <sup>2</sup>
North Sea, Norway	Development of Maria field	8 million BOE	2017
	Development of Edvard Grieg field	5 million BOE	2015/2018 <sup>2</sup>
	Development of Aasta Hansteen field	12 million BOE	2018
Siberia, Russia	Achimgaz, development of Achimov horizon in Urengoy natural gas and condensate field	44 million BOE	2008/2020 <sup>2</sup>

1 BASF's share in barrels of oil equivalent (BOE)

<sup>2</sup> Year completed

# Natural gas transportation

- Mostly regulated business with stable framework
- Construction of European gas pipeline link (EUGAL) planned
- Contribution to financing of the project company Nord Stream 2 AG

The largey regulated natural gas transportation sector is characterized by stable conditions and yields based on approved costs and tariffs. Our organizational structure meets the unbundling requirements set down by the German Energy Act.

As an indirect holding company for the German subsidiaries in natural gas transportation, WIGA Transport Beteiligungs-GmbH & Co. KG (WIGA) mainly fulfills a reporting and financing function. GASCADE Gastransport GmbH, OPAL Gastransport GmbH & Co. KG, and NEL Gastransport GmbH all act as independent companies under the umbrella of the WIGA group.

In August 2017, we established W & G Infrastruktur Finanzierungs-GmbH as an intermediate holding company and contributed GASCADE Gastransport GmbH and NEL Gastransport GmbH to it. The intermediate holding company performs WIGA's financing function for the two companies and is accounted for in the BASF Group's financial statements using the equity method.

The companies under the WIGA umbrella operate a 3,300-kilometer long-distance pipeline network that includes links to the Nord Stream pipeline, the Baltic Sea Pipeline Link (OPAL) and the North European Gas Pipeline (NEL).

GASCADE Gastransport GmbH plans, as project developer, to construct the 485-kilometer European gas pipeline link (EUGAL), which will extend from the Baltic sea in northern Germany to the Czech border. Its maximum annual transportation capacity of 51 billion cubic meters is to be achieved in two phases by 2020. The project will be implemented under a fractional ownership agreement with our partners Fluxys Deutschland GmbH, Düsseldorf, Gasunie Deutschland Transport Services GmbH, Hannover, and ONTRAS Gastransport GmbH, Leipzig, each of which holds a 16.5% share.

We hold a 15.5% share in the Nord Stream pipeline that started up in 2011 through Nord Stream AG, based in Zug, Switzerland, which is accounted for in the BASF Group's financial statements using the equity method. Other shareholders are the Gazprom (51%), E.ON (15.5%), N.V. Nederlandse Gasunie (9%) and ENGIE (9%) groups. With a total capacity of 55 billion cubic meters of natural gas per year, this pipeline, which stretches from Russia to the German coast over the Baltic Sea, helps strengthen the security of supply in Europe.

Wintershall is contributing to the financing of the new Nord Stream 2 project as a co-creditor. Its implementation will strengthen infrastructure and security of supply in Europe, which is particularly important given the decline in production there. Together with the ENGIE, OMV, Royal Dutch Shell and Uniper groups, Wintershall signed long-term financing agreements with the project company Nord Stream 2 AG, Zug, Switzerland, on April 24, 2017. The five European energy companies committed to long-term financing of 50% of the entire project costs, which are currently estimated at €9.5 billion. Wintershall will provide up to €950 million. As of December 31, 2017, €324 million of this amount had already been called up. Gazprom is the sole shareholder of the project company Nord Stream 2 AG.

### Segment data<sup>1</sup> (million €)

	2017	2016	Change in %
Sales to third parties	3,244	2,768	17
Intersegmental transfers	409	331	24
Sales including intersegmental transfers	3,653	3,099	18
Income from operations before depreciation and amortization (EBITDA)	2,069	1,596	30
EBITDA margin %	63.8	57.7	-
Depreciation and amortization <sup>2</sup>	1,026	1,097	(6)
Income from operations (EBIT)	1,043	499	109
Special items	250	(18)	
EBIT before special items	793	517	53
EBIT after cost of capital	(175)	(744)	76
Assets	11,967	12,829	(7)
Investments including acquisitions <sup>3</sup>	988	1,115	(11)
Research and development expenses	46	39	18
Exploration expenses	104	94	11
Net income <sup>4</sup>	719	362	99

<sup>1</sup> Supplementary information on the Oil & Gas segment can be found from page 235 onward

<sup>2</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

<sup>3</sup> Additions to intangible assets and property, plant and equipment

<sup>4</sup> More on this figure can be found in the reconciliation reporting for Oil & Gas in the Notes to the Consolidated Financial Statements from page 191 onward.

# Oil & Gas segment

- Sales improve by 17% to €3,244 million due to higher prices and volumes
- 53% increase in EBIT before special items to €793 million mainly from higher prices

In the Oil & Gas segment, sales to third parties increased by €476 million year-on-year to €3,244 million as a result of higher prices and volumes. The price of a barrel of Brent crude oil averaged \$54 in 2017 (previous year: \$44). Gas prices on European spot markets rose by 24% compared with the previous year. Volumes growth was mainly driven by higher gas sales volumes. Production volumes matched the prior-year level.

### Oil & Gas - Factors influencing sales

Volumes	4%	
Prices/currencies	13%	
Portfolio	0%	
Sales	17%	

# Oil & Gas – Sales by region

(Location of customer)

1 Europe		83%	
2 North America		0%	62 244 m
3 Asia Pacific		0%	€3,244 m
4 South America, A	frica, Middle East	17%	

Income from operations (EBIT) before special items grew by €276 million to €793 million in 2017. This is primarily attributable to the increase in oil and gas prices as well as the higher earnings contribution from our share in the Yuzhno Russkoye natural gas field. Comprehensive measures aimed at optimizing exploration and technology projects as well as the successful implementation of operational cost-saving measures also had a positive effect. EBIT rose by €544 million to €1,043 million. This included special income from the reversal of impairments in Norway and the Netherlands as well as from the sale of shares in the Aguada Pichana concession in Argentina. This was partially offset by an impairment on exploration potential in Norway. Net income increased by €357 million to €719 million.

 $\bigcirc$  For the Outlook for 2018, see page 123

At 164 million barrels of oil equivalent (BOE), our oil and gas production was on a level with the previous year. In the search for new oil and gas reservoirs, we completed a total of seven exploration and appraisal wells in 2017, of which three were successful. Our proven oil and gas reserves rose by 3% compared with the end of 2016, to 1,677 million BOE. We replenished 133% of the volumes produced in 2017. The reserves-to-production ratio is around 10 years (2016: 10 years). This is based on Wintershall's production in 2017 and the reserves at year-end.

# Other

# Data for Other<sup>1</sup> (million €)

	2017	2016	Change in %
Sales	2,242	2,018	11
Income from operations before depreciation and amortization (EBITDA)	(679)	(972)	30
Amortization and depreciation <sup>2</sup>	120	119	1
Income from operations (EBIT)	(799)	(1,091)	27
Special items	(35)	(41)	15
EBIT before special items	(764)	(1,050)	27
Thereof costs for cross-divisional corporate research	(379)	(395)	4
costs of corporate headquarters	(224)	(222)	(1)
other businesses	60	54	11
foreign currency results, hedging and other measurement effects	(28)	(331)	92
miscellaneous income and expenses	(193)	(156)	(24)
Assets <sup>3</sup>	13,676	9,374	46
Investments including acquisitions <sup>4</sup>	186	121	54
Research and development expenses	381	398	(4)

<sup>1</sup> Information on the composition of Other can be found in the Notes to the Consolidated Financial Statements from page 191 onward.

<sup>2</sup> Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)

<sup>3</sup> Contains assets of businesses recognized under Other as well as reconciliation to assets of the BASF Group

<sup>4</sup> Additions to intangible assets and property, plant and equipment

Sales in Other rose by €224 million compared with 2016 to €2,242 million, mainly as a a result of higher sales prices in the raw materials trading business. At minus €764 million, income from operations before special items in Other was up €286 million on the prior-year figure. This is largely attributable to valuation effects for our long-term incentive program.

# Regional results

### Regions (million €)

	Sales by location of company		Sales by location of customer			Income from operations by location of company			
	2017	2016	Change in %	2017	2016	Change in %	2017	2016	Change in %
Europe	30,778	27,221	13	29,214	26,039	12	4,742	3,632	31
Thereof Germany	19,873	17,540	13	8,359	7,412	13	1,913	1,582	21
North America	15,937	14,682	9	15,357	14,042	9	1,236	1,113	11
Asia Pacific	13,658	11,512	19	14,343	12,165	18	2,209	1,098	101
South America, Africa, Middle East	4,102	4,135	(1)	5,561	5,304	5	335	432	(22)
	64,475	57,550	12	64,475	57,550	12	8,522	6,275	36

### Europe

- Sales up 13% compared with 2016 at €30,778 million
- Acquisitions strengthen businesses in key European markets

Sales at companies located in Europe rose by 13% year-onyear to €30,778 million. This was mainly due to significant price increases, especially in the Chemicals segment, as well as higher volumes.

Sales rose in all segments: In the Chemicals segment, this was largely attributable to significantly higher prices in the Petrochemicals and Monomers divisions. Slightly higher volumes and prices led to growth in the Performance Products segment. As well as price increases, the positive sales development in the Functional Materials & Solutions segment was mainly driven by the Chemetall business acquired in December 2016. Sales growth in the Agricultural Solutions segment was primarily due to slightly higher volumes. The main factors in the Oil & Gas segment were considerable price and volumes growth.

Income from operations (EBIT) increased by 31% as against the previous year to  $\notin$ 4,742 million, largely on account of the considerably higher contributions from the Chemicals and Oil & Gas segments.

We want to strengthen our position in key European markets with investments such as the expansion of our production site for emissions catalysts in Środa Śląska, Poland, or the inauguration of our production facility for construction chemicals in St. Petersburg, Russia. In addition, we also aim to complement and further expand our portfolio in Europe with the agreed acquisition of significant parts of Bayer's seed and non-selective herbicide businesses and the planned acquisition of the global polyamide business from Solvay.

# **North America**

- Year-on-year sales growth of 9% to €15,937 million
- Ongoing investments in production plants

Sales at companies located in North America rose by 9% compared with 2016 to  $\in$ 15,937 million. In local currency terms, sales were up by 10%. This was driven by higher sales prices and volumes growth, especially in the Chemicals and Agricultural Solutions segments, as well as the acquisition of the Chemetall business in December 2016. Sales were dampened by currency effects.

EBIT was up 11% on the 2016 figure, at €1,236 million. The significantly higher contributions from the Chemicals and Agricultural Solutions segments more than compensated for the decline in earnings in the Functional Materials & Solutions and Performance Products segments. Earnings in the Functional Materials & Solutions segment declined as a result of lower margins and higher fixed costs. In the Performance Products segment, the decline in margins was largely attributable to higher raw materials prices.

In this region, we focus on innovation, attractive market segments and strategic partnerships with customers in order to grow profitably. At the same time, we are increasing our operational excellence and optimizing our portfolio through continuous improvement. We plan to further strengthen our position in the region with the agreed acquisition of significant parts of Bayer's seed and non-selective herbicide businesses. We intend to continuously invest in our production facilities. For example, we are constructing a new ammonia plant in Freeport, Texas, together with Yara, expanding production for mobile emissions catalysts in Huntsville, Alabama, and increasing capacities for automotive coatings in Greenville, Ohio, and Tultitlán, Mexico.

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### Sales by region

(Location of company)

1	Germany	31%	4
2	Europe (excl. Germany)	17%	
3	North America	25%	€64,475 million
4	Asia Pacific	21%	
5	South America, Africa, Middle East	6%	
			3 2

# **Asia Pacific**

- Sales 19% above prior-year level at €13,658 million
- Local production expanded through new plants in
- Asia

Sales at companies located in the Asia Pacific region rose by 19% to  $\in$ 13,658 million in 2017. In local currency terms, sales increased by 21%.

All segments contributed to this growth. The increase was mainly attributable to higher sales prices, especially in the Chemicals segment, as well as the 8% increase in volumes. The Functional Materials & Solutions and Performance Products segments in particular recorded volumes growth. By contrast, sales were weighed down by currency effects. Overall, portfolio measures had no material effect on sales development in 2017.

EBIT in the region grew by 101% to €2,209 million. This was primarily due to a higher overall margin and volumes growth in all segments. There was a particularly strong increase in the contribution from the Chemicals segment.

As part of our regional strategy, we want to further increase the proportion of sales from local production in Asia Pacific. We once again made progress toward this goal in 2017: One example is the mobile emissions catalysts production site opened in Chennai, India, in March 2017. In Shanghai, China, we started up a large-scale plant for the production of chemical catalysts in November 2017. We will continue to work on this goal in 2018.

We also inaugurated our new Innovation Campus Mumbai in India, whose research focuses on crop protection and process development. It represents BASF's largest research and development investment in South Asia to date.

Our investments in production facilities and research serve to bring products to market for our local and global customers in the growing region of Asia. Income from operations by region (Location of company)

			1
1	Germany	22%	4
2	Europe (excl. Germany)	33%	
3	North America	15%	€8,522 million
4	Asia Pacific	26%	
5	South America, Africa, Middle East	4%	3
			2

# South America, Africa, Middle East

- Sales decline 1% to €4,102 million
- Investment in digital sales channels

Sales at companies located in the region South America, Africa, Middle East declined by 1% as against 2016 to  $\notin$ 4,102 million. In local currency terms, sales were on a level with the previous year.

After two years of recession in Brazil, the South American economy stabilized at a low level in 2017. Under these conditions, our sales rose slightly as a result of volumes growth, positive currency effects and higher prices in the chemicals business.<sup>1</sup> Price declines and currency effects impacted the crop protection business in particular. In the Oil & Gas segment, sales were lifted slightly by higher prices despite negative currency effects and lower production volumes.

Companies in Africa and in the Middle East posted a considerable sales decrease. In Africa, this was primarily due to lower volumes. In the Middle East, sales were mainly weighed down by negative currency effects.

At €335 million, EBIT was 22% below the prior-year figure, mainly due to the decline in the Agricultural Solutions segment in Brazil.

In South America in 2017, we completed the implementation of a series of structural measures that increase our productivity and further sharpen the focus on our customers' needs. We also aim to expand our sales channels. The objective is to better develop new customer segments, for instance with digital sales channels, especially in the faster-growing South American markets.

# **Responsibility along the value chain** Suppliers

BASF

#### Suppliers

Our objective is to secure competitive advantages for BASF through professional procurement structures. Our suppliers are an important part of our value chain. Together with them, we aim to create value and minimize risks.

# Strategy

As well as a reliable supply of raw materials, technical goods and services at competitive prices, our partnerships with suppliers are based on mutual value creation. We work together in an open and transparent way to realize long-term benefits for both sides. In doing so, we create added value that goes above and beyond procurement alone, for example by developing solutions to target market-specific customer requirements together with our suppliers.

