

# BASF in Greater China Report 2016



 **BASF**  
We create chemistry



←  
**Cover photo:**  
 At the BASF Design Center Asia Pacific, a designer from BASF designfabrik® (right), discusses with a designer from Putao Technology, about the application of thermoplastic polyurethane Elastollan®, which helped inspire the new product PaiBand (held in the female designer's hand). PaiBand is a wearable wristband for children.

**On this page:**  
 BASF SE with its main site in Ludwigshafen is the heart of the BASF Group. With around 250 production facilities, hundreds of laboratories, technical centers, factories and offices in an area of approximately ten square kilometers, the site is the largest integrated chemical complex in the world. As the headquarters of BASF it is also the cradle of the Verbund concept, where production facilities, energy flows and logistics are linked together intelligently in order to utilize resources as efficiently as possible.

### Chemicals

The Chemicals segment comprises our business with basic chemicals and intermediates. Its portfolio ranges from solvents and plasticizers to high-volume monomers and glues as well as raw materials for detergents, plastics, textile fibers, paints and coatings, crop protection and medicines. In addition to supplying customers in the chemical industry and numerous other sectors, we also ensure that other BASF segments are supplied with chemicals for producing downstream products.



Key data Chemicals (million €)			
	2016	2015	Change in %
Sales	13,461	14,670	(8)
Thereof Petrochemicals	5,035	5,728	(12)
Monomers	5,745	6,093	(6)
Intermediates	2,681	2,849	(6)
EBITDA	3,169	3,090	3
Income from operations (EBIT)	1,983	2,131	(7)
EBIT before special items	2,064	2,156	(4)

### Performance Products

Our Performance Products lend stability, color and better application properties to many everyday products. Our product portfolio includes vitamins and other food additives in addition to ingredients for pharmaceuticals, personal care and cosmetics, as well as hygiene and household products. Other products from this segment improve processes in the paper industry, in oil, gas and ore extraction, and in water treatment. They furthermore enhance the efficiency of fuels and lubricants, the effectiveness of adhesives and coatings, and the stability of plastics.



Key data Performance Products (million €)			
	2016	2015	Change in %
Sales	15,002	15,648	(4)
Thereof Dispersions & Pigments	4,530	4,629	(2)
Care Chemicals	4,735	4,900	(3)
Nutrition & Health	1,932	1,998	(3)
Performance Chemicals	3,805	4,121	(8)
EBITDA	2,522	2,289	10
Income from operations (EBIT)	1,648	1,340	23
EBIT before special items	1,745	1,366	28

### Functional Materials & Solutions

In the Functional Materials & Solutions segment, we bundle system solutions, services and innovative products for specific sectors and customers, especially the automotive, electrical, chemical and construction industries, as well as applications for household, sports and leisure. Our portfolio comprises catalysts, battery materials, engineering plastics, polyurethane systems, automotive coatings, surface treatment solutions and concrete admixtures as well as construction systems like tile adhesives and decorative paints.



Key data Functional Materials & Solutions (million €)			
	2016	2015	Change in %
Sales	18,732	18,523	1
Thereof Catalysts	6,263	6,306	(1)
Construction Chemicals	2,332	2,304	1
Coatings	3,249	3,166	3
Performance Materials	6,888	6,747	2
EBITDA	2,906	2,228	30
Income from operations (EBIT)	2,199	1,607	37
EBIT before special items	1,946	1,649	18

### Agricultural Solutions

The Agricultural Solutions segment provides innovative solutions in the areas of chemical and biological crop protection, seed treatment and water management as well as for nutrient supply and plant stress.



Key data Agricultural Solutions (million €)			
	2016	2015	Change in %
Sales	5,569	5,820	(4)
EBITDA	1,305	1,321	(1)
Income from operations (EBIT)	1,037	1,083	(4)
EBIT before special items	1,087	1,090	0

### Oil & Gas

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. Together with our Russian partner Gazprom, we are also active in the transport of natural gas in Europe.



Key data Oil & Gas (million €)			
	2016	2015	Change in %
Sales	2,768	12,998	(79)
EBITDA	1,596	2,587	(38)
Income from operations (EBIT)	499	1,072	(53)
EBIT before special items	517	1,366	(62)
Net income	362	1,050	(66)

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## About this report

The “BASF in Greater China - Report” is published annually as a concise document about the performance of our activities across the three dimensions of sustainability - economy, environment, and society - in Greater China. The reporting period for this publication is the financial year 2016. This report also carries an overview of BASF Group along with its financial performance, prepared in accordance with the requirements of the International Financial Reporting Standards (IFRS), and, where applicable, the German Commercial Code as well as the German Accounting Standards (GAS). The emissions, waste, energy and water use of fully consolidated joint ventures are reported on a proportional basis, while those accounted according to the equity method are not included. However, work-related accidents at all sites of BASF Group and its subsidiaries as well as joint operations and joint ventures in which we have sufficient authority in terms of safety management, are compiled regardless of our stake, and reported in full. The employee numbers refer to employees within the BASF Group scope of consolidation as of December 31, 2016.

## Welcome

### Letter from the president



*Dear Stakeholders,*

Despite the volatile and challenging market situation, BASF continues its long-term endeavors to support economic, environmental and social development in Greater China.

In 2016, BASF was able to grow sales in Greater China to €5.9 billion. We remain committed to China, which is the third largest market for BASF Group. We continue to invest in local manufacturing in our production hubs of Shanghai and Nanjing, and we have further extended our footprint to Western China, in Korla, Xinjiang. We are gradually utilizing our new capacities of MDI (methylene diphenyl diisocyanate) in Chongqing, and, with Sinopec, of INA (isononanol) in Maoming, Guangdong. Through the acquisition of Guangdong Yinfan, a local refinish paint producer, and Chemetall, a global surface treatment provider, we are further enhancing our local presence and product portfolio.

Following the expansion of our research and development capacities at the Innovation Campus Asia Pacific (Shanghai) in 2015, last year we focused on bringing these assets on stream. By collaborating with local customers and addressing their needs in a faster and more customized manner, we are now better positioned to help them tap into new market potential with our innovative products and solutions and to achieve their sustainability goals. Newly launched in 2016 and located in the second phase of Innovation Campus, our Design Center Asia Pacific extends our innovation network by connecting designers with BASF's advanced materials to co-create innovative products.

With increased production activities at several new sites in 2016, the total energy and water consumption as well as emissions of greenhouse gases increased in Greater China. However, we were still able to minimize these increases through continuous application of new technologies and systems. Safety will continue to be our top priority within and beyond our fences, throughout the value chain, and inside and outside our offices. Through our regular dialog with stakeholders, we discuss topics of common interest such as cleaner air, soil protection and safety.

In the next several years, China will deepen its development in both urban and rural areas driven by its innovation and sustainability initiatives, among which enforcing emission regulations and advancing core technologies of new energy and new materials will be high on the agenda. To achieve these goals, chemistry is a key enabler. While realizing our goal of profitable growth, we aim to make tangible contributions to a sustainable future of Greater China.

**Dr. Stephan Kothrade**  
**President Functions Asia Pacific**  
**President and Chairman Greater China, BASF**

## BASF Group at a glance

### Economic data

		2016	2015	Change in %
Sales	million €	57,550	70,449	(18.3)
Income from operations before depreciation and amortization (EBITDA) and special items	million €	10,327	10,508	(1.7)
EBITDA	million €	10,526	10,649	(1.2)
Amortization and depreciation <sup>1</sup>	million €	4,251	4,401	(3.4)
Income from operations (EBIT)	million €	6,275	6,248	0.4
Special items	million €	(34)	(491)	93.1
EBIT before special items	million €	6,309	6,739	(6.4)
Financial result	million €	(880)	(700)	(25.7)
Income before taxes and minority interests	million €	5,395	5,548	(2.8)
Net income	million €	4,056	3,987	1.7
EBIT after cost of capital	million €	1,136	194	485.6
Earnings per share	€	4.42	4.34	1.8
Adjusted earnings per share	€	4.83	5.00	(3.4)
Dividend per share	€	3.00	2.90	3.4
Research and development expenses	million €	1,863	1,953	(4.6)
Personnel expenses	million €	10,165	9,982	1.8
Number of employees		113,830	112,435	1.2
Assets	million €	76,496	70,836	8.0
Investments <sup>2</sup>	million €	7,258	6,013	20.7
Equity ratio	%	42.6	44.5	-
Return on assets	%	8.2	8.7	-
Return on equity after tax	%	13.3	14.4	-
Net debt	million €	14,401	12,935	11.3
Cash provided by operating activities	million €	7,717	9,446	(18.3)
Free cash flow	million €	3,572	3,634	(1.7)

<sup>1</sup> Amortization of intangible assets, depreciation of property, plant and equipment, impairments and write-ups

<sup>2</sup> Additions to intangible assets and property, plant and equipment (including acquisitions)

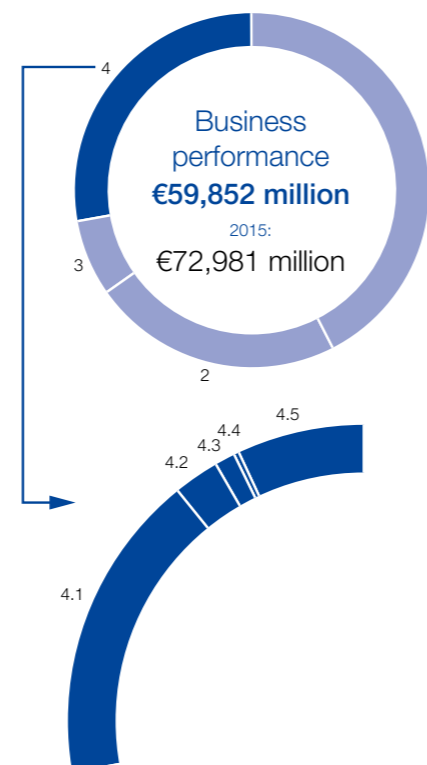
### Value added 2016<sup>3</sup>

#### Creation of value added (million €)

	2016	2015
Business performance	59,852	72,981
1 Cost of raw materials and merchandise	(25,450)	(37,323)
2 Services purchased, energy costs and other expenses	(13,658)	(14,787)
3 Amortization and depreciation	(4,251)	(4,401)
4 Value added	16,493	16,470

#### Use of value added

	2016	2015
4.1 Employees	61.6%	60.6%
4.2 Government	8.6%	9.4%
4.3 Creditors	4.0%	3.9%
4.4 Minority interests	1.2%	1.9%
4.5 Shareholders (dividend and retention)	24.6%	24.2%



<sup>3</sup> Value added results from the company's performance minus goods and services purchased, depreciation and amortization. Business performance includes sales revenues, other operating income, interest income and net income from shareholdings. Value added shows the BASF Group's contribution to both private and public income as well as its distribution among all stakeholders.

### Innovation

		2016	2015	Change in %
Research and development expenses	million €	1,863	1,953	(4.6)
Number of employees in research and development at year-end		9,966	10,010	(0.4)

### Employees and society

		2016	2015	Change in %
<b>Employees</b>				
Employees at year-end		113,830	112,435	1.2
Apprentices at year-end		3,120	3,240	(3.7)
Personnel expenses	million €	10,165	9,982	1.8
<b>Society</b>				
Donations and sponsorship	million €	47.0	56.2	(16.4)

### Environment, health, safety and security

		2016	2015	Change in %
<b>Safety, security and health</b>				
Transportation incidents with significant impact on the environment		0	0	0
Process safety incidents	per one million working hours	2.0	2.1	(4.8)
Lost-time injuries	per one million working hours	1.4	1.4	0
Health Performance Index		0.96	0.97	(1.0)
<b>Environment</b>				
Primary energy use <sup>4</sup>	million MWh	57.4	57.3	0.2
Energy efficiency in production processes	kilograms of sales product/MWh	617	599	3.0
Total water withdrawal	million cubic meters	1,649	1,686	(2.2)
Withdrawal of drinking water	million cubic meters	20.7	22.1	(6.3)
Emissions of organic substances to water <sup>5</sup>	thousand metric tons	15.9	17.3	(8.1)
Emissions of nitrogen to water <sup>5</sup>	thousand metric tons	2.9	3.0	(3.3)
Emissions of heavy metals to water <sup>5</sup>	metric tons	23.2	25.1	(7.6)
Emissions of greenhouse gases	million metric tons of CO <sub>2</sub> equivalents	21.9	22.2	(1.4)
Emissions to air (air pollutants) <sup>5</sup>	thousand metric tons	26.7	28.6	(6.6)
Waste	million metric tons	2.1	2.0	5.0
Operating costs for environmental protection	million €	1,011	962	5.1
Investments in environmental protection plants and facilities	million €	206	346	(40.5)

### Audits along the value chain

		2016	2015	Change in %
<b>Suppliers</b>				
Number of on-site sustainability audits of raw material suppliers		104	135	(23.0)
<b>Responsible Care Management System</b>				
Number of environmental and safety audits		121	130	(6.9)
Number of short-notice audits		37	68	(45.6)
Number of occupational medicine and health protection audits		30	53	(43.4)

## BASF Group

**At BASF, we create chemistry for a sustainable future. As the world's leading chemical company, we combine economic success with environmental protection and social responsibility. The approximately 114,000 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, corporate units and research and functional units support our business**

Thirteen divisions divided into five segments bear operational responsibility and manage our 57 global and regional business units. The divisions develop strategies for our 86 strategic business units and are organized according to sectors or products.

Our regional units are responsible for optimizing local infrastructure, and contribute to tapping our market potential. For financial reporting purposes, we organize our regional divisions into four regions: Europe; North America; Asia Pacific; and South America, Africa, Middle East.

Until the end of 2016, three central divisions, six corporate units and ten competence centers supported the BASF Group's business activities in areas such as finance, engineering, investor relations, communications and research. At the beginning of 2017, we reassembled these into five research units, eight functional units and seven corporate units. We realigned the organizational structures in selected functional units. These include Procurement, Human Resources and Supply Chain Operations & Information Services, along with Environmental Protection, Health & Safety and European Site & Verbund Management. With this organization, we are aligning ourselves more closely to customer and market needs and reducing internal interfaces.

### Markets and sites

- **BASF companies in more than 80 countries**
- **Six Verbund sites and 352 additional production sites worldwide**

BASF has companies in more than 80 countries and supplies products to numerous customers in nearly every part of the world. In 2016, we generated 43% of our sales (excluding Oil & Gas) with customers in Europe. In addition, 26% of sales were generated in North America; 22% in Asia Pacific; and 9% in South America, Africa, Middle East. Viewed over the entire BASF Group, 45% of our sales were to customers in Europe, 25% in North America, 21% in Asia Pacific and 9% in South America, Africa, Middle East.

We operate six Verbund sites and 352 additional production sites worldwide. Our Verbund site in Ludwigshafen is the world's largest integrated chemical complex. This was where the Verbund principle was originally developed and steadily honed before being implemented at additional sites.

### Verbund

- **Intelligent plant networking in the Production Verbund**
- **Technology and Know-How Verbund**

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 energy demand 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 makes use of synergies.

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

 For more on the Verbund concept, see [basf.com/en/verbund](http://basf.com/en/verbund)

### Competitive environment

BASF holds one of the top three market positions in around 70% of the business areas in which it is active. Our most important global competitors include AkzoNobel, Clariant, Covestro, Dow Chemical, DSM, DuPont, Evonik, Formosa Plastics, Reliance, SABIC, Sinopec, Solvay and many hundreds of local and regional competitors. We expect competitors from emerging markets 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 some, we concentrate on specific business areas: The Wintershall Group, for example, focuses on oil and gas activities. 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 34 companies using the equity method.

## Our strategy

**With the “We create chemistry” strategy, BASF has set itself ambitious goals in order to strengthen its position as the world's leading chemical company. 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 ten 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.

Our leading position as an integrated global chemical company gives us the chance to make important contributions in the following three areas:

- Resources, environment and climate
- Food and nutrition
- Quality of life

We therefore act in accordance with four strategic principles.

### Our strategic principles

- **We add value as one company**
- **We innovate to make our customers more successful**
- **We drive sustainable solutions**
- **We form the best team**

**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.

### Our values

- **Creative**
- **Open**
- **Responsible**
- **Entrepreneurial**

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. We develop our talents and capabilities.

**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.

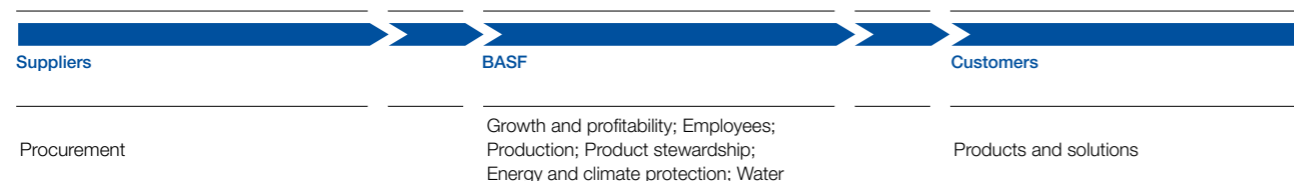
**Entrepreneurial:** All employees contribute to BASF's success – as individuals and as a team. We turn market needs into customer solutions. We succeed in this because we take ownership and embrace accountability for our work.

## 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 through which we as a company can make a significant contribution.

### Goal areas along the value chain



### Procurement

	2020 Goal	Status at end of 2016
Assessment of sustainability performance of relevant suppliers <sup>1</sup> according to our risk-based approach; development of action plans where improvement is necessary	70%	32%

<sup>1</sup> We define relevant suppliers as those showing an elevated sustainability risk potential as identified by risk matrices and with respect to corresponding country risks. Our suppliers are evaluated based on risk due to the size and scale of our supplier portfolio.