Our sustainability-oriented supply chain management also contributes to risk management by clarifying our expectations and standards for our suppliers, and by supporting them in carrying out our requirements. We count on reliable supply relationships and want to make our suppliers' contribution to sustainable development transparent. In order to achieve this, we set ourselves an ambitious goal: By 2020, we aim to evaluate the sustainability performance of 70% of the BASF Group's relevant suppliers' and develop action plans for any necessary improvements.

### 2020 Goal

Percentage of relevant suppliers evaluated for their sustainability performance



In 2017, we reviewed our evaluation methods for high-risk suppliers in order to focus even more closely on relevant issues. For example, we increased the weighting of industryand country-specific risks in the evaluation to avoid the ambiguities in the previous system. The proportion of relevant suppliers evaluated by the end of 2017 in accordance with the new risk approach was 56%.<sup>2</sup>

### Worldwide procurement

Our 70,000+ suppliers play a significant role in value creation at our company. We work in long-term partnership with companies from different industries around the world. They supply us with important raw materials, chemicals, investment goods and consumables, and perform a range of services. BASF acquired raw materials, goods and services for our own production totaling approximately €38 billion in value in 2017. There were no substantial changes with respect to our suppliers in 2017.

Customers

# What we expect from our suppliers

- Global Supplier Code of Conduct
- Country-specific risk analysis forms basis of new supplier selection

New suppliers are selected and existing suppliers are evaluated not only on the basis of economic criteria, but also on environmental, social and corporate governance standards. Our Supplier Code of Conduct is founded on internationally recognized guidelines, such as the principles of the United Nations' Global Compact, the International Labor Organization (ILO) conventions and the topic areas of the Responsible Care<sup>®</sup> initiative. The Code of Conduct covers compliance with human rights, labor and social standards, and antidiscrimination and anticorruption policies in addition to protecting the environment. The Code is available in 26 languages.

A country-based risk analysis forms the basis of our selection process for new suppliers. As a result of the country-related risks identified in South America and Asia, we specifically asked 6,467 suppliers in these regions to commit to the values of our Supplier Code of Conduct in 2017. Only those companies that have committed to our Code of Conduct actually became new suppliers.

<sup>&</sup>lt;sup>1</sup> Our suppliers are evaluated based on risk due to the size and scale of our supplier portfolio. We define relevant suppliers as those showing an elevated sustainability risk potential as identified by our risk matrices and our purchasers' assessments. We also use further sources of information to identify relevant suppliers such as evaluations from Together for Sustainability (TfS), a joint initiative of chemical companies for sustainable supply chains.

<sup>&</sup>lt;sup>2</sup> The proportion of relevant suppliers evaluated by the end of 2016 in accordance with the new risk approach was 55% (in accordance with the previous risk approach: 32%). The change in the percentage figure is due to the amended risk evaluation method and the greater integration of evaluations from other TfS companies.

In 2017, we continued our collaborations in China and Brazil to instruct suppliers on sustainability standards. 179 suppliers received training in 2017 as part of local partnerships with the East China University of Science and Technology in Shanghai and the Espaço Eco® Foundation in Brazil, for example. In addition, we instructed 704 BASF employees on sustainability-oriented supplier management. These are ways in which potential supply chain risks can be identified and minimized together with our suppliers.

# **Evaluating our suppliers**

- "Together for Sustainability" initiative aims to harmonize and standardize supplier assessments and audits
- 120 raw material supplier sites audited

BASF is a founding member of the Together for Sustainability (TfS) initiative of leading chemical companies for the global standardization of supplier evaluations and auditing. With the help of TfS, we promote sustainability in the supply chain. The initiative aims to develop and implement a global program for the responsible supply of goods and services and improve suppliers' environmental and social standards. The evaluation process is simplified for both suppliers and TfS member companies by a globally uniform questionnaire. The 20 members of the initiative conducted a total of 1,794 sustainability assessments and 441 audits in 2017. The collaboration between the TfS initiative and the China Petroleum and Chemical Industry Federation (CPCIF) to educate suppliers and raise awareness of sustainability topics continued in 2017. More than 300 participants took part in a joint TfS/CPCIF course.

Using TfS evaluations, we pursue a risk-oriented approach with clearly defined, BASF-specific follow-up processes. A total of 120 raw material supplier sites were audited on sustainability standards in 2017. We also received sustainability assessments for 513 suppliers from an external service provider.

If we identify potential for improvement, we support suppliers in developing measures to fulfill our standards. We conduct another review according to a defined timeframe based on the sustainability risk measured. If the weak points discovered were particularly severe and we are unable to confirm any improvement, we reserve the right to terminate the business relationship. This occurred in one case in 2017. We use this approach to evaluate suppliers with an elevated sustainability risk at least every five years. The approach itself is reviewed every two years to identify possibilities for optimization.

For more information on "Together for Sustainability," see basf.com/en/together-for-sustainability

# Audit results

Our audits have identified some deviations with respect to environmental, social and corporate governance standards, for example in waste and wastewater management and relating to occupational safety, working hours and minimum wage. In the follow-up audits conducted in 2017, we found improvements in all areas. None of our 2017 audits identified instances of child labor. For the suppliers we reviewed, persons under 18 were excluded from overtime and dangerous work. We did not find any incidences of forced labor in 2017.

BASF undertook a thorough examination of the issues raised at platinum supplier Lonmin Plc, London, in connection with the events in Marikana, South Africa.1 We intensified our regular dialog with both Lonmin and with local stakeholders, such as leading industry and human rights representatives. We had an internationally recognized audit firm conduct a follow-up audit conducted at Lonmin in January 2017. This reviewed to which extent Lonmin had resolved the weaknesses we had identified in the first audit in 2015. The audit also addressed working conditions below ground, social and work schedules, communication between Lonmin and local stakeholders and affected parties, as well as the progress of the construction of employee housing. This follow-up audit reported positive findings in several areas such as working standards. However, it also identified gaps that Lonmin still has to close, such as assessing the impact of Lonmin's operations on local communities, improving dialog with various stakeholders in the community and implementing a grievance mechanism. We maintain an ongoing, close dialog with Lonmin and will continue to support the company in its improvement process.

 $\hfill\square$  For more information on suppliers, see basf.com/suppliers

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<sup>1</sup> In 2012, an extended strike at a Lonmin Plc mine in Marikana, South Africa, culminated in a violent confrontation between mine workers and armed South African police. Employees of the platinum supplier Lonmin were among the fatalities. For more information on the supplier relationship with Lonmin, see basf.com/audits-lonmin.

# Raw materials

#### Suppliers

Responsible resource management is an integral part of our strategy. It is applied within the company through our Verbund concept, our innovative products and the use of renewable raw materials. In the search for alternative raw materials, we employ solutions that contribute to sustainability.

BASF

### Strategy

The Verbund system is an important component of our resource efficiency strategy: The by-products of one plant often serve as feedstock elsewhere, thus helping us to use raw materials more efficiently. In 2017, BASF purchased a total of around 30,000 different raw materials from more than 6,000 suppliers. Some of our most important raw materials are naphtha, natural gas, methanol, ammonia and benzene. In addition to fossil resources, we also employ renewable raw materials. We use these to manufacture products that either cannot be made with fossil resources, or only at significantly greater expense, for example. Depending on the application, the better solution can be fossil or renewable raw materials. Renewable raw materials are not sustainable per se, but can contribute to sustainability by, for example, reducing greenhouse gas emissions.

# **Renewable resources**

- Joint venture with Avantium
- Numerous projects to improve sustainability along the value chain

In 2017, around 5% of the raw materials we purchased worldwide were from renewable resources. To make the use of these materials more competitive, we work on product innovations based on renewable raw materials as well as on enhancing production processes.

We also further established our biomass balance approach on the market in 2017. The goal here is to replace natural gas and naphtha at the beginning of the value chain with biogas and bio-naphtha from certified sustainable production. Should a customer select a biomass balanced product, the proportion of renewable feedstock to be used is calculated based on the formulation. The calculation model is certified by an independent third party (TÜV Süd). Our Verbund production ensures that the properties and quality of all end products remain unchanged and that our customers can use them as usual. This method has already been applied for more than 50 BASF products – for example, for superabsorbents, dispersions, plastics such as polyamides and polyurethanes, and for intermediates available on the market as "drop-in products." These can be used in place of previously employed products in the production process without having to change the process itself.

Customers

Synvina C.V., Netherlands, a joint venture of BASF and Avantium based in Amsterdam, has been producing and marketing furandicarboxylic acid (FDCA) from renewable resources since being established in 2016. FDCA is the most important chemical component of polyethylenefuranoate (PEF), a new plastic that is marketed by Synvina. In 2017, Synvina intensified its cooperation with partners along the entire value chain with the aim of making PEF commercially available in the medium term. One major step was the preliminary approval granted in 2017 to recycle PEF bottles in the European market and thus to integrate PEF into the circular economy. PEF has a broad application profile and is especially suitable for producing certain food packaging materials, such as films and plastic bottles. Compared with conventional plastics, PEF demonstrates higher barrier properties for gases like carbon dioxide and oxygen, extending the shelf life of packaged products. In addition, its higher degree of mechanical strength allows for thinner - and therefore lighter - packaging. Another product based on renewable feedstock that we offer our customers on a commercial scale is 1,4-butanediol (BDO), which is made from sugars. We use BDO to produce biobased polytetraydrofuran 1000 (PolyTHF® 1000), which primarily serves as a chemical component in thermoplastic polyurethane (TPU), an ingredient used to manufacture ski boots and roller skates, shoe soles, dashboard films in the automotive industry, and other products.

Palm oil, palm kernel oil, and their derivatives are some of our most important renewable raw materials. We aim to ensure that these raw materials come from sustainable, certified sources, and actively support the Roundtable on Sustainable Palm Oil (RSPO). In 2017, we published our first progress report – the BASF Palm Progress Report – for greater transparency in the value chain. Based on the voluntary commitment to sustainably source palm oil products that we expanded in 2015, we were able to purchase large volumes of certified palm kernel oil in 2017 despite a difficult business environment. In addition, our BASF Palm Sourcing Policy addresses the requirements for protecting and preserving forests and peatland, along with the involvement of local communities in decision-making processes.

We further expanded the support offered to our customers to help them meet their voluntary commitments: BASF stepped up its commitment to certified sustainable oil palm products in the German, Austrian and Swiss markets by joining the Forum for Sustainable Palm Oil in 2017 as a manufacturer of oleo derivatives. Demand for certified products again increased significantly. In order to involve smallholder farmers and improve their living conditions, BASF and Henkel have cooperated with the development organization Solidaridad since 2016 to provide training for around 5,500 farmers in Indonesia. To date, more than 1,700 smallholders have completed a training program as part of the Farmer Field School initiative.

BASF also advanced the RSPO supply chain certification of its sites for cosmetic ingredients. In 2017, 20 production sites worldwide were RSPO certified. Our goal is to only source RSPO certified palm oil and palm kernel oil by 2020, provided it is available on the market. By 2025, this voluntary commitment will be expanded to include the most important intermediate products based on palm oil and palm kernel oil; these include fractions and primary oleochemical derivatives as well as edible oil esters.

BASF is working together with Cargill, Proctor & Gamble and the German governmental agency for international cooperation (Gesellschaft für Internationale Zusammenarbeit, or GIZ) to help set up a certified and transparent supply chain for coconut oil in the Philippines and Indonesia. The project is being financed in part by the "develoPPP.de" program of the German Federal Ministry for Economic Cooperation and Development (BMZ). It is expected to improve income and living standards for around 3,300 smallholders.

The joint initiative established by BASF together with Arkema, Jayant Agro and the non-governmental organization Solidaridad to promote sustainability in the castor oil supply chain continued in 2017. With the Sustainable Castor Initiative – Pragati, the project members aim to improve the economic situation of castor oil farmers and their employees in India by helping them to optimize their yield and reduce the impact on the environment. The first smallholders were trained and audited in 2017 based on a newly developed sustainability code. This enables the Indian smallholders to offer certified sustainable castor oil on the global market in the future. The project is scheduled to run for three years until 2019.

# Mineral raw materials

We procure a number of mineral raw materials, like precious metals, that we use to produce process and mobile emissions catalysts. In suspected cases, we track the origins of minerals – as defined in the Dodd-Frank Act – to see if they come from mines in conflict regions. We reserve the right to conduct an external audit and, if necessary, terminate our business relationship. The suppliers addressed have confirmed to us that they do not source minerals matching this definition of conflict minerals from the Democratic Republic of the Congo or its neighboring countries.

BASF is working on the implementation of the E.U. Conflict Minerals Regulation published in May 2017. This lays down supply chain due diligence obligations that must be met by importers and processors of certain mineral raw materials such as tin, tantalum, tungsten, their ores and gold originating from conflict regions and high-risk areas.

BASF is committed to fostering a responsible and sustainable global supply of cobalt. As such, in 2017 BASF became a founding member of the Responsible Cobalt Initiative and the World Economic Forum's Global Battery Alliance. These initiatives were created by companies in collaboration with international organizations such as the OECD and UNICEF to address fundamental challenges in the supply chain of battery materials.

BASF mainly uses the mineral raw material mica and mica-based effect pigments in the production of coatings. Our demand is largely met with mica from our own mine in Hartwell, Georgia. We require our mica suppliers to comply with internationally recognized standards, including the prohibition of child labor. As a member of the Responsible Mica Initiative (RMI), BASF is actively working to eradicate child labor and unacceptable working conditions in the mica supply chain in India.

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For more information on renewable resources, see basf.com/renewables For more information on our voluntary commitment to palm oil products, see basf.com/en/palm-dialog

# Environment, health, safety and security Responsible Care Management System



The protection of people and the environment is our top priority. Our core business – the development, production, processing and transportation of chemicals – demands a responsible approach. We systematically address risks with a comprehensive Responsible Care Management System, which is constantly being further developed. We expect our employees and contractors to know the risks of working with our products, substances and plants and handle these responsibly.

# **Responsible Care Management System**

- Global directives and standards for safety, security, health and environmental protection
- Regular audits to monitor performance and progress

BASF's Responsible Care Management System comprises the global directives, standards and procedures for safety, security, health and environmental protection for the various stations along our value chain. Our regulations cover the transportation of raw materials, activities at our sites and warehouses, and distribution of our products as well as our customers' application of the products. Specifications for implementing these measures are laid out in binding directives that are introduced in consultation with employee representatives. These describe the relevant responsibilities, requirements and assessment methods. Our policies and requirements are constantly updated. We also maintain a dialog with government institutions, associations and other international organizations.

We set ourselves ambitious goals for safety and security, and health and environmental protection. We regularly conduct audits to monitor our performance and progress. We assess the potential risks and weak points of all our activities – from research to production and logistics – and the effects of these on the safety and security of our employees, the environment or our surroundings. In our databases, we document accidents, near misses and safety-related incidents at our sites as well as along our transportation routes to learn from these; appropriate measures are derived according to specific cause analyses.

For more information on Responsible Care®, see basf.com/en/responsible-care

# **Audits**

# 109 safety, security, health and environmental protection audits performed at 83 sites

Regular audits help ensure that standards are met for safety, security, health and environmental protection. We conduct audits at BASF sites and at companies in which BASF is a majority shareholder. Sites and companies acquired as part of acquisitions are audited in a timely manner to bring these into line with our standards and directives. We have defined our regulations for Responsible Care audits in a global Group requirement. During our audits, we create a safety and environmental profile that shows if we are properly addressing the existing hazard potential. If this is not the case, we agree on measures and conduct follow-up audits on their implementation.

Our internal audit system complies with the standards for external auditing procedures ISO 19011 and OHSAS 18001. Worldwide, 178 BASF production sites are certified in accordance with ISO 14001 (2016: 155).

In the BASF Group in 2017, 109 environmental and safety audits were conducted at 83 sites. The focus was on auditing sites based on the level of risk. For production plants with a medium and high hazard potential, we conducted an additional 63 short-notice audits at 47 sites. We audited 13 sites with respect to occupational medicine and health protection in 2017. The number of these audits declined due to the riskbased approach to site selection. In addition, 31 health performance control visits were conducted at sites with low to medium health risks.

 $\bigcap$  For more information on occupational safety and health protection, see page 98 onward

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# Costs and provisions for environmental protection in the BASF Group (million $\ensuremath{\mathbb{C}})$

	2017	2016
Operating costs for environmental protection	1,024	1,011
Investments in new and improved environmental protection plants and facilities <sup>1</sup>	234	206
Provisions for environmental protection measures and remediation <sup>2</sup>	600	588

<sup>1</sup> Investments comprise end-of-pipe measures as well as integrated environmental protection measures.

<sup>2</sup> Values shown refer to December 31 of the respective year.

For more information, see the Notes to the Consolidated Financial Statements on pages 196 and 217

# Production



For occupational and process safety as well as health and environmental protection and corporate security, we rely on comprehensive preventive measures and expect the cooperation of all employees and contractors. Our global safety and security concepts serve to protect our employees, contractors and neighbors as well as to prevent property and environmental damage and protect information and company assets.

# Strategy

- Global safety standards
- Strengthening risk awareness
- Comprehensive incident analyses and global experience and information exchange

The safety of our employees, contractors, neighbors and the environment is our top priority. This is why we have set ourselves ambitious goals for occupational and process safety as well as health protection.

We stipulate globally mandatory standards for safety, security, and environmental and health protection. A worldwide network of experts supports us in their implementation. We regularly monitor progress toward our goals as part of our continuous improvement process.

Risk-conscious working behavior is promoted for every individual through measures like systematic hazard assessments, specific and ongoing qualification measures and global safety initiatives.

We analyze accidents, incidents and their causes in detail at a global level to learn from these. Hazard analyses and the risk minimization measures derived from them are an important prevention tool. We also promote regular dialog across different sites to strengthen risk awareness among our employees and contractors, to learn from examples of good practice and in this way, continually develop the safety culture.

Based on our corporate values, leaders serve as safety role models for our employees.

# **Global safety initiative**

# Global Safety Days focus on order, cleanliness and discipline

Our global safety initiative was established in 2008 and plays a key role in the continuous development of the safety culture. With over 930 activities at around 360 sites, our 2017 Global Safety Days focused on order, cleanliness and discipline to help reduce the risk of accidents. At the Ludwigshafen site alone, 13,000 employees and contractors registered to participate. This involvement and lively discussion make a major contribution to our safety culture.

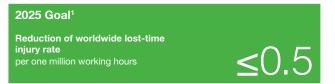
For more information on the global safety initiative, see basf.com/global-safety-initiative

# **Occupational safety**

# Employees and contractors worldwide instructed on safe behavior

We have made it our goal to reduce the worldwide lost-time injury rate per one million working hours to 0.5 at most by 2025.<sup>1</sup> To prevent work-related accidents, we promote risk-conscious behavior and safe working practices for every individual. We are constantly refining and enhancing our requirements.

In addition to the legally required briefings, we also held training courses on safe procedures in 2017 to strengthen risk awareness among our employees and contractors and prevent work-related accidents. At the Ludwigshafen site in Germany, our training center has offered continuous further education on diverse safety and security topics for employees and contractors since 2010. Some 22,000 participants received training in 2017.



In 2017, 1.4 work-related accidents per one million working hours occurred at BASF sites worldwide (2016: 1.5<sup>2</sup>), reducing the proportion of chemical-related accidents to 5% (2016: 9%). The rate of work-related accidents for contractors was at 1.5 in 2017 (2016: 1.5).

Unfortunately, there were two fatal work-related accidents in 2017. In 2016, four incidents occurred with a total of eight fatalities (seven in the same year). BASF is performing a comprehensive analysis of the incidents and using the findings to derive appropriate measures.

One employee of a contractor died during demolition work in McIntosh, Alabama, in November. The cause of the accident is still being investigated by BASF and the relevant authorities in Alabama. In November, one employee of a contractor died as a result of a traffic accident at the Shanghai-Pudong site in China. The cyclist was hit by a truck. The exact cause of the accident is still being investigated by BASF and the relevant

<sup>&</sup>lt;sup>1</sup> For 2018, we will adapt our reporting on accidents and process safety incidents to the recommendations of the International Council of Chemical Associations (ICCA), the European Chemical Industry Council (CEFIC) and the German Chemicals Industry Association (VCI). To implement these recommendations, we also have to convert our targets. Consequently, our goal from 2018 onward is to reduce occupational and process safety incidents to a rate of no more than 0.1 per 200,000 working hours by 2025 (previous goal: a rate of no more than 0.5 incidents per one million working hours).

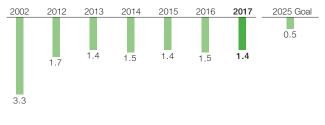
<sup>&</sup>lt;sup>2</sup> The 2016 figure has been restated as against the previous year's report from 1.4 to 1.5 due to retrospective accident reports.

local authorities. Refresher training on traffic safety was held for employees of contractors at the site following the accident. We will review additional measures based on the results of the investigation into the cause of the accident.

In September 2017, one employee of the BASF fire department succumbed to injuries sustained in the accident at the North Harbor at BASF SE in Ludwigshafen, Germany, in October 2016. An explosion and subsequent fires occurred during work on a pipeline. Four employees of the BASF fire department and one barge crewman lost their lives in or as a result of the accident. Twenty-eight people were injured. According to a report on the cause of the fire commissioned by the district attorney's office of the city of Frankenthal, Germany, the explosion and subsequent fires occurred during work performed with an angle grinder. It states that one employee of a contractor cut into the wrong pipeline, triggering the chain reaction that caused the explosion. The report rules out other causes or technical defects at the North Harbor plants. BASF continues to support the relevant authorities in their investigations.

For more information on occupational safety, see basf.com/occupational\_safety

Lost-time injury rate per one million working hours



#### Process safety

- Plant protection plans to reduce process safety incidents
- Network of experts and global training methods foster dialog

Process safety is a core part of safe and efficient production. We meet high safety standards in the planning, construction and operation of our plants around the world. Some of these go beyond local legal requirements.

Our global process safety standards provide the framework for the safe construction and operation of our plants as well as the protection of people and the environment. Our experts have developed a protection plan for every plant that considers the key aspects of safety, health and environmental protection – from conception to startup – and stipulates specific protection measures for each. We use the number of process safety incidents per one million working hours as a key performance indicator, following to a large extent the definition set by the European Chemical Industry Council (CEFIC). In 2017, we recorded 2.0 process safety incidents per one million working hours worldwide (2016: 2.0). We pursue continual improvement by investigating every incident in detail, analyzing root causes and using the findings to derive suitable measures. We have set ourselves the goal of reducing process safety incidents to a rate of no more than 0.5 per one million working hours by 2025.<sup>1</sup>

### 2025 Goal<sup>1</sup>

Reduction of worldwide process safety incidents per one million working hours



In order to maintain the highest level of safety at our plants across their entire life cycle, we review the implementation of our protection plans in all facilities at regular intervals and depending on hazard potential. We periodically perform indepth audits of our plants and update their safety concepts where necessary. Our training methods are constantly refined and enhanced to increase risk awareness.

We are working on increasing the availability of our plants and determining the optimum point in time for maintenance measures. The aim is to further reduce unscheduled shutdowns with a digitalization pilot project. Implementation began in 2017, starting with the steam cracker in Ludwigshafen and other plants at the following sites: Ludwigshafen, Germany; Antwerp, Belgium; Schwarzheide, Germany; Port Arthur, Texas; Geismar, Louisiana; and Freeport, Texas. We also plan to implement this at further plants around the world.

We play an active role in improving process safety around the world in a global network of experts, through our involvement in organizations such as the International Council of Chemical Associations (ICCA), the Center for Chemical Process Safety (CCPS) and the European Process Safety Centre (EPSC), and by fostering dialog with government institutions.

For more information on process safety, see basf.com/process\_safety

<sup>&</sup>lt;sup>1</sup> For 2018, we will adapt our reporting on accidents and process safety incidents to the recommendations of the International Council of Chemical Associations (ICCA), the European Chemical Industry Council (CEFIC) and the German Chemicals Industry Association (VCI). To implement these recommendations, we also have to convert our targets. Consequently, our goal from 2018 onward is to reduce occupational and process safety incidents to a rate of no more than 0.1 per 200,000 working hours by 2025 (previous goal: a rate of no more than 0.5 incidents per one million working hours).

# **Health protection**

- Global corporate health management standards
- Focus in 2017: Lung and respiratory health

Our global health management serves to promote and maintain the health and productivity of our employees. Our worldwide standards for occupational medicine and health protection are specified in a directive that is implemented by a global network of experts. This was once again supported by numerous emergency drills and health promotion measures in 2017.

We measure our performance in health protection using the Health Performance Index (HPI). The HPI comprises five components: recognized occupational diseases, medical emergency preparedness, first aid, medical surveillance examinations and health promotion. Each component contributes a maximum of 0.2 to the total score. The highest possible score is 1.0. Our goal is to reach a value of more than 0.9 every year. With an HPI of 0.97, we once again fulfilled the ambitious goal of exceeding 0.9 each year in 2017 (2016: 0.96).

Our 2017 global health campaign focused on lung and respiratory health. Employees received an individual recommendation based on a self-evaluation, including lung function testing or consultation with a physician as necessary. The health campaign was offered by over 450 sites worldwide.



We raise employee awareness of health topics through offers tailored toward specific target groups. The BASF health checks form the foundation of our global health promotion program and are offered to employees at regular intervals.

Given the second second

# Emergency response and corporate security

- Regular review of emergency systems and crisis management structures
- Comprehensive protection measures against third-party interference

We are well prepared for crisis situations thanks to our global crisis management system. In the event of a crisis, our global, regional or local emergency response plans and crisis management structures are engaged, depending on the impact scope. We involve situation-related partners and suppliers as well as cities, communities and neighboring companies. We regularly check our emergency systems, crisis management structures and drill procedures with employees, contractors, and local authorities and emergency rescue workers. Through 202 drills and simulations in 2017, we instructed participants in our emergency response measures. We analyze the potential risks associated with investment projects and define appropriate emergency response plans.

We also protect our employees, sites and company knowhow against third-party interference. This includes, for example, addressing potential terrorist risks in the communities around our sites.

We inform business travelers, transferees and employees about appropriate protection measures prior to and during travel in countries with elevated security risks. After any major incident such as a terrorist attack or a natural catastrophe, we have the possibility of more quickly and accurately locating and contacting employees in the affected regions through a standardized global travel research system. We discuss safe conduct in crisis situations with leaders and employees and train them on this.

Aspects of human rights related to site security, such as the right to liberty and security of person, are a component of the global qualification requirements of our security personnel. Respect for human rights is a mandatory element of any contract with service providers of the BASF Group who are active in this area.

Our investment projects include performing comprehensive analyses of potential risks and defining appropriate protection measures. In 2017, we standardized the use of security services in further countries in order to increase effectiveness and efficiency.

Around the world, we work to sensitize all employees about protecting information and know-how. For example, we further strengthened our employees' awareness of risks in 2017 with training, case studies and interactive offerings. We have defined mandatory information protection requirements to ensure compliance with our processes for protecting sensitive information and perform audits to monitor this.

Our worldwide network of information protection officers comprises more than 600 employees. They support the implementation of our uniform requirements and conduct seminars on secure behaviors. We provided information protection instruction to more than 72,000 participants in 2017. In addition, we published standardized Group-wide recommendations for the protection of information and knowledge.

 For more information on emergency response, see basf.com/emergency\_response
 For more information on corporate security, see basf.com/corporate-security



# Product stewardship

Suppliers

We review the safety of our products from research and development through production and all the way to our customers' application. We work continuously to ensure that our products pose no risk to people or the environment when they are used responsibly and in the manner intended.

BASE

### Strategy

# Global directives with uniformly high standards for product stewardship

We are committed to continuously minimizing the negative effects of our products on the environment, health, safety and security along the value chain – from development to disposal. This commitment to product stewardship is enshrined in our Responsible Care<sup>®</sup> charter and the initiatives of the International Council of Chemical Associations (ICCA). We also ensure uniformly high standards for product stewardship worldwide. Some of our voluntary initiatives go beyond local legal requirements.

We provide extensive information on all our chemical sales products to our customers with safety data sheets in around 40 languages. This is achieved with the help of a global database in which we maintain and evaluate continuously updated environmental, health and safety data for our substances and products. Our global emergency hotline network provides information around the clock. We train and support our customers in fulfilling their industry-specific or applicationspecific product requirements.

For example, in cooperation with the chemical association ICCA, BASF is pushing for the establishment of a voluntary global commitment to the controlled marketing of chemicals that could be misused for purposes other than industrial chemical applications. Producers in North America and Europe are already implementing the voluntary commitment. Manufacturers in China and Taiwan are currently in talks about joining the scheme as well.

Our risk assessment goals support the implementation of initiatives such as the Global Product Strategy (GPS) of the International Council of Chemical Associations (ICCA). GPS is establishing worldwide standards and best practices to improve the safe management of chemical substances. In addition, we are also involved in workshops and training seminars in developing countries and emerging markets. In order to facilitate public access to information, we are participating in the setup of an ICCA online portal that provides more than 4,500 GPS safety summaries.