### 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; 2016: 3.4%), 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. The goals for sales and EBITDA are based on the 2015 figures, excluding contributions from the business disposed of in the asset swap with Gazprom in September 2015.

	2016	Change since 2015
Sales	€57.6 billion	(4.6%) <sup>2</sup>
EBITDA	€10.5 billion	5.3% <sup>2</sup>
Dividends per share paid out	€2.90	€0.10
Premium on cost of capital	€1.1 billion	
Free cash flow	€3.6 billion	

<sup>2</sup> Baseline 2015: excluding business transferred to Gazprom

### Employees

	2021 Goal	Status at end of 2016
Proportion of women in leadership positions with disciplinary responsibility	22–24%	19.8%
<b>Long-term goals</b>		
International representation among senior executives <sup>3</sup>	Increase in proportion of non-German senior executives (baseline 2003: 30%)	36.4%
Senior executives with international experience	Proportion of senior executives with international experience over 80%	84.6%
Employee development	Systematic, global employee development as shared responsibility of employees and leaders based on relevant processes and tools	The project has been implemented for around 78,150 employees worldwide.

<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

	2025 Goals	Status at end of 2016
Reduction of worldwide lost-time injury rate per one million working hours	≤0.5	1.4
Reduction of worldwide process safety incidents per one million working hours	≤0.5	2.0
<b>Annual goal</b>		
Health Performance Index	>0.9	0.96

### Product stewardship

	2020 Goal	Status at end of 2016
Risk assessment of products that we sell in quantities of more than one metric ton per year worldwide	>99%	75.4%

### Energy and climate protection

	2020 Goals	Status at end of 2016
Coverage of our primary energy demand by introducing certified energy management systems (ISO 50001) at all relevant sites <sup>4</sup>	90%	42.3%
Reduction of greenhouse gas emissions per metric ton of sales product (excluding Oil & Gas, baseline 2002)	(40%)	(37.2%)

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

### Water

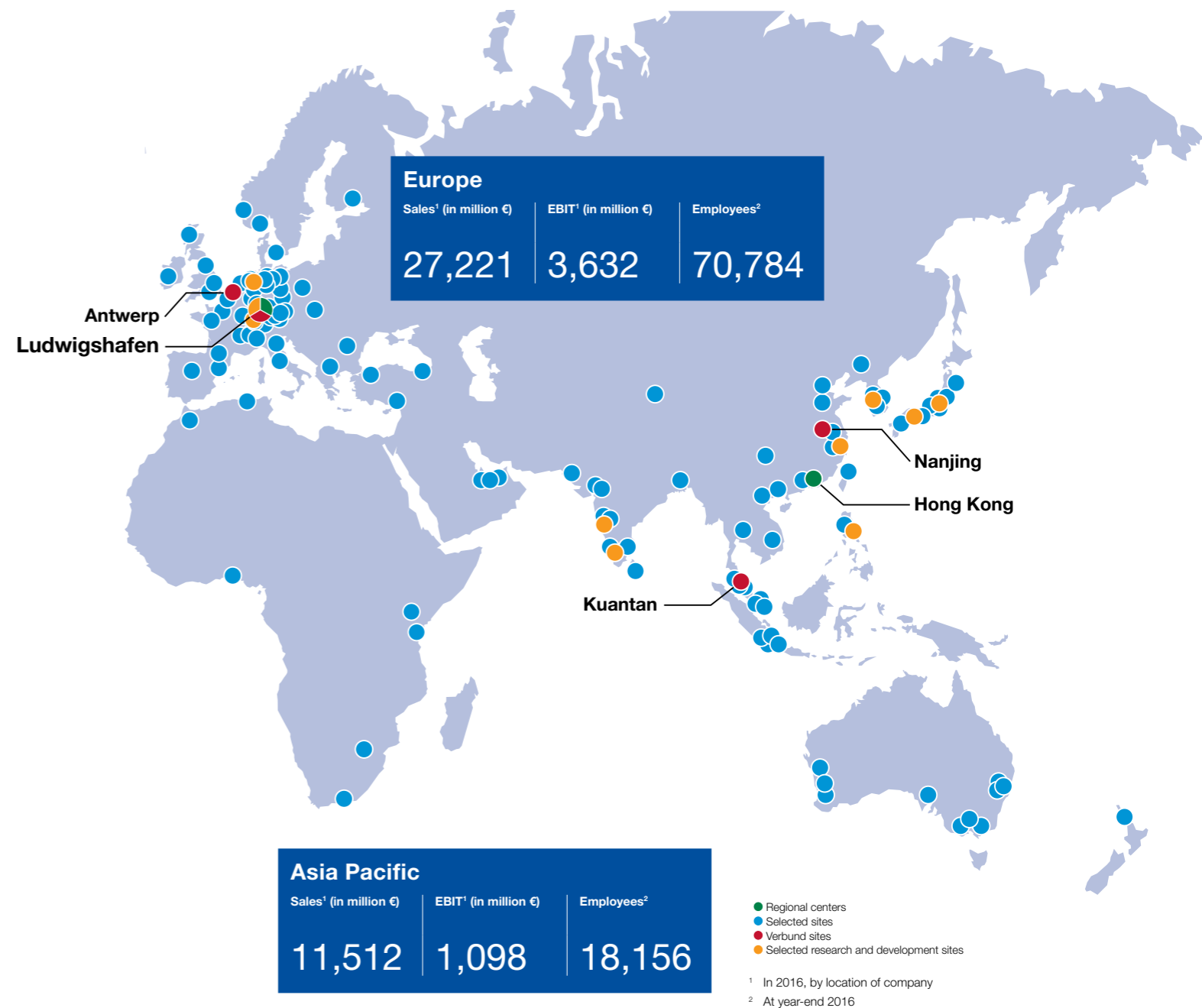
	2025 Goal	Status at end of 2016
Introduction of sustainable water management at all production sites in water stress areas and at all Verbund sites (excluding Oil & Gas)	100%	42.6%

### Products and solutions

	2020 Goal	Status at end of 2016
Increase the proportion of sales generated by products that make a particular contribution to sustainable development (“Accelerators”)	28%	27.2%

### BASF in the regions

BASF Group sales 2016: €57,550 million;  
EBIT 2016: €6,275 million



## BASF on the capital market

Stock markets in 2016 were again marked by a high level of volatility. Particularly contributing to this were fluctuating economic figures in China, crude oil prices and the referendum in the United Kingdom on E.U. membership. In this volatile environment, the BASF share rose by 24.9%, trading at €88.31 at the end of 2016. We stand by our ambitious dividend policy and paid a dividend of €3.00 per share – an increase of 3.4% compared with the previous year. BASF enjoys solid financing and good credit ratings.

### BASF share performance

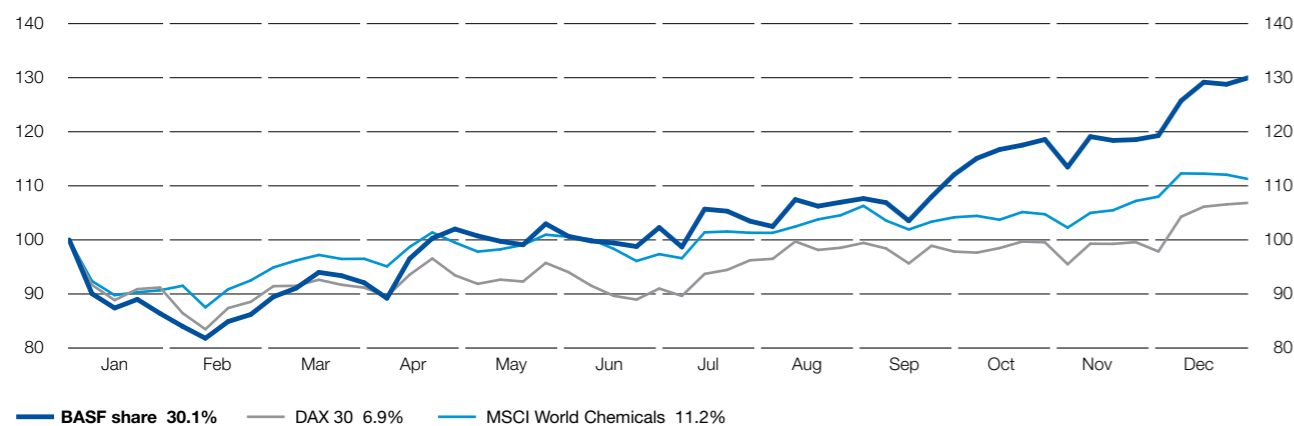
- BASF share gains 24.9% in 2016
- Long-term development continues to clearly outperform benchmark indexes

Weak economic data from the United States and China as well as turbulence in the crude oil market led to a negative start to the 2016 stock market year. Gains in oil prices, solid U.S. labor market data and better economic indicators for China led to stock market recovery during the second quarter. The uncertainty leading up to the United Kingdom's referendum on E.U. membership influenced the further course of the second quarter. Stock markets suffered considerable losses following the vote on June 23, 2016, to leave the E.U. Share prices