For more information on GPS, see basf.com/en/gps

### Global goal

By 2020, we will conduct risk assessments for more than 99% of the substances and mixtures sold by BASF worldwide in quantities of more than one metric ton per year. We already reached 76.2% of this goal in 2017 (2016: 75.4%). The risk associated with using a substance is determined by the combination of its hazardous properties and its potential exposure to people and the environment.

>99%

Customers

# 2020 Goal

**Risk assessment of products** that we sell in quantities of more than one metric ton per year

### **REACH** and other legal requirements

### Third registration phase of REACH

We are working on registering substances produced in annual volumes between one and one hundred metric tons for the third and final phase of the E.U. chemicals regulation, REACH, which will end on May 31, 2018. Our REACH activities are increasingly determined by E.U. authorities' decisions on additional studies in connection with the evaluation of submitted dossiers. Independently of this, BASF is also obligated to continuously update the registration dossiers it has submitted. Over 80% of our dossiers have already been updated, although the majority of these updates were undertaken on our own initiative and not as a response to official inquiry.

We apply the experience we have gathered with REACH to fulfill new legal requirements around the world, such as in South Korea and Turkey. In 2017, BASF took the industry lead in South Korea with a large number of substance registrations and was one of the first companies to receive such registrations. We also advised government representatives on chemicals legislation in 2017, for example in Brazil and Columbia.

We are seeing a rise in both regulatory requirements for agrochemicals and the number of additional studies required to obtain or extend approval for crop protection products. Potential risks for people and the environment are carefully assessed and minimized throughout the research, development and registration process for crop protection agents. We perform a large number of scientific studies every year to ensure that our products meet the highest safety requirements.

# Environmental and toxicological testing

# Use of alternative and complementary methods for animal studies

Before launching products on the market, we subject them to a variety of environmental and toxicological testing. We apply state-of-the-art knowledge in the research and development phase of our products. For instance, we only conduct animal studies when they are required by law and approved by respective authorities. Animal studies are at times stipulated by REACH and other national legislation outside the European Union in order to obtain more information on the properties and effects of chemical products.

We adhere to the specifications laid down by the German Animal Welfare Act as well as the requirements of the Association for Assessment and Accreditation of Laboratory Animal Care – the highest standard for laboratory animals in the world. We are continually developing and optimizing alternative and complementary methods, and we use them wherever it is possible and approved by the authorities. We use alternative and complementary methods in more than a third of our tests. Currently, 30 replacement and supplementary methods are being used in our labs and another 19 are in the development stage. BASF spent €3.4 million toward this purpose in 2017. One focus area of our research in 2017 and subsequent years is the development of alternative methods for testing the potential of substances that negatively affect organisms' growth and development.

Since 2016, our Experimental Toxicology and Ecotoxicology department has been working together with a total of 39 partners on one of the largest European collaborative projects for alternative methods. The project, planned to run for six years, aims to develop alternative methods to the point that chemical risk assessments can be efficiently conducted largely without animal testing.

For more information on alternative methods, see basf.com/alternative\_methods

### Management of new technologies

# Continual safety research on nano- and biotechnology

Nano- and biotechnology offer solutions for key societal challenges – for example, in the areas of climate protection or health and nutrition.

Safe handling of nanomaterials is stipulated in our Nanotechnology Code of Conduct. Over recent years, we have conducted over 250 scientific studies and participated in over 35 different projects related to the safety of nanomaterials. The results were published in more than 100 scientific articles. One important finding is that toxicity is determined not by the size of the particles but by the intrinsic properties of the substance.

The European Chemicals Agency (ECHA) as well as the OECD and national authorities are currently developing regulatory concepts to systematically test and assess nanomaterials. We contribute our expertise through various ECHA working groups or the OECD's Business and Industry Advisory Group (BIAC). In May 2017, the ECHA published guidance on the registration of nanomaterials, which we helped to develop. The E.U.-funded NanoDefine project, in which we developed measurement strategies for identifying nanomaterials together with 27 partners, was also concluded in 2017.

BASF makes successful use of biotechnology. We produce a range of established products with the help of biotechnological methods. This provides us with extensive experience in the safe use of biotechnological methods in research and development as well as in production. When employing biotechnology, we adhere to all standards and legal regulations. We are guided by the code of conduct set out by EuropaBio, the European biotechnology association.

Given the Nanotechnology and the Nanotechnology Code of Conduct, see basf.com/nanotechnology

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# Transportation and storage

Suppliers

BASF

Our regulations and measures for transportation and warehouse safety cover the delivery of raw materials, the storage and distribution of chemical products among BASF sites and customers, and the transportation of waste from our sites to the disposal facilities.

### Strategy

 Risk minimization along the entire transportation chain

We want our products to be safely loaded, transported, handled and stored. This is why we depend on reliable logistics partners, global standards and an effective organization. Our goal is to minimize risks along the entire transportation chain – from loading and transportation to unloading. Some of our guidelines for the transportation of dangerous goods go above and beyond national and international dangerous goods requirements. We have defined global guidelines and requirements for the storage of our products and regularly monitor compliance with these.

# Accident prevention and emergency response

### Risk assessments for transportation and storage

We regularly assess the safety and environmental risks of transporting and storing raw materials and sales products with high hazard potential using our global guideline. This is based on the guidelines of the European Chemical Industry Council, CEFIC. We also have binding global standards for load safety.

We stipulate worldwide requirements for our logistics service providers and assess them in terms of safety and quality. Our experts use our own evaluation and monitoring tools as well as internationally approved schemes.

# **Transportation incidents**

We are systematically implementing our measures to improve transportation safety and report in particular on dangerous goods spillages that could lead to significant environmental impacts. We report on dangerous goods leaks of BASF products in excess of 200 kilograms on public transportation routes, provided BASF arranged the transport.

Customers

We have been able to reduce the number of transportation accidents per 10,000 shipments worldwide by around 70% since 2003. We recorded three incidents in 2017 with spillage of more than 200 kilograms of dangerous goods (2016: 2). None of these transportation incidents had a significant impact on the environment (2016: 0).

# Activities in external networks

We are actively involved in external networks, which quickly provide information and assistance in emergencies. These include the International Chemical Environmental (ICE) initiative and the German Transport Accident Information and Emergency Response System (TUIS), in which BASF plays a coordinating role. In 2017, we provided assistance to other companies in 178 cases worldwide. We apply the experience we have gathered to set up similar systems in other countries: For example, we intensified our activities in Asia Pacific in 2017.

For more information, see basf.com/distribution\_safety and basf.com/emergency\_response

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# Energy and climate protection



As an energy-intensive company, we are committed to energy efficiency and global climate protection. We want to reduce emissions along the value chain and utilize, for example, efficient technologies for generating steam and electricity, energy-efficient production processes, and comprehensive energy management. Our climate protection products make an important contribution toward helping our customers avoid emissions.

# Strategy

 We are committed to energy efficiency and global climate protection along the value chain

We want to reduce greenhouse gas emissions in our production and along the entire value chain. To this end, we have thoroughly analyzed the greenhouse gas emissions from our production in the past few years and implemented comprehensive reduction measures.

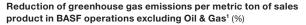
Comparisons with European emissions trading benchmarks show that our greenhouse gas-intensive chemical plants operate at above-average efficiency. To supply our production sites with energy, we rely on highly efficient combined heat and power plants with gas and steam turbines, and on the use of heat released by production processes.

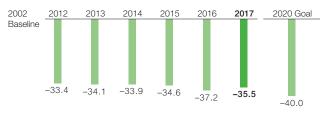
Our success also depends on the long-term security and competitiveness of our energy supplies. Furthermore, we are committed to energy management that helps us analyze and further improve the energy efficiency of our plants. We continuously analyze potential risks to our business operations arising in connection with the topics of energy and climate protection and derive appropriate measures.

We offer our customers solutions that help prevent greenhouse gas emissions and improve energy and resource efficiency. Around half of our total annual research and development spending goes toward developing these products and optimizing our processes. Our climate protection activities are based on a comprehensive analysis of our emissions. We report on greenhouse gas emissions in accordance with the Greenhouse Gas Protocol Standard, as well as the sector-specific standard for the chemical industry. Since 2004, we have participated in the international non-profit organization CDP's program for reporting on data relevant to climate protection. BASF again achieved a score of A- in CDP's rating for 2017, awarding it "Leadership" status. Companies on the "Leadership" level are distinguished by factors such as the completeness and transparency of their reporting. They also pursue comprehensive approaches in managing the opportunities and risks associated with climate change as well as emissions reduction strategies to achieve company-wide goals.

Climate protection is a shared global task. We advocate climate protection by supporting initiatives to this end. In 2017, companies from G20 countries – the Business 20 (B20) – developed recommendations on energy, climate and resource efficiency for state and government leaders. BASF led this B20 task force. BASF supports a consistent implementation of the Paris climate accord as the necessary basis for limiting global warming. We therefore also joined the World Economic Forum's CEO Climate Leaders initiative in 2017.

For more information on climate protection, see basf.com/climate\_protection





The value for the 2012 business year was not adjusted to reflect the currently applied global warming potential factors.

For more information on our data collection methods, see page 105.

#### BASF Group's greenhouse gas emissions according to the Greenhouse Gas Protocol<sup>1</sup> (million metric tons of CO<sub>2</sub> equivalents)

BASF operations including Oil & Gas	2002	2016	2017
Scope 1 <sup>2</sup>			
CO <sub>2</sub> (carbon dioxide)	14.634	16.215	16.813
N <sub>2</sub> O (nitrous oxide) <sup>3</sup>	6.407	0.586	0.747
$CH_4$ (methane)	0.244	0.045	0.048
HFC (hydrofluorocarbons)	0.061	0.087	0.081
SF <sub>6</sub> (sulfur hexafluoride)	0	0	0
Scope 2 <sup>4</sup>			
CO <sub>2</sub>	5.243	3.884	3.796
Total	26.589	20.817	21.485
Sale of energy to third parties (Scope 1) <sup>5</sup>			
	0.347	1.161	1.086
Total	26.936	21.978	22.571

<sup>1</sup> BASF reports separately on direct and indirect emissions from the purchase of energy. Scope 1 emissions encompass both direct emissions from production and generation of steam and electricity, as well as direct emissions from the generation of steam and electricity for sale. Scope 2 emissions comprise indirect emissions from the purchase of energy for BASF's use.

<sup>2</sup> Emissions of N<sub>2</sub>O, CH<sub>4</sub>, HFC and SF<sub>6</sub> have been translated into CO<sub>2</sub> emissions using the Global Warming Potential, or GWP, factor. GWP factors are based on the Intergovernmental Panel on Climate Change (IPCC) 1995 (2002 emissions) and IPCC 2007, errata table 2012 (2016 and 2017 emissions). HFC (hydrofluorocarbons) are calculated using the GWP factors of the individual components.

<sup>3</sup> The 2016 figure has been adjusted due to updated data.

<sup>4</sup> Location-based approach. Information on the calculation of market-based Scope 2 emissions can be found in the GRI and Global Compact Index; see basf.com/en/gri\_gc

<sup>5</sup> Includes sale to BASF Group companies; as a result, emissions reported under Scope 2 can be reported again in some cases.

# **Global goals and measures**

- Reduction of greenhouse gas emissions per metric ton of sales product
- Introduction of energy management systems in accordance with ISO 50001

We aim to reduce our greenhouse gas emissions per metric ton of sales product by 40% by 2020, compared with baseline 2002. Our emissions rose year-on-year in 2017, mainly due to higher production levels of precursors within the Group and an increase in nitrous oxide emissions. In 2017, we reduced greenhouse gas emissions per metric ton of sales product by 35.5% compared with baseline 2002 (2016: reduction of 37.2%). Since 1990, we have been able to lower our overall greenhouse gas emissions from BASF operations (excluding Oil & Gas) by 48.3% and even reduce specific emissions by 74.7%.

We set ourselves a new energy efficiency goal in 2015 covering both the chemicals and the oil and gas businesses. By 2020, we want to have introduced certified energy management systems (DIN EN ISO 50001) at all relevant production sites.<sup>6</sup> Taken together, this represents 90% of BASF's primary energy demand. This is one of the ways in which we intend to identify and carry out improvements in energy efficiency, reducing not only greenhouse gas emissions and saving valuable energy resources, but also increasing the BASF Group's competitive ability.

# 2020 Goal

Reduction of greenhouse gas emissions per metric ton of sales product Baseline 2002

BASF operations excl. Oil & Gas



The introduction and implementation of the energy management systems is steered by a global working group. All energy efficiency measures are recorded and analyzed in a global database and made available to BASF sites as best practices. Currently, over 100 measures are being pursued to reduce energy consumption and increase competitive ability. Sites and pilot plants across all regions were certified in accordance with ISO 50001 in 2017. These include the Verbund site in Antwerp, Belgium, production plants at the Guaratinguetá site in Brazil and Freeport in Texas, as well as another 10 sites in China, India, Singapore, Ireland, Norway and Switzerland. At the moment, 43 sites are certified worldwide, representing 54.3% of our primary energy demand.

2020 Goal

Coverage of our primary

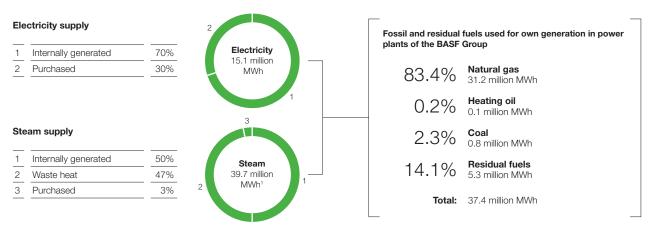
energy demand through

certified energy management

BASF operations incl. Oil & Gas

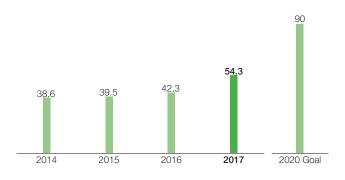
systems at all relevant sites

# Energy supply of the BASF Group 2017



<sup>1</sup> Conversion factor: 0.75 MWh per metric ton of steam

Certified energy management systems (ISO 50001) introduced at BASF Group sites worldwide, in terms of primary energy demand (%)



# **Energy supply and efficiency**

# Verbund system as important component of our energy efficiency strategy

Gas and steam turbines in our combined heat and power plants enable us to fulfill more than 70% of the electricity demand of the BASF Group. Compared with separate methods of generating steam and electricity, we saved 12.7 million MWh of fossil fuels and prevented 2.6 million metric tons of carbon emissions in 2017. The Verbund system is an important component of our energy efficiency strategy: Waste heat from one plant's production process is used as energy in other plants. In this way, the Verbund saved us around 19.2 million MWh in 2017, which translates to 3.9 million metric tons less of  $CO_2$  released to the environment. With combined power and steam generation as well as our continuously enhanced Energy Verbund, we were thus able to prevent a total of 6.5 million metric tons of carbon emissions in 2017.