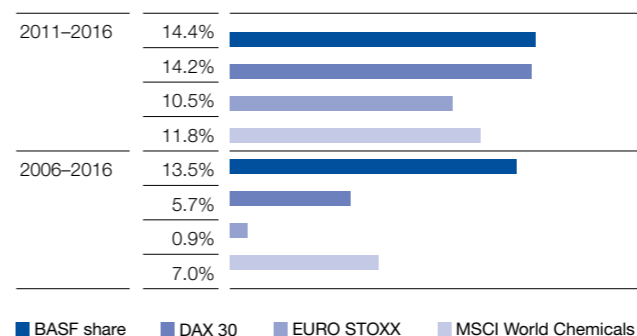
subsequently recovered thanks to factors such as improved Chinese economic data and the U.S. Federal Reserve's initially unchanged interest rate policy. In the fourth quarter, the extension of the European Central Bank's bond-buying program as well as hopes for a growth-promoting economic policy from the newly elected U.S. president led to a year-end rally. On December 30, 2016, Germany's benchmark index, the DAX 30, reached a year's high of 11,481 points, as did the BASF share price at €88.31. This equates to a 24.9% rise in the value of BASF shares compared with the previous year's closing price. Assuming that dividends were reinvested, BASF shares gained 30.1% in value in 2016. The BASF share thus outperformed the German and European stock markets, whose benchmark indexes DAX 30 and DJ EURO STOXX 50 gained 6.9% and 3.7% over the same period, respectively. As for the global industry indexes, DJ Chemicals increased 10.8% in 2016 and MSCI World Chemicals 11.2%.

Viewed over a five and ten-year period, the long-term performance of BASF shares still clearly surpasses these indexes. The assets of an investor who invested €1,000 in BASF shares at the end of 2006 and reinvested the dividends in additional BASF shares would have increased to €3,538 by the end of 2016. This represents an annual yield of 13.5%, placing BASF shares above the returns for the DAX 30 (5.7%), EURO STOXX 50 (0.9%) and MSCI World Chemicals (7.0%) indexes.

Change in value of an investment in BASF shares in 2016 (With dividends reinvested; indexed)



Long-term performance of BASF shares compared with indexes (Average annual increase with dividends reinvested)

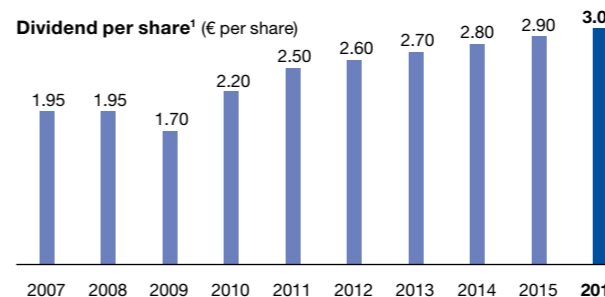


Weighting of BASF shares in important indexes as of December 31, 2016

DAX 30	8.7%
DJ Chemicals	6.5%
MSCI World Index	0.3%

### Dividend of €3.00 per share

For 2016, BASF paid a dividend of €3.00 per share. We stand by our ambitious dividend policy and paid out almost €2.8 billion to our shareholders. Based on the year-end share price for 2016, BASF shares offer a high dividend yield of 3.4%. BASF is part of the DivDAX share index, which contains the fifteen companies with the highest dividend yield in the DAX 30. We aim to increase our dividend each year, or at least maintain it at the previous year's level.

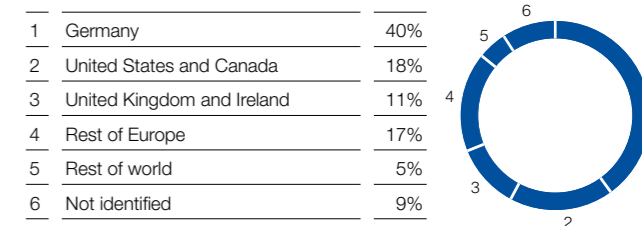


<sup>1</sup> Adjusted for two-for-one stock split conducted in 2008

### Broad base of international shareholders

With over 500,000 shareholders, BASF is one of the largest publicly owned companies with a high free float. An analysis of the shareholder structure carried out at the end of 2016 showed that, at 18% of share capital, the United States and Canada made up the largest regional group of institutional investors. Institutional investors from Germany accounted for 11%. Shareholders from the United Kingdom and Ireland hold 11% of BASF shares, while institutional investors from the rest of Europe hold a further 17% of capital. Approximately 29% of the company's share capital is held by private investors, most of whom reside in Germany. BASF is therefore one of the DAX 30 companies with the largest percentage of private shareholders.

Shareholder structure (by region)



### Employees becoming shareholders

In many countries, we offer share purchase programs that turn our employees into BASF shareholders. In 2016, for example, around 24,000 employees (2015: 21,600) purchased employee shares worth about €59 million (2015: €60 million).



## Chemistry for a sustainable future

**Our innovations contribute to a sustainable future. We support the United Nations in the implementation of the U.N. Sustainable Development Goals (SDGs), which create the framework for sustainable business practices at the economic, social and environmental levels.**



### PRODUCTION

#### Sustainable, improved production

Greater supply security combined with more efficient and environmentally friendly production: BASF switched over its production process for the monomer acrylamide to a modern enzyme-based process. The biocatalytic production method results in energy savings, less waste and greater environmental compatibility. BASF has been producing bio-acrylamide in Suffolk, Virginia, since 2014 and started up a new bio-acrylamide plant in Bradford, England, in 2016. A third plant is being built in Asia and should start up in 2017.

### FOOD

#### Knowledge on a global scale

BASF opened a new research and development center for biological crop protection and seed solutions in Limburgerhof, Germany. Together with other research sites in Brazil, Argentina, France, England, South Africa, China, Australia, the United States and Canada, Limburgerhof is part of an international network of expertise. In this network, BASF researches naturally occurring organisms and cultures and their potential use in biological crop protection. This is how we pursue our goal of supplementing our classic portfolio of chemical crop protection and offering farmers an even more comprehensive product portfolio.



### INFRASTRUCTURE, INDUSTRY, INNOVATION

#### Driving digital transformation

The BASF 4.0 project team is evaluating possibilities for more intensive use of digital technologies and business models. Under the banner “Smart Manufacturing,” BASF implements digital technologies and applications in its plants with the goal of making production more efficient and even safer. One Smart Manufacturing project is “Augmented Reality.” Plant employees are supported in their work with industry-specific tablet devices that provide access at any time to digital information.



Eubiotics offer an alternative to antibiotic growth promoters.

### HEALTHIER FOOD

#### Replacing antibiotic growth promoters in swine production

BASF is partnering with South China Agriculture University in a large-scale doctoral research project to examine organic acids as effective, core eubiotic alternatives for reducing the usage of antibiotic growth promoters (AGPs) in post-weaning piglets. The information generated by this project will provide feed producers and farmers with greater insight into available eubiotic AGP alternatives and therefore, greater confidence in their selection process. The 3.5-year long project aims to discover ways to achieve greater improvement in animal health and production with organic acid-based alternatives in the post-AGP era.

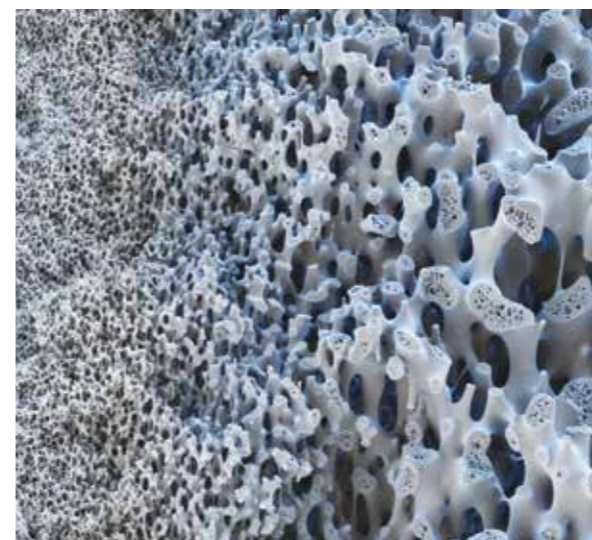
### CLIMATE ACTION

#### Restoring forests and lowering emissions

Together with bodyshops and Yunnan Green Environment Development Foundation (YGF), BASF is supporting afforestation by planting trees on the wasteland in Menghun Town of Menghai County, Yunnan Province. The program is part of the global “Plant a Billion Trees” campaign to restore severely degraded forests and mitigate the impacts of climate change. The goal of the campaign is to plant one billion trees in Brazil, USA and China by 2025. BASF invited bodyshops in China who use the premium Glasurit® 90 Line waterborne refinish paint to join this activity, while donations from these bodyshops will be aggregated by BASF and then donated to YGF for tree planting. The survival rate of the newly planted trees was 92%, which met the national eligibility criteria for afforestation.



BASF partners with selected bodyshops in China to plant trees in the critical habitats of Yunnan.



Nanopores filter pathogens from water in Taihu Lake.

### CLEAN WATER & SANITATION

#### Cleaner drinking water in Taihu

Specialized in ultrafiltration and water treatment for various water resources, BASF's inge® team is operating pilot research on Taihu Lake, Jiangsu Province. An ultrafiltration pilot plant was installed in a waterworks near the lake to treat the nutrient- and turbidity-rich water source. The study falls under the SIGN project (Sino-German water supply Network – Clean water from the source to the tap), a state-level joint research project between the two countries funded by German Federal Ministry of Education and Research. BASF uses its Multibore® plastic membranes for water treatment of Taihu Lake. The nanopores in Multibore can filter germs, bacteria and viruses out of water. Key Chinese and German academic institutes are also involved in the project, studying the entire water cycle and contributing to the entire project for water from the source to the tap.

## BASF in Asia Pacific

### Asia Pacific at a glance

#### Economy

In 2016, BASF sales by location of customer were €12.2 billion (2015: €12.3 billion) in Asia Pacific.

EBIT in the region grew by 147% to €1.098 billion. This was mainly due to higher volumes and margins in all segments. Through strict cost management, fixed costs rose only slightly compared with the previous year, despite the startup of several new plants.

As part of our regional strategy, we want to further increase the proportion of sales from local production in Asia Pacific in the years ahead. We once again made progress toward this goal: In Korla, China, we started up a polytetrahydrofuran (PolyTHF®) plant with our partner Xinjiang Markor Chemical Industry Co., Ltd., and in Shanghai, China, we completed our new polyvinylpyrrolidone plant. In Kuantan, Malaysia, we and our partner PETRONAS Chemicals Group started up a production plant for 2-ethylhexanoic acid and finished construction of the new aroma chemicals complex. Further investments, such as catalyst production plants in Shanghai Caojing, China, and Rayong, Thailand, are currently under construction and progressing on schedule.

**BASF sales in Asia Pacific** (billion €)  
(by location of customer)

Year	Sales (billion €)
2016	12.2
2015	12.3
2014	12.3

**BASF EBIT in Asia Pacific** (million €)  
(by location of company)<sup>1</sup>

Year	EBIT (million €)
2016	1,098
2015	445
2014	673

<sup>1</sup> For purposes of increased clarity in the presentation of regional results, income from operations (EBIT) before special items was replaced by EBIT, a figure directly derivable from the Consolidated Financial Statements, as of the second quarter of 2016. Neither EBIT before special items by region nor EBIT by region is drawn upon for internal management decisions.

#### Environment

Customers in Asia Pacific face challenges in the areas of energy, food and urban living. BASF provides a wide range of solutions to support their development.

To improve energy efficiency in buildings, BASF's insulation material was adopted in the Hokushu Premium Passive House

in Japan for external thermal insulation. BASF also provided solutions to address environmental challenges such as flooding in Hangzhou, China and coastal protection in Korea.

Renewable raw materials, such as palm kernel oil, are used to produce home and personal care ingredients. In line with the BASF Palm Commitment and the BASF Palm Sourcing Policy, we continue towards sourcing renewable raw materials sustainably, in close cooperation with our partners in the supply chain. We have further enlarged our production network of sites certified under the criteria of the Round Table on Sustainable Palm Oil (RSPO), including five production sites in Asia Pacific.

At production sites around the region, BASF took measures to reduce emissions and increase efficiency.

#### Employees and society

As of the end of 2016, BASF employed 18,156 people in the Asia Pacific region (2015: 17,562). Of these, 26.6% were female (2015: 26.2%). There were 1,733 new hires in the region in 2016, 32.1% of which were female (2015: 25.1% of 1,861).

**Number of employees** (as of December 31)

Year	Total	% of which female
2016	18,156	26.6%
2015	17,562	26.2%
2014	17,060	27.0%

■ Total ■ of which female

**Number of new hires** (as of December 31)

Year	Total	% of which female
2016	1,733	32.1%
2015	1,861	25.1%
2014	2,048	22.8%

■ Total ■ of which female

For the seventh consecutive year, BASF has been named one of the Top Employers in China by the Top Employers Institute, this year ranking among the top five. In Korea, BASF was selected as one of Korea's top 30 most attractive foreign employers. Dedicated programs were introduced in Japan and Korea to ensure a healthy balance between the work and family lives of our employees. In India, the first Diversity + Inclusion team was established.

Region-wide, global programs such as BASF Global Safety Week and "Take it to Heart" (a heart health program) were rolled out to improve health and safety behaviors.

## An interview with Sanjeev Gandhi

#### How will BASF grow in Asia Pacific?

In 2016, BASF regained momentum in Asia in the second half of the year across all markets and business lines. The business environment – still characterized by slower growth, market volatility and overcapacities – continued to put a strain on our customers in some key markets such as China. Nevertheless, Asia Pacific remains the growth driver in the global chemicals market and we see great potential for BASF, as the fundamentals have not changed.

Asia Pacific is not one market. We will stay close to the market and invest where our customers are. By building up our research capacity and extending our production, sales and marketing network, we offer local customers tailor-made solutions in a faster and more efficient manner. In addition, we continue to explore untapped markets, such as Northwestern China, Myanmar and Cambodia, where we see future opportunities for our solutions that contribute to affordable mass housing, food fortification, wind energy, and water purification.

#### What differentiates BASF from the competition in Asia Pacific?

We believe that innovation is a major differentiating factor in the chemical industry. A growing need for energy, food and clean water, limited resources, and a rising world population pose huge challenges. Innovations based on chemistry enable new solutions that meet our customers' sustainability goals. Following the expansion of the BASF Innovation Campus Asia Pacific in Shanghai, China, we established a second Innovation Campus Asia Pacific in Mumbai, India focusing on crop protection and specialty chemicals.

By utilizing our new R&D assets, we aim to accelerate the innovation development for our customers in the region. In the long run, BASF plans to conduct around 25% of its global research activities in Asia Pacific.

#### What trends are impacting BASF's business in the region?

The most important trend is the rise of more sophisticated demands from customers in this region. Our customers are competing on a global level and require support in the form of collaborative innovation, design and new materials. A number of fields that provide growth opportunities for



Sanjeev Gandhi, member of the Board of Executive Directors of BASF SE

BASF include transportation, consumer products, electronics, construction, packaging and agriculture. BASF will support these markets with solutions that meet our customers' sustainability challenges.

#### What are BASF's plans for Greater China?

Greater China accounted for half of the sales in Asia Pacific in 2016, and will continue to drive profitable growth for the BASF Group in the coming years. We have put in place a number of major investments in this dynamic market over the past several years, both in production and innovation. We now aim to make full use of these new capacities and expanded R&D capabilities, while strengthening and sharpening customer and market focus. We will continue to build our relationships with the local scientific community, to drive innovation with our partners and stakeholders.

# Innovation

**Innovation in chemistry enables economic, environmental, and social development, and thus plays a key role in meeting the needs of Asia Pacific's growing population in a period of rapid development and urbanization. BASF is committed to fostering innovation in this dynamic region by constantly enhancing its local research capabilities. In the future, around a quarter of BASF's global research and development (R&D) activities will take place in Asia Pacific.**

## Growing R&D capabilities across Asia Pacific

- R&D footprint expanded in 2016
- Second Innovation Campus Asia Pacific inaugurated in Mumbai

BASF has been continuously expanding its research and development footprints in Asia Pacific during the past five years, in order to drive innovation by integrating customer and market needs at an early stage. With major R&D sites located in China, India, Japan and Korea, BASF had around 1,100 R&D employees in Asia Pacific by end of 2016.

The Innovation Campus concept is unique to Asia Pacific, bringing together all parties engaged in the innovation process to one integrated site. Inaugurated in 2012 and expanded in 2015, BASF Innovation Campus Asia Pacific (Shanghai) is the company's largest R&D hub in the region. In January 2016, it also became the global headquarters of the Advanced Materials & Systems Research, one of BASF's three central technology platforms. The other two technology platforms, Process Research & Chemical Engineering and Bioscience Research, are headquartered in Europe and North America respectively.

In March 2017, BASF inaugurated its second Innovation Campus Asia Pacific, located in Mumbai, India. The new

Innovation Campus will expand the company's existing R&D activities in India to focus on crop protection and specialty chemicals.

Across Asia Pacific, BASF R&D centers with specialized focus areas contribute to developing innovative solutions that address the region's challenges of resource efficiency, food and nutrition, and quality of life. The increasingly stronger R&D teams work in close collaboration with customers and academia partners for innovations in Asia Pacific and the world.