We were able to further optimize the resource and energy consumption of our production in numerous projects around the world in 2017. In Ludwigshafen, for example, we were able to reduce the energy required for cooling by systematically analyzing the cold supply and using a new absorption chiller to make the existing waste heat steam available for cooling. Furthermore, process improvements at many additional sites have led to savings in steam and electricity.

We also rely on locally available energy sources for energy supply at our sites. Especially in the growing Asian market, we and our energy suppliers also utilize coal as an energy source in individual cases since the more climate-friendly natural gas is not available in sufficient quantities at competitive prices.

We are continuously exploring the use of renewable energies. The focus here is on the purchase of electricity. It only makes economic sense to replace highly efficient internal electricity and steam generation using natural gas once renewable energies offer the necessary supply security and are available at competitive prices.

Our research also contributes to increasing the efficiency of technologies for the use of renewable energy sources.

#### Key indicators for energy and climate protection in BASF operations excluding Oil & Gas

	Baseline 20021	2016	2017
Greenhouse gas emissions <sup>2</sup> (million metric tons of CO <sub>2</sub> equivalents)	24.713	19.976	20.716
Specific greenhouse gas emissions (metric tons of CO <sub>2</sub> equivalents per ton of sales product)	0.897	0.564	0.579
Primary energy demand <sup>3</sup> (million MWh)	55.759	57.423	57.268
Energy efficiency (kilograms of sales product per MWh)	494	617	625

<sup>1</sup> The values for baseline 2002 were not adjusted to reflect the currently applied global warming potential factors.

<sup>2</sup> Scope 1 and Scope 2 (location-based) according to the GHG Protocol Standard, excluding emissions from the generation of steam and electricity for sale to third parties;

information on market-based Scope 2 emissions can be found in the GRI and Global Compact Index; see basf.com/en/gri\_gc

<sup>3</sup> Primary energy used in BASF's plants as well as in the plants of our energy suppliers to cover energy demand for production processes

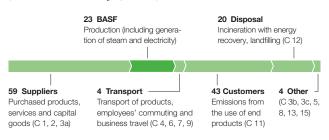
# Carbon footprint and climate protection products

- Reporting on greenhouse gas emissions along the entire value chain
- Customers' use of climate protection products sold in 2017 avoids 570 million metric tons of CO<sub>2</sub> equivalents

BASF has been publishing a comprehensive corporate carbon footprint since as early as 2008. This reports on all emissions along the value chain and shows the volume of emissions prevented through the use of our climate protection products. We plan our climate protection activities along the value chain based on our corporate carbon footprint.

Through various measures to reduce our raw material and energy requirements, the emission of greenhouse gases associated with producing the raw materials was decreased by a total of around 153,000 metric tons in 2017.

Our climate protection products help us offer solutions to our customers to avoid greenhouse gas emissions over their entire lifecycle as compared with reference products. According to the systematic sustainability analysis we conduct on our portfolio – using the Sustainable Solution Steering<sup>®</sup> method – such products are referred to as "Accelerator" solutions as using them contributes positively to climate protection and energy. One example is the ammonium stabilizer DMPP. As the main component of BASF's Vizura<sup>®</sup> fertilizer additive, it helps to increase plant uptake efficiency. This reduces the use of fertilizers or liquid manure and cuts nitrous oxide emissions by 50% on average. Greenhouse gas emissions along the BASF value chain in 2017<sup>4</sup> (million metric tons of  $\rm CO_2$  equivalents)



<sup>4</sup> According to Greenhouse Gas Protocol, Scope 1, 2 and 3; categories within Scope 3 are shown in parentheses

An analysis of 23 climate protection product groups revealed that customers' use of products sold in 2017 helps to avoid 570 million metric tons of  $CO_2$  equivalents. Every product makes an individual contribution in the value chain of customer solutions. Value chains are assessed in terms of BASF's economic share of the respective customer solution. On average, 6% of the emissions avoided were attributable to BASF in 2017. The calculation of avoided greenhouse gas emissions took into account the chemical industry standards of the International Council of Chemical Associations (ICCA) and the World Business Council for Sustainable Development (WBCSD).

- For more information on our emissions reporting, see basf.com/corporate\_carbon\_footprint
- For more information on the sustainability analysis of our product portfolio, see page 32

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Prevention of greenhouse gas emissions through the use of BASF products (million metric tons of CO<sub>2</sub> equivalents)

Emissions along the entire value chain

Without the use of BASF's climate protection products	990	
With the use of BASF's	420	Emissions avoided
climate protection products	120	570 million metric tons

# Water



Water is of fundamental importance in chemical production. It is used as a coolant, solvent and cleaning agent, as well as to make our products. We are committed to its responsible use along the entire value chain and especially in our production sites' water catchment areas. We have set ourselves a global goal for sustainable water management.

# Strategy

### Sustainable water management

We aim to use water as sparingly as possible and further reduce emissions to water. To do so, we have set out a Group directive with globally applicable standards.

We are introducing sustainable water management at all relevant production sites. These include our major Verbund sites as well as the sites in water stress areas – regions in which more than 60% of available water is used by industry, household and agriculture. We consider the quantitative, qualitative and social aspects of water use. We want to identify where we can improve at our sites, and use as little water as possible, especially in water stress areas.

We offer our customers solutions that help purify water and use it more efficiently while minimizing pollution.

In order to ensure transparency in our reporting on water, we once again took part in CDP reporting in 2017. According to CDP, an international nonprofit organization, BASF is a world leader in sustainable water management and was again included in CDP's Water A List. Of the 742 companies evaluated, only 73 of them received the top score of "A" – among them, BASF. CDP's evaluation of sustainable water management includes how transparently companies report on their water management activities and what they do to reduce risks, such as water scarcity. CDP also assesses the extent to which product developments – even at the customers of the companies under evaluation – can contribute to sustainable water management.

For more information on the CDP water survey, see basf.com/en/cdp

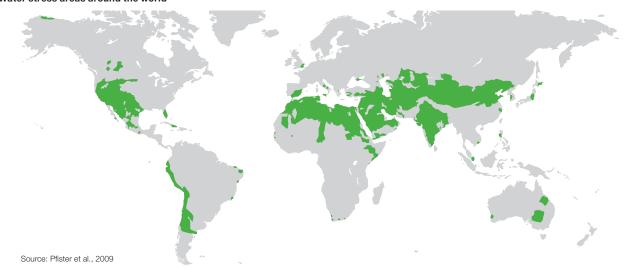
# **Global goal and measures**

By 2025, we want to introduce sustainable water management at all sites in water stress areas and at our Verbund sites, covering 93% of BASF's entire water abstraction. We achieved 45.2% of this goal in 2017 (2016: 42.6%).

We pursue our goal by applying the European Water Stewardship standard, which rests on four principles: sustainable water abstraction, maintaining good water quality, preserving conservation areas, and ensuring continuous improvement processes, including in cooperation with other users.

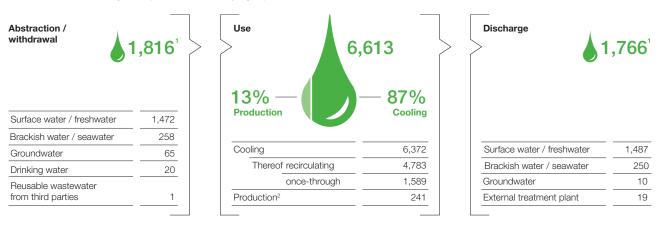
In 2017, around 24% of our production sites were located in water stress areas. Around 1% of BASF's total water supply was abstracted from these sites.

The number of BASF sites in water stress areas rose significantly in 2017 as a result of the acquisition of Chemetall in December 2016. In 2017, BASF introduced sustainable water management at three sites in China and two sites in North America.



#### Water stress areas around the world

#### Water in the BASF Group 2017 (million cubic meters per year)



1 The difference between the volume of water drawn and the volume discharged is primarily attributable to evaporation losses during closed-circuit cooling.

100%

<sup>2</sup> Total from production processes, graywater, rinsing and cleaning in production

### 2025 Goal

Introduction of sustainable water management at all production sites in water stress areas and at all Verbund sites BASF operations excl. Oil & Gas

### Water use

Using water responsibly

Our water usage totaled 1,816 million cubic meters in 2017. This demand was covered for the most part by surface water, such as rivers and lakes. At some sites, we use alternative sources such as treated municipal wastewater, brackish water or seawater, reducing our need for freshwater.

We predominantly use water for cooling purposes (87%), after which we recirculate it back to our supply sources. We reduce our water use by recirculating as much water as possible. Our larger sites have recooling plants that allow water to be reused several times and which reduce the temperature of used cooling water before it is discharged back into a body of water.

The supply, treatment, transportation and recooling of water is associated with a considerable energy demand. We employ various means in our efforts to minimize this as much as possible. We are constantly working to optimize our energy consumption and the amount of water we use, and to adapt to the needs of our business and the environment.

### **Emissions to water**

### Low level of emissions

A total of 1,766 million cubic meters of water were discharged from BASF production sites in 2017, including 177 million cubic meters of wastewater from production. Emissions of nitrogen to water amounted to 2,800 metric tons (2016: 2,900 metric tons). Around 14,100 metric tons of organic substances were emitted in wastewater (2016: 15,900 metric tons). Our wastewater contained 25 metric tons of heavy metals (2016: 23 metric tons). Phosphorus emissions amounted to 420 metric tons (2016: 310 metric tons). Our wastewater is treated through different methods depending on the type and degree of contamination – including biological processes, oxidation, membrane technologies, precipitation or adsorption.

In order to avoid unanticipated emissions and the pollution of surface or groundwater, we create water protection strategies for our production sites. This is mandatory for all production plants as part of the Responsible Care<sup>®</sup> initiative. The wastewater protection plans involve evaluating wastewater in terms of risk and drawing up suitable monitoring approaches. We use audits to check that these measures are being implemented and complied with.

For more information, see basf.com/water



# Air and soil

Suppliers

We want to further reduce emissions to air from our production, prevent waste and protect the soil. We have set ourselves standards for doing so in global directives. If no recovery options are available for waste, we dispose of it in a proper and environmentally responsible manner.

BASE

### Strategy

- Regular monitoring of emissions to air
- Professional disposal of hazardous waste

Regular monitoring of our emissions to air is a part of environmental management at BASF. Aside from greenhouse gases, we also measure emissions of other pollutants into the atmosphere. Our reporting does not take into account air pollutant emissions from oil and gas operations due to their substantial fluctuation during exploration phases.

Our Raw Material Verbund helps us prevent or reduce waste. We regularly carry out audits to inspect external waste disposal companies to ensure that waste is properly disposed of. In this way, we also contribute to preventive soil protection and keep today's waste from becoming tomorrow's contamination.

When treatment is required for soil and groundwater contamination at active and former BASF sites, proper remediation measures are reviewed based on prevailing legal and current technical standards, and undertaken as necessary.

### **Emissions to air**

### Further reduction of emissions

Absolute emissions of air pollutants from our chemical plants amounted to 25,706 metric tons in 2017. Emissions of ozone-depleting substances as defined by the Montreal Protocol totaled 23 metric tons in 2017 (2016: 23 metric tons<sup>1</sup>). Emissions of heavy metals in 2017 amounted to 3 metric tons (2016: 3 metric tons).

#### Emissions to air (metric tons)

Air pollutants from BASF operations excluding Oil & Gas

	2016	2017
CO (carbon monoxide)	3,585	3,644
NO <sub>x</sub> (total nitrogen oxides)	11,143	11,205
NMVOC (nonmethane volatile organic compounds)	4,824	4,727
SO <sub>x</sub> (total sulfur oxides)	1,872	1,753
Dust <sup>1</sup>	2,338	2,207
$\ensuremath{NH_{\scriptscriptstyle 3}}\xspace$ (ammonia) and other inorganic substances	2,229	2,170
Total	25,991	25,706

<sup>1</sup> The 2016 figure has been adjusted due to updated data.

Our product portfolio contains a variety of catalysts used in the automotive sector and in industry to reduce the emission of air pollutants.

Customers

### Management of waste and contaminated sites

- Total waste volume on a level with the previous year
- Systematic management of contaminated sites

Waste prevention is our topmost goal. If waste is unavoidable, we review the options for recycling or energy recovery, using BASF's existing Verbund structures for efficient waste management. Total waste volume amounted to 2.12 million metric tons in 2017 (+1.0%).

#### Waste management in the BASF Group (million metric tons)

2016	2017
2.10	2.12
0.06	0.10
0.77	0.79
0.26	0.27
0.51	0.52
1.33	1.34
0.14	0.17
0.47	0.39
0.72	0.77
0.46	0.47
0.87	0.87
0.23	0.23
	2.10 0.06 0.77 0.26 0.51 1.33 0.14 0.47 0.72 0.72

<sup>2</sup> Comprises all production waste and hazardous waste from construction activities

<sup>3</sup> The classification of waste into hazardous and nonhazardous waste is performed according to local regulations.

aboording to lood regulations.

Q

We set out global standards for our approach to managing contaminated sites. A worldwide network of experts ensures their proper implementation. We develop remediation solutions that combine nature conservation, climate protection concerns, costs, and social responsibility. This means making customized decisions on a case-by-case basis, founded on the legal framework and current technological possibilities.

We have been documenting relevant sites in a contaminated site database since 2013. Ongoing remediation work around the world continued on schedule and planning was concluded on future landfill remediation projects.

For more information, see the Notes to the Consolidated Financial Statements on pages 196 and 217

# **Forecast** Opportunities and risks report

# **Opportunities**

Potential successes that exceed our defined goals

Events that can negatively impact the achievement of our goals

**Risks** 

# **Risk management**

Identifying opportunities and risks as early as possible and planning effective courses of action

The goal of BASF's risk management is to identify and evaluate opportunities and risks as early as possible and to take appropriate measures in order to seize opportunities and limit business losses. The aim is to avoid risks that pose a threat to BASF's continued existence and to make improved managerial decisions to create value. We understand risk to be any event that can negatively impact the achievement of our short-term operational or long-term strategic goals. We define opportunities as potential successes that exceed our defined goals.

In order to effectively measure and manage identified opportunities and risks, we quantify these where appropriate in terms of probability and economic impact in the event they occur. Where possible, we use statistical methods to aggregate opportunities and risks into risk factors. This way, we achieve an overall view of opportunities and risks at a portfolio level, allowing us to take effective measures for risk management.

# **Overall assessment**

 Significant risks and opportunities arise from overall economic developments and volatility in exchange rates and margins

For 2018, we expect the global economy to continue to grow at around the same pace as the previous year. Important opportunities and risks for our earnings are associated with uncertainty regarding market growth, the development of key customer industries, acquisitions and divestitures, as well as volatility in exchange rates and margins. In particular, a considerable slowdown of the Chinese economy continues to pose significant risks. Such a development would negatively affect demand for intermediate and investment goods. This would impact the emerging markets that export raw materials as well as the advanced economies. This is especially true for Europe. Further risks to the global economy arise from an escalation of geopolitical conflicts and an increased tendency toward protectionism. Potential short-term effects on EBIT of key opportunity and risk factors subsequent to measures taken<sup>1</sup>

Possible variations related to:	Outlook – 2018 +
Business environment and sector	
Market growth	
Margins	
Competition	
Regulation/policy	

#### Company-specific opportunities and risks

Purchasing/supply chain	
Investments/production	
Personnel	
Acquisitions/divestitures/cooperations	
Information technology	
Law	

#### Finance

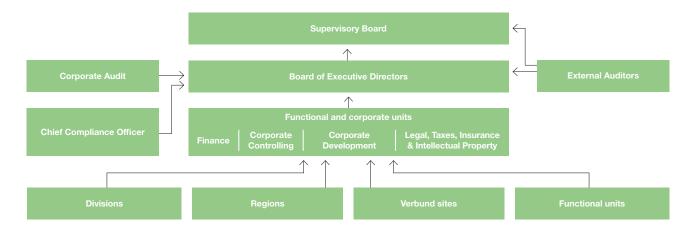
Exchange	e rate volatility	
Other fina	ncial opportunities and risks	
	< €100 million ≥ €100 million < €500 million	

≥ €500 million < €1,000 million
$\geq$ €1,000 million < €1,500 million

<sup>1</sup> Using a 95% confidence interval per risk factor based on planned values; summation is not permissible.

According to our assessment, there continue to be no significant individual risks that pose a threat to the continued existence of the BASF Group. The same applies to the sum of individual risks, even in the case of another global economic crisis.

Ultimately, however, residual risks remain in all entrepreneurial activities which even comprehensive risk management cannot exclude.



### Organization of BASF Group's risk management

# **Risk management process**

- Integrated process for identification, assessment and reporting
- Decentralized management of specific opportunities and risks
- Aggregation at a Group level

The BASF Group's risk management process is based on the international risk management standard COSO II Enterprise Risk Management – Integrated Framework (2004), and has the following key features:

### Organization and responsibilities

- Risk management is the responsibility of the Board of Executive Directors, which also determines the processes for approving investments, acquisitions and divestitures.
- The Board of Executive Directors is supported by the units Finance, Corporate Controlling, Corporate Development and Legal, Taxes, Insurance & Intellectual Property, and the Chief Compliance Officer. These units coordinate the risk management process at a Group level and provide the structure and appropriate methodology. Opportunity and risk management is thus integrated into the strategy, planning and budgeting processes.
- A network of risk managers in the business, functional and corporate units as well as in the regions and at the Verbund sites advances the implementation of appropriate risk management practices in daily operations.
- The management of specific opportunities and risks is largely delegated to the business units and is steered at a regional or local level. Risks relating to exchange rates and raw materials prices are an exception. In this case, there is an initial consolidation at a Group level before derivative hedging instruments, for example, are used.
- BASF's Chief Compliance Officer (CCO) manages the implementation of our Compliance Management System,

supported by additional compliance officers worldwide. He regularly reports to the Board of Executive Directors on the status of implementation as well as on any significant results. He also provides a status report to the Supervisory Board's Audit Committee at least once a year, including any major developments. In the event of significant incidents, the Audit Committee is immediately informed by the Board of Executive Directors.

- The internal auditing unit (Corporate Audit) is responsible for regularly auditing the risk management system established by the Board of Executive Directors in accordance with section 91(2) of the German Stock Corporation Act. Furthermore, as part of its monitoring of the Board of Executive Directors, the Supervisory Board considers the effectiveness of the risk management system. The suitability of the early detection system we set up for risks is evaluated by our external auditor.

### Instruments

- The Risk Management Policy, applicable throughout the Group, forms the framework for risk management and is implemented by the business units according to their particular business conditions.
- A catalog of opportunity and risk categories helps to identify all relevant opportunities and risks as comprehensively as possible.
- We use standardized evaluation and reporting tools for the identification and assessment of risks. The aggregation of opportunities, risks and sensitivities at division and Group level using a Monte Carlo simulation helps us to identify effects and trends across the Group.
- The nonfinancial topics relevant for BASF are addressed by the responsible functional units, which assess the risks identified as being relevant according to impact and probability of occurrence. We identify opportunities and risks that arise in connection with the topics of environment, society and governance with our sustainability management

tools. We have established global monitoring systems to check adherence to laws and our voluntary commitments in these areas. These also incorporate our suppliers.

- The BASF Group's management is informed about operational opportunities and risks (observation period of up to one year) in the monthly management report produced by the Corporate Controlling unit. In addition, Corporate Controlling and Finance provide information twice a year on the aggregated opportunity/risk exposure of the BASF Group. Furthermore, if a new individual risk is identified which has a more than €10 million impact on earnings or bears reputational risks, it must be immediately reported.
- As part of our strategy development, the Corporate Development unit conducts strategic opportunity/risk analyses with a 10-year assessment period. These analyses are annually reviewed as part of strategic controlling and are adapted if necessary.
  - $\bigcap$  For more information on our sustainability management processes, see page 29 onward
- Our Group-wide Compliance Program aims to ensure adherence to legal regulations and the company's internal guidelines. Our global employee Code of Conduct firmly embeds these mandatory standards into everyday business. Members of the Board of Executive Directors are also expressly obligated to follow these principles.
  - For more information on our Group-wide Compliance Program, see page 135 onward

# Significant features of the internal control and risk management system with regard to the Group financial reporting process

- Conducted in accordance with standardized Group guidelines
- Segregation of duties, principle of dual control and clearly regulated access rights
- Annual evaluation of the control environment and relevant processes at significant companies

The Consolidated Financial Statements are prepared by a unit in the Finance division. BASF Group's accounting process is based on a standardized accounting guideline that sets out accounting policies and the significant processes and deadlines on a Group-wide basis. There are binding directives for the internal reconciliations and other accounting operations within the Group. Standard software is used to carry out the accounting processes for the preparation of the individual financial statements as well as for the Consolidated Financial Statements. There are clear rules for the access rights of each participant in these processes.

Employees involved in the accounting and reporting process meet the qualitative requirements and participate in training on a regular basis. There is a clear assignment of responsibilities between the specialist units, companies and regional service units involved. We strictly adhere to the principles of segregation of duties and dual control, or the "four-eyes principle." Complex actuarial reports and evaluations are produced by specialized service providers or specially qualified employees.

An internal control system for financial reporting continuously monitors these principles. To this end, methods are provided to ensure that evaluation of the internal control system in financial reporting is structured and uniform across the BASF Group.

The significant risks for the BASF Group regarding a reliable control environment for proper financial reporting are reviewed and updated on an annual basis. Risks are compiled into a central risk catalog.

Moreover, a centralized selection process identifies companies that are exposed to particular risks, that are material to the Consolidated Financial Statements of the BASF Group, or that provide service processes. The selection process is conducted annually. In the relevant companies, one person is given the responsibility of monitoring the execution of the annual evaluation process.

In these companies, the process comprises the following steps:

### - Evaluation of the control environment

Adherence to internal and external guidelines that are relevant for the maintenance of a reliable control environment is checked by means of a standardized questionnaire.

- Identification and documentation of control activities

In order to mitigate the risks to the financial reporting processes listed in our central risk catalog, critical processes and control activities are documented.

Assessment of control activities

After documentation, a review is performed to verify whether the described controls are capable of adequately covering the risks. In the subsequent test phase, samples are taken to test whether, in practice, the controls were executed as described and effective.

### - Monitoring of control weaknesses

The managers responsible receive reports on any control weaknesses identified and their resolution, and an interdisciplinary committee investigates their relevance for the BASF Group. The Board of Executive Directors and the Audit Committee are informed once control weaknesses have been identified that have a considerable impact on financial reporting. Only after material control weaknesses have been resolved does the company's managing director confirm the effectiveness of the internal control system.

- Internal confirmation of the internal control system All managing directors and chief financial officers of each consolidated Group company must confirm to the Board of Executive Directors of BASF SE every half-year and at the end of the annual cycle, in writing, that the internal control system is effective with regard to accounting and reporting.

### Short-term opportunities and risks

# Development of demand

The development of our sales markets is one of the strongest sources of opportunities and risks. More details on our assumptions regarding short-term growth rates for the global economy, regions and key customer industries, such as the chemicals, automotive and construction sectors, can be found from pages 119 to 121.

We also consider risks from deviations in assumptions. We continue to see a significant macroeconomic risk in an increased slowdown of the Chinese economy, which would have considerable impact on demand for intermediate goods for industrial production as well as investment goods. This would have an effect on emerging markets that export raw materials as well as on advanced economies that specialize in technological goods. Risks to the global economy would also be posed by the possible escalation of geopolitical conflicts and an increased tendency toward protectionism.

Should the macroeconomic environment develop more slowly than we predict, we expect a lower oil price. In this case, we also expect the euro to weaken relative to the U.S. dollar in the medium term as compared with our planning assumptions, as the eurozone's economy shows a high level of dependency on exports and, in times of global economic weakness, the U.S. dollar is preferred by portfolio investors as a safe haven.

Weather-related influences can result in positive or negative effects on our crop protection business.

### Margin volatility

The BASF Group will be exposed to margin risk in 2018, driven by the isocyanates business in particular. It is also possible that margin pressure on a number of other products and value chains could be increased by, for example, new capacities or increasing raw material costs. This would have a negative effect on our income from operations (EBIT).

The year's average oil price for Brent crude was around \$54 per barrel in 2017, compared with \$44 per barrel in the previous year. For 2018, we anticipate an average oil price of \$65 per barrel. We therefore expect a slight increase in price levels for the raw materials and petrochemical basic products that are important to our business. Yet an oil price level below the expected average would pose risks for our oil and gas business, whose EBIT declines by approximately €20 million for every \$1 decrease in the average annual barrel price of Brent crude.

### Competition

We continuously enhance our products and solutions in order to maintain competitive ability. We watch the market and the competition, and try to take targeted advantage of opportunities and counter emerging risks with suitable measures. Aside from innovation, a major component our competitiveness is our cost structure.

### Regulation and political risks

Risks for us can arise from intensified geopolitical tensions, new trade sanctions, stricter emissions limits for plants or energy and climate laws. In addition, risks to the BASF Group can be posed by further regulations in key customer industries or on the use or registration of agricultural and other chemicals.

Economic and political uncertainties may arise as a result of Brexit. At this point in time, it is not yet clear what the future relationship between the European Union and the United Kingdom will look like post-Brexit and what specific consequences this will have for our sites, our supply chains and the regulatory environment. A cross-divisional Brexit team has been established to prepare the BASF organization for various exit scenarios and enable it to quickly react to political decisions.

Political measures could also give rise to opportunities. For example, we view the worldwide expansion of renewable energy and measures to increase energy efficiency as an opportunity for increased demand for our products, such as our insulation foams for buildings or our solutions for wind turbines. Our broad product portfolio enables us to offer alternatives if chemicals have to be substituted as a result of restrictions in connection with the REACH chemicals regulation or new standards in our customers' industries.

### Purchasing and supply chain

We minimize procurement risks through our broad portfolio, global purchasing activities and the purchase of raw materials on spot markets. If possible, we avoid procuring raw materials from a single supplier. When this cannot be avoided, we try to foster competition or we knowingly enter into this relationship and assess the consequences of potential nondelivery. We continuously monitor the credit risk of important business partners.

# Production and investments

We try to prevent unscheduled plant shutdowns by adhering to high technical standards and by continuously improving our plants. We reduce the effects of unscheduled shutdowns on the supply of intermediate and end products through diversification within our global production Verbund. In the event of a production outage – caused by an accident, for example – our global, regional or local emergency response plans and crisis management structures are engaged, depending on the impact scope. Every region has crisis management teams on a local and regional level. They not only coordinate the necessary emergency response measures, they also initiate the immediate measures for damage control and resumption of normal operations as quickly as possible.

Short-term risks from investments can result from, for example, technical malfunctions or schedule and budget breaches. We counter these risks with highly experienced project management and controlling.

For more information on emergency response, see page 100 or basf.com/emergency\_response

# Acquisitions, divestitures and cooperations

We are constantly watching our environment in order to identify possible targets and develop our portfolio appropriately. In addition, we work together in collaborations with customers and partners to jointly develop new, competitive products and applications.

Opportunities and risks arise in connection with acquisitions and divestitures from the conclusion of a transaction, or it being completed earlier or later than expected. They relate to the regular earnings contributions gained or lost as well as the realization of gains or losses from divestitures if these deviate from our planning assumptions.

For more information on opportunities and risks from acquisitions and divestitures in 2018, see the Outlook from page 122 onward

### Personnel

Due to BASF's worldwide compensation principles, the development of personnel expenses is partly dependent on the amount of variable compensation, which is linked to the company's success, among other factors. The correlation between variable compensation and the success of the company has the effect of minimizing risk. Another factor is the development of interest rates for discounting pension obligations. Furthermore, changes to the legal environment of a particular country can have an impact on the development of personnel expenses for the BASF Group. For countries in which BASF is active, relevant developments are therefore constantly monitored in order to recognize risks at an early stage and enable BASF to carry out suitable measures.

For more information on our compensation system, see page 46
 For more information on risks from pension obligations, see page 117

# Information technology risks

BASF relies on a large number of IT systems. Their nonavailability, violation of confidentiality or the manipulation of data in critical IT systems and applications can all have a direct impact on production and logistics processes. The threat environment has changed in recent years, as attackers have become better organized, use more sophisticated technology, and have far more resources available. If data are lost or manipulated, this can, for example, negatively affect process safety and the accuracy of our financial reporting. Unauthorized access to sensitive data, such as personnel records, competition-related information or research results, can result in legal consequences or jeopardize our competitive position. This would also be accompanied by the associated loss of reputation.

To minimize such risks, BASF uses globally uniform processes and systems to ensure IT security, such as stable and redundantly designed IT systems, backup processes, virus and access protection, encryption systems as well as integrated, Group-wide standardized IT infrastructure and applications. The systems used for information security are constantly tested, continuously updated, and expanded if necessary. In addition, our employees receive regular training on information and data protection. IT-related risk management is conducted using Group-wide regulations for organization and application, as well as an internal control system based on these regulations.

BASF also established the Cyber Defense Center in 2015; is a member of the Cyber Security Sharing and Analytics e.V. (CSSA); and is a founding member of the German Cyber Security Organization (DCSO) together with Allianz SE, Bayer AG and Volkswagen AG.