## Open innovation through science cooperation

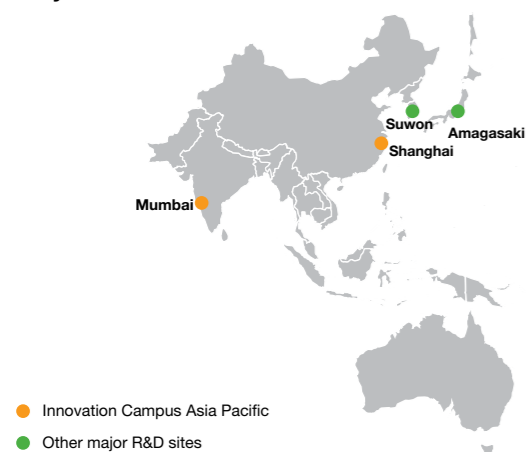
- NAO platform connects BASF and leading Asian universities

BASF places great value on open innovation through close cooperation with leading universities and institutes around the world. It maintains a global network of around 600 academia partners, which forms a key pillar of BASF's global Know-How Verbund.

In Asia Pacific, Network for Advanced Materials Open Research (NAO) is a joint platform directed by BASF and nine leading universities and institutes in Greater China, Japan and South Korea. NAO's topic clusters include dispersions and coatings, composite materials, new monomers and polymers, formulation, performance systems and polymer processing. Since the establishment of the program in 2014, more than 20 PhD and postdoctoral candidates have been conducting research in this framework, supported and advised by a scientific committee comprising BASF experts and professors from the universities.

Together with the open research centers JONAS in Europe, as well as CARA and NORA in North America, NAO constitutes an important part of BASF's global academic network.

## Major R&D sites in Asia Pacific



**Asia Pacific R&D sites: overview**

- Innovation Campus Asia Pacific (Shanghai), China**
  - Focus areas: Advanced Materials, Process Engineering, Environmental Catalysts
  - Headquarters of Advanced Materials & Systems Research since January 2016
- Innovation Campus Asia Pacific (Mumbai), India**
  - Focus areas: Crop Protection, Specialty Chemicals
- R&D Center Amagasaki, Japan**
  - Focus areas: Electronics, Battery Materials
- R&D Center Suwon, Korea**
  - Focus area: Electronics

## BASF Design Center Asia Pacific

- Regional Design Center opened at Innovation Campus Asia Pacific (Shanghai)
- Design helps inventions become daily products

Design is at the heart of the interface between customers and products. BASF opened its Design Center Asia Pacific in Shanghai in May 2016. Located at the Innovation Campus Asia Pacific (Shanghai), it connects industrial designers with BASF scientists and marketing experts to collaboratively work on product innovations.

The Design Center houses a variety of design-related activities for business areas including coatings solutions, care chemicals, construction chemicals, pigments and leather chemicals. It is home to designfabrik®, which focuses on advanced products made out of plastics.

The Design Center provides designers from China and the Asia Pacific region with design consultation and closely collaborates with R&D and business divisions in the innovation process. It assists designers at various stages of product development with a cross-disciplinary approach from inspiration, ideation to implementation. Among the successful cases of its design consultancy are the PaiBand,

a wristband produced by Putao Technology for children, and bubble furniture, a combination of a lounge chair and bed enveloped in an air inflated core structure.

For more information about these solutions, see page 49



At the opening ceremony of the Design Center, BASF experts, designers and journalists exchange insight on innovation.



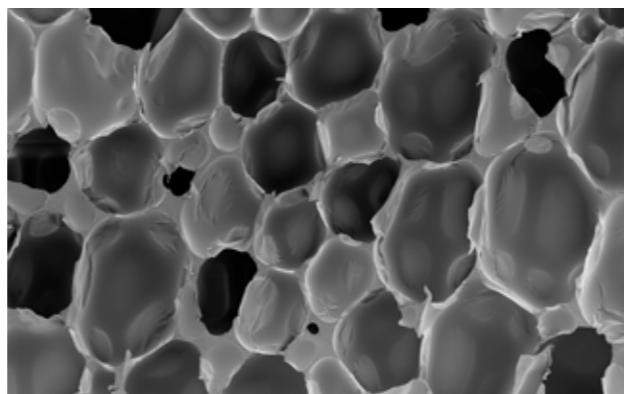
The new Design Center extends the innovation value chain of BASF to the design community.

### A smooth ocean journey for LNG

- Polyurethane foam Elastopor® is an effective insulation solution for ocean transport
- A variety of customized polyurethane technologies for different types of LNG carriers

Used in Chinese households for heating and cooking, natural gas is liquefied and condensed to 1/500 of its original volume before reaching end consumers. Due to its low density and the remote locations of its reservoirs, it is a challenge to store liquefied natural gas (LNG) and especially to transport it by sea. Ordinary environments put it at risk, since LNG boils away at temperatures above minus 163°C. It therefore requires effective insulation technology to manage the boil-off rate (BOR) during ocean journeys.

With extremely low thermal conductivity, polyurethane foam can reduce vapor discharge, thus minimizing BOR during transportation. BASF has developed a polyurethane technology, Elastopor®, which is tailored to the demanding conditions of oil and gas industry around the globe. Its microcellular structure and high content of closed cells give it outstanding insulation properties to save energy and minimize boil-off losses. Its excellent compatibility with fiber



The closed-cell structure of Elastopor enables its outstanding performance in insulation.

glass matt provides easy processing on the customer side, which enables more flexibility in storage tank design and construction. Moreover, the high mechanical strength of this innovative technology protects against issues of heavy loading and the shock of sea waves.

Aside from Elastopor, BASF provides a variety of customized polyurethanes technologies for various types of LNG carriers.



BASF's polyurethane technology Elastopor can minimize the boil-off losses and save energy during ocean journeys.



The PolyTHF plant at BASF's Caojing site in Shanghai uses an optimization tool to raise efficiency and save costs.

### Optimized process for PolyTHF® plant

- Optimization tool developed for plant operation
- Achieves steam savings, optimal feedstock combination and operational stability

PolyTHF® is primarily used for manufacturing elastic spandex fibers and thermoplastic polyurethanes. At the PolyTHF plant at BASF's Caojing site in Shanghai, a large distillation column is in operation for n-Butane separation from mixed feedstocks. The operation policy of the tower is determined by two factors – composition of feedstocks and downstream demand for pure n-Butane.

In order to maximize the operational efficiency, various factors must be evaluated and optimized in conjunction with each other, such as the compositions and costs of different feedstocks, the by-product value of iso-Butane and the steam consumption. Therefore, an optimization tool covering all the factors considered is desirable to guide the operators' daily operations under constantly changing conditions.

The process engineering scientists at the Innovation Campus Asia Pacific (Shanghai) have successfully developed such an optimization tool, sustained by a rigorous thermodynamic model at its basis. Prior to the final implementation of this tool, the model has been validated and tuned according to plant data, guaranteeing a meaningful optimum within the predefined various constraints. Although the background model is quite complex, the interface is very user-friendly. The operators input all relevant information, and in a second, the optimum operation parameters appear on the screen. Then the optimized parameters can be transferred into the plant control system. It has been further integrated with Advanced Process Control system to achieve a smooth plant control automatically.

Since the implementation of this tool in October 2016, considerable savings of steam and raw material costs have been realized, as well as stability improvements in plant operations. In the future, this approach can be extended to other types of processes and unit operations.