# Legal dispute and proceedings

We constantly monitor current and potential legal disputes and proceedings, and regularly report on these to the Board of Executive Directors and Supervisory Board. In order to assess the risks from current legal disputes and proceedings and any potential need to recognize provisions, we prepare our own analyses and assessments of the circumstances and claims considered. In addition, in individual cases, we consider the results of comparable proceedings and, if needed, independent legal opinions. Risk assessment is particularly based on estimates as to the probability of occurrence and the range of possible claims. These estimates are the result of close cooperation between the affected operating and functional units together with the Legal and Finance units. If sufficient probability is identified, a provision is recognized accordingly for each proceeding. Should a provision be unnecessary, general risk management continues to assess whether these litigations nevertheless present a risk for the EBIT of the BASF Group.

We use our internal control system to limit risks from potential infringements of rights or laws. For example, we try to avoid patent and licensing disputes whenever possible through extensive clearance research. As part of our Group-wide Compliance Program, our employees receive regular training.

# Financial opportunities and risks

The management of liquidity, currency and interest rate risks is conducted in the Treasury unit. The management of commodity price risks takes place in the Procurement functional unit or in appropriately authorized Group companies. Detailed guidelines and procedures exist for dealing with financial risks. Among other things, they provide for the segregation of trading and back office functions.

As a part of risk management, activities in countries with transfer restrictions are continuously monitored. This includes, for example, regular analysis of the macroeconomic and legal environment, shareholders' equity and the business models of the operating units. The chief aim is the reduction of counterparty, transfer and currency risks for the BASF Group.

# Exchange rate volatility

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 rise in the value of the U.S. dollar/euro exchange rate by \$0.01 would result in an increase of around €50 million in the BASF Group's EBIT, 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. These risks are hedged using derivative instruments, if necessary.

### Interest rate risks

Interest rate risks result from potential changes in prevailing market interest rates. These can cause a change in the fair value of fixed-rate instruments and fluctuations in the interest payments for variable-rate financial instruments, which would positively or negatively affect earnings. To hedge these risks, interest rate swaps and combined interest rate and currency derivatives are used in individual cases. In addition to market interest rates, BASF's financing costs are determined by the credit risk premiums to be paid. These are mainly influenced by our credit rating and the market conditions at the time of issue. In the short to medium term, BASF is largely protected from the possible effects on its interest result thanks to the balanced maturity profile of its financial indebtedness.

# Risks from metal and raw materials trading

In the catalysts business, BASF employs commodity derivatives for precious metals and trades precious metals on behalf of third parties and on its own account. Appropriate commodity derivatives are also traded to optimize BASF's supply of refinery products, gas and other petrochemical raw materials. To address specific risks associated with these trades, which are not part of our operating business, we set and continuously monitor limits with regard to the type and size of the deals concluded.

# Liquidity risks

Risks from fluctuating cash flows are recognized in a timely manner as part of our liquidity planning. We have access to extensive liquidity at any time thanks to our good ratings, our unrestricted access to the commercial paper market and committed bank credit lines. In the short to medium term, BASF is largely protected against potential refinancing risks by the balanced maturity profile of its financial indebtedness as well as through diversification in various financial markets.

A For more information on the maturity profile of our financial indebtedness, see the explanations in the Financial Position on page 58 and the Notes to the Consolidated Financial Statements from page 218 onward

### Risk of asset losses

We limit country-specific risks with measures based on internally determined country ratings, which are continuously updated to reflect changing environment conditions. We selectively use investment guarantees to limit specific country-related risks. We lower credit risks for our financial investments by engaging in transactions only with banks with good credit ratings and by adhering to fixed limits. Creditworthiness is continuously monitored and the limits are adjusted accordingly. We reduce the risk of default on receivables by continuously monitoring the creditworthiness and payment behavior of our customers and by setting appropriate credit limits. Due to the global activities and diversified customer structure of the BASF Group, there are no major concentrations of credit default risk. Risks are also limited through the use of credit insurance and bank guarantees.

#### Impairment risks

The risk of an asset impairment occurs if the assumed interest rate in an impairment test increases, the predicted cash flows decline, or investment projects are suspended. In the current business environment, we consider the risk of impairment of individual assets such as customer relationships, technologies and trademarks, as well as goodwill, to be nonmaterial. Nevertheless, a continuing decline in the prices of oil or gas below our assumed planning level would result in impairment risks for the Oil & Gas segment's assets.

# Long-term incentive program for senior executives

Our senior executives have the opportunity to participate in a share price-based compensation program. The need for provisions for this program varies according to the development of the BASF share price and the MSCI World Chemicals Index; this leads to a corresponding increase or decrease in personnel costs.

### Risks from pension obligations

Most employees are granted company pension benefits from either defined contribution or defined benefit plans. We predominantly finance company pension obligations externally through separate plan assets. This particularly includes BASF Pensionskasse VVaG and BASF Pensionstreuhand e.V. in Germany, in addition to the large pension plans of our Group companies in North America, the United Kingdom and Switzerland. To address the risk of underfunding due to market-related fluctuations in plan assets, we have investment strategies that align return and risk optimization to the structure of the pension obligations. Stress scenarios are also simulated regularly by means of portfolio analyses. An adjustment to the interest rates used in discounting pension obligations leads immediately to changes in equity. To limit the risks of changing financial market conditions as well as demographic developments, employees have been almost exclusively offered defined contribution plans for future years of service in recent years. Some of these contribution plans include minimum interest guarantees. If the pension fund cannot generate this, it must be provided by the employer. A permanent continuation of the low interest rate environment could make it necessary to recognize pension obligations and plan assets for these plans.

### Long-term opportunities and risks

# Long-term demand development

We assume that chemical production (excluding pharmaceuticals) will grow slightly faster than global gross domestic product over the next five years and be slightly below the previous fiveyear average. Through our market-oriented and broad portfolio, which we will continue to strengthen in the years ahead through investments in new production capacities, research and development activities and acquisitions, we aim to achieve sales growth that slightly exceeds this market growth. Should global economic growth see unexpected, considerable deceleration, due for example to an ongoing weak period in the emerging markets or to geopolitical crises, the expected growth rates could prove too ambitious. As a result of our high degree of diversification across various customer industries and regions, we would still expect our growth to be above the market average, even under these conditions.

For more information on the "We create chemistry" strategy, see page 23 onward

### Development of competitive and customer landscape

We expect competitors – especially in Asia and the Middle East – to gain increasing significance in the years ahead. Furthermore, we predict that many producers in countries rich in raw materials will expand their value chains. We counter this risk through active portfolio management. We exit markets in which we see only limited possibilities to stand out from competitors in the long term.

We continuously improve our processes in order to remain competitive through our operational excellence. Our strategic excellence program, DrivE, also contributes to this aim. Starting at the end of 2018, we expect this program to contribute around  $\in$ 1 billion in earnings each year compared with baseline 2015.

In order to achieve lasting profitable growth, tap into new market segments and customers, and make our customers more successful, our research and business focus is on highly innovative business areas, some of which we enter into through strategic cooperative partnerships.

#### Innovation

The trend toward more sustainability in our customer industries continues. We want to use innovations to take advantage of the resulting opportunities. In the long term, we aim to continue increasing sales and earnings with new and improved products. The central research areas Process Research & Chemical Engineering, Advanced Materials & Systems Research and Bioscience Research serve as global platforms headquartered in our key regions: Europe, Asia Pacific and North America. Together with the development units in our operating divisions, they form the core of the global Know-How Verbund. Stronger regional presence opens up new opportunities to participate in local innovation processes and gain access to local talent. We optimize the effectiveness and efficiency of our research activities through our global Know-How Verbund.

Research activities funded by the BASF Group promote the targeted development and enhancement of key technologies as well as the establishment of new business areas. Focus areas in research are determined based on their strategic relevance for BASF, above and beyond existing business areas.

We also address the risk of the technical or economic failure of research and development projects by maintaining a balanced and comprehensive project portfolio, as well as through professional, milestone-based project management.

The opportunities of digitalization – especially in production, for new business models and in research and development – are being assessed in specific project organizations. To take advantage of these, measures are being implemented together with the divisions and the functional and research units. The risks of digitalization are managed in the divisions and functional units.

The trust of customers and consumers is essential for the successful introduction of new technologies. That is why we enter into dialog with our stakeholders at an early stage of development.

G For more information on innovation and digitalization, see pages 35 to 39

#### Portfolio development through investments

Our decisions on the type, size and locations of our investment projects are based on assumptions related to the longterm development of markets, margins and costs, as well as raw material availability and country, currency and technology risks. Opportunities and risks arise from potential deviations in actual developments from our assumptions.

We expect the increase in chemical production in emerging markets in the coming years to remain above the global average. This will create opportunities that we want to exploit by expanding our local presence.

We are continuing to evaluate an investment in a worldscale methane-to-propylene complex on the U.S. Gulf Coast and conduct regular assessments, taking into account raw materials prices and the relevant market conditions.

 $\square$  For more information on our investment plans, see page 124

# Acquisitions

In the future, we will continue to refine our portfolio through acquisitions that promise above-average profitable growth, are innovation-driven, offer added value for our customers and reduce the cyclicality of our earnings.

The evaluation of opportunities and risks plays a significant role during the assessment of acquisition targets. A detailed analysis and quantification is conducted as part of due diligence. Examples of risks include increased staff turnover, delayed realization of synergies, or the assumption of obligations that were not precisely quantifiable in advance. If our expectations in this regard are not fulfilled, risks could arise, such as the need to impair intangible assets; however, there could also be opportunities, for example, from additional synergies.

G For more information on our acquisitions, see page 40 onward

# Recruitment and long-term retention of qualified employees

BASF is adjusting in the medium and long term to the rising challenge of gaining skilled employees due to demographic changes, especially in North America and Europe. As a result, there is an increased risk that job vacancies may not be filled with suitable applicants, or only after a delay. We address these risks with measures to integrate diversity, employee and leadership development, and intensified employer branding. At local level, demographic management includes succession planning, knowledge management and offerings to improve the balance between personal and professional life and promote healthy living. This increases BASF's appeal as an employer and retains our employees in the long term.

 $\bigcap$  For more information on the individual initiatives and our goals, see page 42 onward

### Sustainability

As part of our sustainability management, we also assess the opportunities and risks associated with the topics we have identified as material. These also include the increasing internalization of external effects, through which positive and negative earnings contributions from companies' activities that were previously borne by the community are attributed to these companies.

For example, the material topic "energy and climate" is analyzed to enable us to identify, assess and manage climaterelated risks and opportunities. For BASF as an energyintensive company, these arise particularly from regulatory changes, such as in carbon prices through emissions trading systems, taxes or energy legislation.

For more information on energy and climate protection, see page 104 onward

For more information on opportunities and risks from energy policies, see page 114

 $<sup>\</sup>bigcap$  For more information on sustainability management and material topics for BASF, see page 29 onward

# Economic environment in 2018

The global economy is expected to grow by 3.0% in 2018, about as fast as in 2017 (+3.1%). We expect economic momentum in the European Union (E.U.) to ease slightly. The United States will presumably grow at a slightly stronger rate. We anticipate a weakening of the high growth in China. This will probably negatively impact the Japanese economy as well. We forecast a continuation of the recovery already underway in Brazil and Russia. Global chemical production is forecast to grow by 3.4% in 2018, roughly at the same rate as in 2017 (+3.5%). For 2018, we predict an average price of \$65 per barrel for Brent crude oil and an exchange rate of \$1.20 per euro.

# Trends in the global economy in 2018

- Slightly slower growth forecast for the E.U.
- Slightly stronger growth in the United States
- Growth moderation expected in China
- Continuation of recovery in Brazil and Russia

Growth in the **E.U.** is expected to slow slightly in 2018. Although the economy is in a cyclical upturn that is likely to continue in 2018, supported by low interest rates and moderate inflation, exports will be curbed by the comparatively strong euro and the weaker growth expected in Asia. We also anticipate a weakening of growth in the United Kingdom as uncertainty about the situation following the announced Brexit dampens investment and private consumers increasingly suffer from unclear labor market prospects and high inflation. Growth rates in the eastern E.U. countries are forecast to decline slightly after the strong upswing in the previous year. We expect the recovery in Russia to continue at roughly the same moderate pace as in 2017.

The **United States** should maintain its economic momentum, with slightly stronger growth compared with 2017. Early economic indicators point to a stable, positive consumer climate, which also reflects the strong labor market trend. Moderating effects will come from the financial market. Slowly rising interest rates should put more of a damper on consumer spending than in the previous year. By contrast, the corporate tax cut and the income tax reform passed in December 2017 will provide additional growth stimulus. Outlook for gross domestic product 2018 (Real change compared with previous year)

World	3.0%
European Union	2.0%
United States	2.5%
Emerging markets of Asia	5.9%
Japan	1.2%
South America	2.0%

Trends in gross domestic product 2018–2020 (Average annual real change)

World	2.9%
European Union	1.7%
United States	2.3%
Emerging markets of Asia	5.7%
Japan	0.8%
South America	2.4%

In the **emerging markets of Asia**, we expect economic growth to remain robust but slightly below the prior-year level in 2018. China should report slower but still strong growth: Government stimuli for the economy will probably be weaker and the financial markets will generally be more strictly regulated to prevent a further rise in corporate and consumer debt. Conversely, we are seeing slightly stronger growth rates in India. Here, the dampening effects of the introduction of a new sales tax system will presumably taper off.

For **Japan**, we anticipate a slowdown in 2018 after a year of unexpectedly high growth. In particular, China's stimulating effect on Japanese exports is expected to weaken. However, the weak yen and the expansive fiscal policy will shore up the Japanese economy, meaning that the moderate upward trend is expected to continue.

We anticipate a continuation of the slow economic recovery in **South America**. In Brazil, demand for investment goods and durable consumer goods will presumably pick up slowly and export demand will develop solidly. We expect the Argentinian government to continue its path of reforms. Declining inflation rates should strengthen private consumption, and rising demand should also improve the investment climate.

# Outlook for key customer industries

# Stable growth expected in global industrial production for 2018

We expect global industrial production in 2018 to grow at more or less the same rate as in the previous year (2017: +3.3%; 2018: +3.2%). The trends in the regions are mixed: Growth in the E.U. and Japan will probably weaken compared with the high level of 2017. By contrast, we anticipate a slight upturn in the United States. In the emerging markets of Asia, we assume that China will experience a cooldown but India will return to stronger industrial growth. In South America, the recovery in industrial production that emerged over the course of 2017 is expected to continue.

The **transportation industry** should post stable growth overall, roughly on the same level as in 2017. We continue to anticipate modest growth rates for the automotive industry in western Europe, but stronger and stable growth of around 3% for production in the transportation industry as a whole. Continued robust growth is forecast for the eastern European automotive market, supported by a dynamic recovery of production in Russia. Automotive production in North America should also once again see slight growth in 2018 after the decline in the previous year. One reason is the anticipated replacement of the vehicles that were destroyed in the hurricanes in fall 2017. We expect growth in Asia to slow, mainly as a result of the phasing out of sales tax incentives in China at the end of 2017. By contrast, the automotive industry in South America is expected to continue its recovery.

In the energy and raw materials sector, we anticipate stronger production growth for 2018. The increase in prices for energy raw materials will drive forward the production of unconventional oil and gas deposits in the United States. In the Middle East, on the other hand, we only anticipate a slight rise in growth rates due to the ongoing production cuts imposed by the OPEC countries. We predict slight growth in South America for 2018 following the decline in the previous year. In Europe, too, we expect energy and raw material production to expand at a slightly higher rate.

Global growth in the **construction industry** should increase slightly in 2018. However, we expect slightly weaker growth overall in western Europe: The construction industry in Germany is stretched to its capacity limits, government subsidy programs in France are coming to an end and the announced Brexit is negatively impacting construction demand in the United Kingdom. We anticipate robust growth in demand in the eastern European construction sector, which is also supported by a gradual recovery in Russia. For the United States, we forecast low growth in the construction industry, but higher than the weak prior-year level; in the infrastructure segment, we once again expect a slight increase following a significant decline in the previous year. In China and the other Asian emerging markets, we predict largely stable growth rates in the construction industry. As in previous years, the highest growth rates will likely be in infrastructure investment. For South America, we predict a weak increase in 2018 for the first time after four years of declining construction activity. Given a background of continuing weak oil and gas prices, the construction industry in the Middle East should see moderate growth.

We expect **consumer goods** production to pick up slightly in 2018 in line with the positive trajectory of the world economy and rising purchasing power of consumers. Growth in western and eastern Europe should weaken somewhat after an exceptionally strong previous year. We expect moderate growth in production in North and South America in 2018. In Asia, the world's largest market for consumer goods, we forecast stable growth roughly at the high prior-year level.

The **electronics industry** benefits from increasing digitalization and automation. Following strong growth in the previous year, particularly in Asia, growth rates should remain high but ease slightly in 2018. The industry will see different trends in the main production countries: We still anticipate double-digit growth rates in the emerging economies of Asia despite a slight slowdown. The downturn is expected to be more pronounced in Japan. Growth in the United States should increase slightly.

We expect slightly lower growth in the **health and nutrition** sector for 2018 after a comparatively strong performance in 2017. The weaker global growth rate is primarily attributable to Asia, where momentum will be strong but slightly slower. In Europe, too, we anticipate a slight decline in growth, while slightly stronger increases are forecast for North and South America.

Agricultural production should see stable growth in 2018 on a level with the long-term average. That being said, we expect very different regional trends. We anticipate slightly stronger growth at a low level in Europe, while production in North America should expand at a higher rate after the weather-related losses in the previous year. Continued growth is forecast for South America; however, this is expected to be weaker than the rates seen in 2017. The agricultural industry in Asia should expand at roughly the same robust level of the previous year.

# Outlook for the chemical industry

# Global growth in chemical industry roughly at level of previous year

Global chemical production (excluding pharmaceuticals) is expected to grow by 3.4% in 2018, roughly on a level with 2017 (+3.5%). We anticipate a slightly weaker expansion rate in the advanced economies (2017: +3.7%; 2018: +2.4%). Growth in the emerging markets should pick up slightly (2017: +3.4%; 2018: +4.2%).

The development of the world's largest chemical market – **China** – has a significant impact on the global growth rate. We again expect slightly stronger growth here after a comparatively weak figure in 2017. As a result, China will presumably once again account for almost two percentage points of global chemical growth. Growth rates in the remaining emerging markets of Asia should remain stable.

We expect growth in the **E.U.** to remain above average in 2018, but slower than in 2017. Domestic demand in key customer industries will probably be slightly weaker following strong industrial growth in the previous year. We also anticipate weaker export demand from Asia.

By contrast, chemical growth in the **United States** should pick up. One reason for the higher growth forecast for 2018 is the production outages in the U.S. caused by Hurricane Harvey in fall 2017. In addition, new production capacities will reach the market in 2018, which will presumably increase exports as well. We expect chemical growth in **Japan** to level off after unusually strong, largely export-driven growth in the previous year.

In **South America**, we assume that the upturn in the chemical industry will continue in line with the overall economic recovery.

Outlook for chemical production 2018 (excl. pharmaceuticals) (Real change compared with previous year)

World	3.4%
European Union	2.2%
United States	3.2%
Emerging markets of Asia	4.6%
Japan	2.5%
South America	2.0%

Trends in chemical production 2018–2020 (excl. pharmaceuticals) (Average annual real change)

World	3.4%
European Union	1.5%
United States	3.2%
Emerging markets of Asia	4.9%
Japan	1.0%
South America	2.4%

# Outlook 2018

For 2018, we expect the global economy and chemical production to grow at roughly the same pace as in 2017. We assume an average price of \$65 for a barrel of Brent blend crude oil and an exchange rate of \$1.20 per euro. In this environment, we aim to continue to grow profitably and slightly increase the BASF Group's sales and income from operations (EBIT) before special items in 2018.<sup>1</sup> This forecast takes into account the agreed transactions with Bayer and Solvay. In contrast, it does not include the intended merger of our oil and gas activities with the business of DEA Deutsche Erdoel AG and its subsidiaries.

 $\bigcap$  For more information on our expectations for the economic environment in 2018, see page 119 onward

# Sales and earnings forecast for the BASF Group

- Slight sales growth, mainly from higher volumes
- EBIT before special items expected to be up slightly on 2017 level

Our forecast for 2018 includes the agreed acquisition of significant parts of **Bayer's seed and non-selective herbicide businesses**, which is expected to close in the first half of 2018. Based on the timing of the acquisition, the seasonality of the businesses to be taken over and the anticipated integration costs, this is likely to have a positive impact on sales and a negative impact on earnings for the Agricultural Solutions segment and the BASF Group in 2018. This outlook also includes the intended acquisition of **Solvay's integrated polyamide business** in the third quarter of 2018. However, we currently do not expect this transaction to have any material effect on sales and earnings for 2018.

We anticipate slightly higher BASF Group **sales** in 2018, largely as a result of volumes growth. We expect considerable sales growth in the Agricultural Solutions and Oil & Gas segments, and slightly higher sales in the Functional Materials & Solutions and Performance Products segments and in Other. Our planning for the Chemicals segment assumes slightly lower sales due to price factors.

**EBIT before special items** is expected to be up slightly on the 2017 level. This will mainly be driven by significantly higher contributions from the Performance Products, Functional Materials & Solutions and Oil & Gas segments. We are forecasting a slight improvement in the earnings generated by Other. After a strong result in 2017, we expect considerably lower EBIT before special items in the Chemicals segment, primarily as a result of lower margins. We anticipate a slight decrease in the Agricultural Solutions segment: The agreed transaction with Bayer is likely to have a negative effect on earnings in 2018. Excluding this acquisition, we would expect the segment to record slight growth in EBIT before special items.

**EBIT** for the BASF Group is forecast to decline slightly in 2018. We anticipate special charges in the form of integration costs in connection with the agreed acquisitions. In contrast, the Performance Products and Oil & Gas segments in particular recorded special income in 2017. EBIT in the Chemicals and Agricultural Solutions segments is expected to be considerably below the 2017 figure. We are forecasting slightly higher EBIT for the Performance Products and Oil & Gas segments and Other, and considerable growth in the Functional Materials & Solutions segment.

We aim to once again earn a significant premium on our cost of capital in 2018. However, compared with the previous year, the BASF Group's **EBIT after cost of capital** will decrease considerably. This will mainly be due to lower EBIT as well as the additional cost of capital from the planned acquisitions. In the Chemicals and Agricultural Solutions segments, we anticipate a considerable decrease in EBIT after cost of capital, and a considerable increase in the Performance Products, Functional Materials & Solutions and Oil & Gas segments.

The intended merger of our oil and gas activities with the business of DEA Deutsche Erdoel AG and its subsidiaries is not taken into account in this outlook. On signature of the final transaction agreements, the Oil & Gas segment's earnings would no longer be included in sales and EBIT for the BASF Group – retroactively as of January 1, 2018 and with the prior-year figures restated. Rather, this would be presented in the income before minority interests of the BASF Group as a separate item, income from discontinued operations. From the transaction closing date, we would presumably account for BASF's share of income generated by the joint venture – Wintershall DEA – using the equity method and include this in EBIT for the BASF Group. The gain from the change from full consolidation to the equity method would be shown in income from discontinued operations.

The significant risks and opportunities that could affect our forecast are described on pages 111 to 118.

### Forecast by segment<sup>1</sup> (million €)

	Sales			operations (EBIT) special items
	2017	Forecast 2018	2017	Forecast 2018
Chemicals	16,331	slight decline	4,233	considerable decline
Performance Products	16,217	slight increase	1,416	considerable increase
Functional Materials & Solutions	20,745	slight increase	1,617	considerable increase
Agricultural Solutions	5,696	considerable increase	1,033	slight decline <sup>2</sup>
Oil & Gas	3,244	considerable increase	793	considerable increase
Other	2,242	slight increase	(764)	slight increase
BASF Group	64,475	slight increase	8,328	slight increase

<sup>1</sup> For sales, "slight" represents a change of 1–5%, while "considerable" applies to changes of 6% and higher. "At prior-year level" indicates no change (+/–0%). For earnings, "slight" means a change of 1–10%, while "considerable" is used for changes of 11% and higher. "At prior-year level" indicates no change (+/–0%).

<sup>2</sup> Excluding the agreed transaction with Bayer, we expect a slight increase in EBIT before special items in the Agricultural Solutions segment.

### Sales and earnings forecast for the segments

Despite the planned volumes growth, sales in the **Chemicals** segment are expected to decline slightly in 2018 due to price factors. Overall, we anticipate lower sales prices in the isocyanates business as a result of additional capacities, especially in the Middle East and Asia, which will increase competitive pressure. EBIT before special items will presumably be considerably below the high 2017 level. The earnings contribution from higher sales volumes is not expected to compensate for the lower margins in the isocyanates business in particular.

In the **Performance Products** segment, we expect sales to be up slightly on the prior-year level in 2018. We plan to increase sales through volumes growth in the Dispersions & Pigments, Care Chemicals and Performance Chemicals divisions and are forecasting higher average prices overall. Sales will be dampened by the absence of the leather chemicals business, which was transferred to the Stahl group at the end of the third quarter of 2017, as well as the anticipated negative currency effects and the limited product availability of citral-based flavors and fragrances as well as vitamins. We are aiming for a considerable year-on-year increase in EBIT before special items with higher volumes and margins as well as strict cost discipline.

Sales in the **Functional Materials & Solutions** segment will presumably rise slightly in 2018. Higher overall prices and volumes growth in all divisions – due to factors such as the startup of new production capacities – should contribute to this. Our forecast is supported by the expectation of continuing good demand from the automotive and construction industries. Despite the continued challenging market environment and higher fixed costs from new plants, we anticipate a considerable increase in EBIT before special items, mainly as a result of volumes growth and higher margins. In the **Agricultural Solutions** segment, our aim is to exploit positive market momentum, especially in the emerging markets, significantly increase sales volumes with innovative solutions and raise our prices. This should more than offset the expected negative currency effects. In this way, we plan to considerably increase sales. Excluding the agreed transaction with Bayer, we would expect a slight improvement in earnings, mainly from the planned volumes growth and innovative new products amid continued strict cost management. However, negative earnings effects from the timing of the acquisition, the seasonality of the businesses to be taken over and the anticipated integration costs will probably lead to a slight decline in EBIT before special items.

Our forecast for the **Oil & Gas** segment does not take into account the intended merger of our oil and gas activities with the business of DEA Deutsche Erdoel AG and its subsidiaries. Planning for the 2018 business year is based on an average price for Brent blend crude oil of \$65 per barrel. Gas prices are likely to be on a level with 2017. We are forecasting considerable growth in sales and EBIT before special items in the Oil & Gas segment, driven by positive price effects and the start of production at fields in Norway in particular.

Sales in **Other** are expected to increase slightly in 2018, primarily as a result of higher sales from raw materials trading. We anticipate a slight improvement in EBIT before special items as against 2017.

# Investments<sup>1</sup>

# Investments of around €4.0 billion planned for 2018

Our investments in 2017 focused on the Chemicals, Functional Materials & Solutions and Oil & Gas segments. For example, we started up the expanded compounding plant for Ultramid<sup>®</sup> and Ultradur<sup>®</sup> in Schwarzheide, Germany, completed construction of the chemical catalysts plant in Shanghai, China, and invested in field development projects in Argentina, Norway and Russia.

We are planning total capital expenditures of around  $\in$ 4.0 billion for the BASF Group in 2018. For the period from 2018 to 2022, we have planned capital expenditures totaling  $\in$ 19.0 billion. The investment volume in the coming years is thus in line with the planning period 2017 to 2021. Projects currently being planned or underway include:

# Capital expenditures: Selected projects

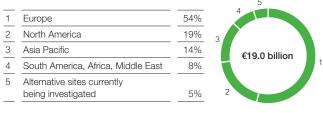
Location	Project		
Geismar, Louisiana	Capacity expansion: MDI plant		
Ludwigshafen, Germany	Replacement: acetylene plant		
	Construction: production plant for vitamin A		
	Construction: production plant for ibuprofen		
Shanghai, China	Construction: production plant for plastic additives		
Środa Śląska, Poland	Capacity expansion: plant for emissions catalysts		

In the Oil & Gas segment, our currently planned investments of around €3.5 billion between 2018 and 2022 will focus mainly on the development of proven gas and oil deposits in Argentina, Norway and Russia. The actual expenses are also dependent on oil and gas price developments and will be adjusted as necessary. If the merger of our oil and gas activities with the business of DEA Deutsche Erdoel AG and its subsidiaries is consummated as intended, these expenditures will no longer be reported as investments by the BASF Group.

# Investments in property, plant and equipment by segment, 2018–2022

25% 1 Chemicals 2 Performance Products 16% 3 Functional Materials & Solutions 19% €19.0 billion 4 Agricultural Solutions 4% 5 Oil & Gas 18% 6 Other (infrastructure, R&D) 18%

# Investments in property, plant and equipment by region, 2018–2022



# Dividends

We stand by our ambitious dividend policy and offer our shareholders an attractive dividend yield. We continue to aim to increase our dividend each year, or at least maintain it at the previous year's level.

 $\square$  Information on the proposed dividend can be found on page 15

### Financing

In 2018, we expect cash outflows in the equivalent amount of around €1.8 billion from the scheduled repayment of bonds. To refinance maturing bonds and to optimize our maturity profile, we continue to have medium to long-term corporate bonds and our U.S. dollar commercial paper program at our disposal.

 $\square$  Information on our financing policies can be found on page 58

# Events after the reporting period

There have been no significant changes in the company's situation or market environment since the beginning of the 2018 business year.