# BASF in Greater China

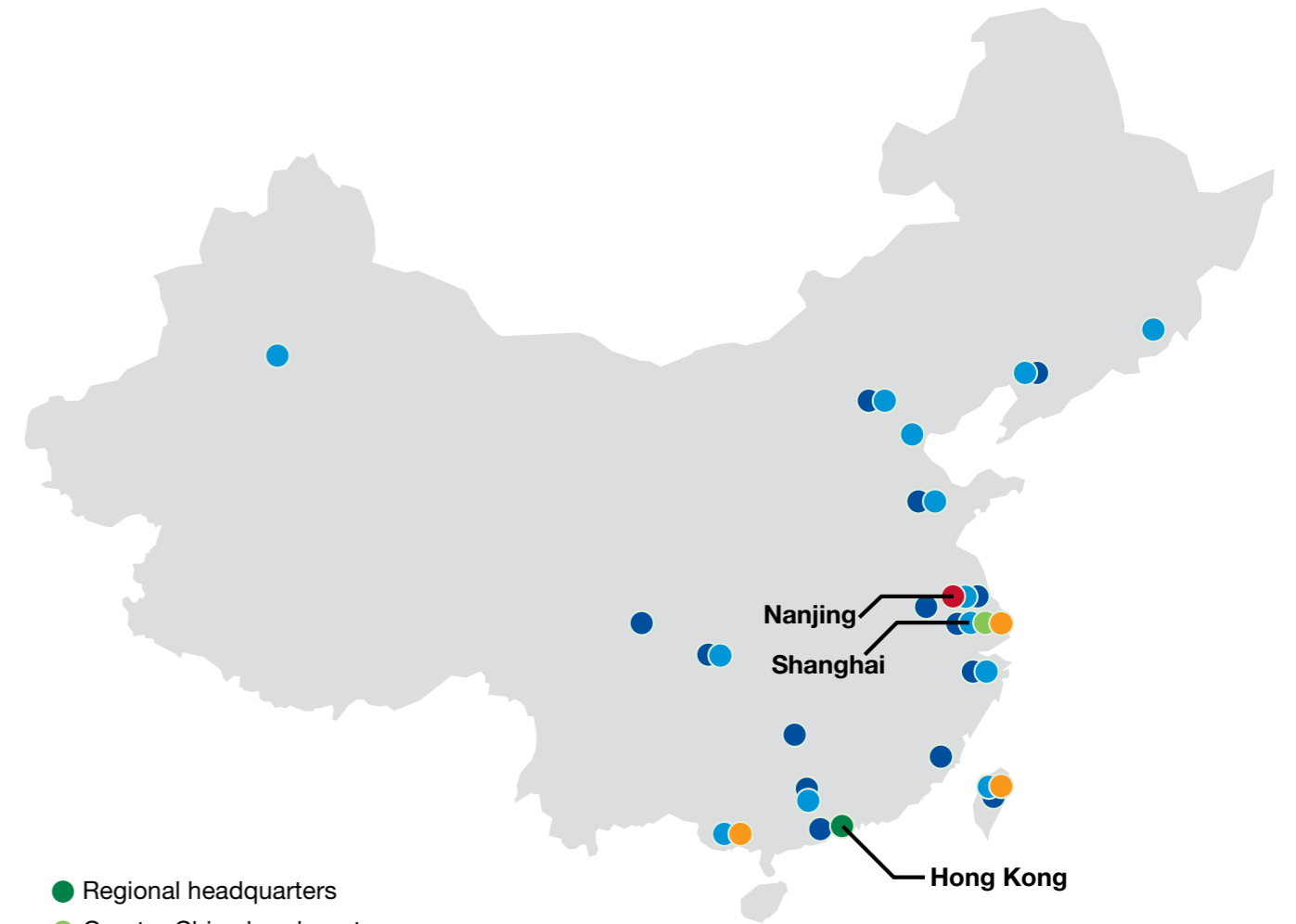
## At a glance

**BASF has been a committed partner to Greater China since 1885. With major investments in Shanghai, Nanjing and Chongqing, BASF is the largest foreign investor in China's chemical industry, and maintains the BASF Asia Pacific Innovation Campus (Shanghai) as a global and regional research and development hub. BASF posted sales of €5.9 billion in 2016 to customers in Greater China, and employed 8,805 people as of the end of the year.**

BASF currently operates 26 major wholly-owned subsidiaries, seven major joint ventures, and maintains 26 sales offices in Greater China, the third largest market worldwide for the company. BASF has invested approximately €6 billion in Greater China over the last 20 years, more than €8 billion together with partners.

BASF aligns its economic goals with environmental and social responsibility. In 2016, the influential newspaper Southern Weekend ranked BASF the fifth in its annual listing of "Outstanding Contribution of Fortune Global 500 Enterprises in China". The company has thus been included in this list for ten consecutive years. BASF also received

the "Best Corporate Citizenship" award from the 21st Century News Group for the twelfth consecutive year in 2016, especially recognized for its commitment to employees, environment, resources and society. In the same year, the Taiwan business publication CommonWealth magazine included BASF in its annual top ten ranking for "Excellence in Corporate Social Responsibility" in the "multinational companies" category, honoring its long-term commitment to industrial safety culture and environmental protection.



- Regional headquarters
- Greater China headquarters
- Sales offices
- Selected sites
- Verbund site
- R&D/Technical centers

Some sites are not shown on the map due to scale. Site and office numbers refer to the companies of significant size where BASF holds a stake greater than 50%.



BASF has been a committed partner to Greater China, its third largest market worldwide.

**BASF in Greater China**

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Sales in 2016 (by location of customer)	Employees (as of December 31, 2016)
€5.9 billion	8,805

## Major sites



Pudong Site



Caojing Site



Nanjing Verbund site



Chongqing site: an engineer and a contractor discuss facility maintenance.

### BASF Shanghai Pudong site

- Located in Gaoqiao, Shanghai Pudong
- Established in 2000
- 3,000 employees
- BASF Greater China headquarters
- Integrated site with research and development, business and production under the "Verbund" concept
- Innovation Campus Asia Pacific (Shanghai) since 2012, and the headquarters of BASF's global research platform Advanced Materials & Systems Research since 2016
- Eight production plants and one waste water treatment plant
- Products: Advanced materials including Ultramid® (polyamide, PA), Ultradur® (polybutylene terephthalate, PBT), polyurethane systems, Elastollan® thermoplastics polyurethane elastomers (TPU) and Cellasto® (microcellular polyurethane), Acrylic dispersions & copolymers colorants, detergent, metal complex dyes, leather auxiliaries and polyvinylpyrrolidone (PVP)

### BASF Shanghai Caojing site

- Located in the Shanghai Chemical Industry Park in Caojing
- First PolyTHF® production in 2005
- One BASF wholly-owned operation, one joint venture with Shanghai Huayi Fine Chemical Co., Ltd. and two joint ventures with several partners
- Products: Polytetrahydrofuran (PolyTHF), TDI (toluene diisocyanate), MDI (methylene diphenyl diisocyanate), polyisocyanate (Basonat®), automotive coatings, polyamide polymerization, process catalysts

### BASF Nanjing Verbund site

- Located in the Nanjing Chemical Industry Park
- Established in 2000
- 1,880 employees
- A 50-50 joint venture between BASF and Sinopec, an integrated Verbund site
- 32 production plants
- Products: Low density polyethylene, ethylene-vinyl acetate, ethylene glycol, polystyrene, acrylic acid and acrylic esters, non-ionic surfactants, superabsorbent polymers, n-butanol, iso-butanol, 2-propyl-heptanol, butadiene, polyisobutene, etc.
- Annual capacity of 3 million metric tons
- Investment totaled \$5.2 billion

### BASF Chongqing site

- Located at Changshou Economic & Technological Development Area in Chongqing
- Approval from National Development and Reform Commission of China in 2011, first MDI production in 2015
- BASF wholly-owned site
- Product: MDI (methylene diphenyl diisocyanate)
- Annual capacity of 400,000 metric tons
- Total investment of approximately ¥8 billion (around €860 million)

#### 1885–1990: Entering China

- 1969: first investment in Taiwan
- 1982: launch of BASF China Ltd. in Hong Kong
- 1986: first joint venture in mainland China

#### 1990–2000: Deepening engagement

- 1995: launch of BASF East Asia regional headquarters in Hong Kong

#### 2000–2005: Major investments

- 2000: BASF-YPC established
- 2004: Greater China headquarters relocated to Shanghai

#### 2005–2014: Growth and integration

- Major acquisitions
- Growing numbers of production and R&D facilities
- 2012: launch of Innovation Campus Asia Pacific in Shanghai

#### 2015: 130 years of growth and future perspectives

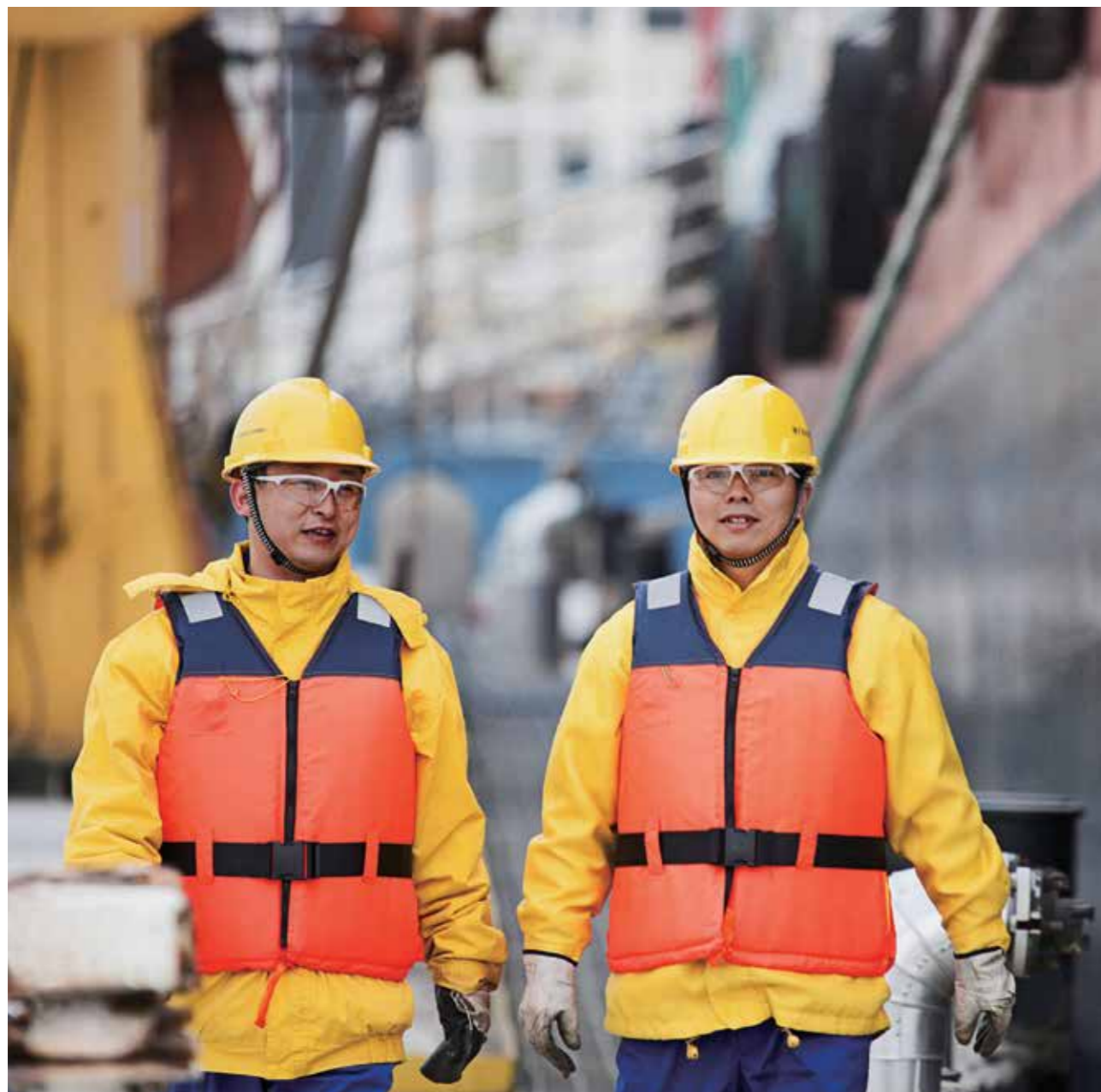
- Celebration and co-creation events of 150<sup>th</sup> anniversary worldwide

## Environment and safety

At BASF we never compromise on safety. This principle is anchored in our strategy and underlines our philosophy in operating our own facilities and dealing with third parties. Environmental protection, health and safety (EHS) as well as security, communication, and energy efficiency are embedded in our global Responsible Care® policy, which is applied to operations via our Responsible Care Management System (RCMS). This policy and the RCMS, based on BASF's strategy and corporate guidelines, are binding for the whole BASF Group. Just as the company applies stringent standards to its own

operations, we demand the same high standards of our contractors and suppliers. We choose carriers, service providers and suppliers not just on the basis of price, but also based on their performance in environmental and social responsibility.

With increased production activities at several new sites in 2016, total energy and water consumption (and as such emission of greenhouse gases) increased in Greater China. However, we were able to minimize the environmental impact through continuous application of new technologies and systems and thereby make improvements in some areas.



A shift supervisor and an operator perform a safety inspection to ensure safe logistics operations.



BASF reviews product safety throughout the entire lifecycle from research to production and finally to the customers' use of the products.

### Product stewardship

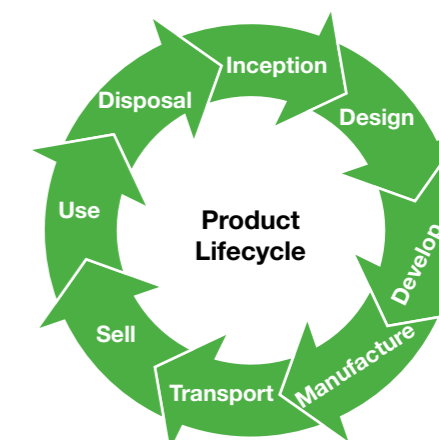
- Ensure uniformly high standards worldwide
- Extensive safety information on BASF's products provided to customers

BASF reviews its products' safety all the way from research to production and finally to its customers' use of the products. The aim is to ensure that its products do not endanger people or the environment throughout their life cycle if they are used responsibly and in the manner intended. BASF provides extensive information on its chemical products to customers and the public, for example through safety data sheets in more than 30 languages, including Chinese. It also incorporates the latest regulatory requirements in China in its product safety system to ensure its Chinese safety data sheets and product safety labels are in compliance with China's regulatory framework.

BASF also operates a Global Trade System which is an internal trade control system to protect and support its business activities. Under this system, it conducts regulatory compliance checks for every order placed in regard to national laws and international conventions that regulate imports, exports or domestic trade. More than 30 entities in Greater China have been included in the system.

With the aim of establishing science-based regulations, BASF has devoted multiple resources to advocate the local

authorities in developing Chinese regulations, including general chemical regulation and application regulations for a variety of industries. The company also shared its expertise on regulations and compliance management with key customers, suppliers and cross-departmental partners. In 2017, it provided regulatory requirements and experience on hazardous chemical management to the expert team of Chinese Academy of Sciences. Internal training on chemical regulations and trade control is held twice per year.



**Transportation and distribution safety**

- Risk assessment of all transports of raw materials, especially dangerous goods
- Regular safety audits of logistics service providers

BASF ensures transportation and distribution safety through strict regulations and measures at all stages, from delivery of raw materials, storage and distribution of chemical products to customers, to transportation of waste from sites to disposal facilities. Through regular risk assessments on transportation of raw materials with high hazard potential, the company uses its global guidelines based on the guidelines of the European Chemical Industry Council.

To reduce the number of transportation accidents, BASF has focused on spillages of dangerous goods that significantly impact the environment since 2015. To further improve safety

of the processes and align with global standards, extended checks of dangerous goods were introduced into its order management system last year.

BASF stipulates worldwide requirements for its logistics service providers (LSPs) and assesses them in terms of safety and quality. In 2016, several dozen LSPs in Greater China were evaluated by BASF experts using the company's own evaluation and monitoring tools as well as internationally approved schemes.

If an incident occurs despite all preventive measures, BASF provides swift and coordinated assistance across the globe through an external network of transportation and distribution safety (TDS) advisors. In Greater China, TDS advisors work closely with BASF TDS experts worldwide to support processes and procedures and help deploy the right measures to mitigate incidents.



To ensure transportation and distribution safety at all stages, BASF assesses its logistics service providers in terms of safety and quality.



BASF continues to improve its measures to prevent process safety incidents in Greater China.

**Process safety**

- Expand measures to reduce process safety incidents
- Regular assessment of safety systems

In order to maintain the highest level of safety at its plants at all stages, BASF continues to improve its measures to prevent process safety incidents in Greater China.

BASF continues to implement its management system for process safety, providing a framework for the safe construction and operation of all plants as well as the protection of people and the environment at all sites. BASF experts develop a protection plan for every plant by considering the most important aspects of safety, health and environmental protection – from conception to startup – and stipulate specific protection measures for each aspect. This management system was continuously reviewed at all sites in 2016.

In order to maintain the highest level of safety at plants across their entire life cycle, BASF reviews the implementation of the protection plans in all facilities at regular intervals by taking into account the hazard potentials of the facilities. A globally standardized software has been adopted to track

these assessments. One module of this program – already used in many plants – checks the timely implementation of the stipulated measures.

As for plant maintenance, repair and operation, BASF global process safety team produced a catalogue of best practices for incident prevention, available to all plants worldwide in 2016. To strengthen safety awareness, BASF also offered e-learning and process safety seminars to its employees last year.





### Energy

- Energy consumption increases in Greater China due to high production loading
- More measures to improve energy efficiency

In 2016, energy consumption of BASF sites in Greater China increased sharply due to production expansion at several sites. Expansion and running of non-production projects such as Innovation Campus Asia Pacific (Shanghai) also contributed to this increase. Electricity consumption totaled 733,384 megawatt hours (MWh) (2015: 544,520 MWh) and steam consumption totaled 3,266,606 metric tons (2015: 2,455,558 metric tons). Fuel consumption for central energy supply totaled 890,191 MWh (2015: 614,444 MWh).

#### Electricity consumption (MWh)

2016	733,384	
2015	544,520	
2014	442,327	

#### Steam consumption (metric tons)

2016	3,266,606	
2015	2,455,558	
2014	2,630,049	

#### Fuel consumption (central power plants and boilers) (MWh)

2016	890,191	
2015	614,444	
2014	694,802	

BASF sites throughout Greater China took steps to improve energy efficiency in 2016. One site in Shanghai optimized its splitter and distillation process, resulting in significant steam saving. Another site in Shanghai reduced steam consumption by optimizing the washing process and controlling temperature of the reactor. A site in Jiangsu Province also achieved steam saving through optimization of its stripping temperature. The site in Jilin started using a low-carbon combustion agent in its incinerator and another site in Taiwan optimized the process of its regenerative thermal oxidizer. Several sites in Taiwan, Chongqing, Jiangsu and Shanghai upgraded their lighting, pumps, air compressors and air conditioning systems with low energy consumption models.

In an energy-intensive industry, BASF has set the goal of introducing certified energy management systems (DIN EN

**2020 Goal**

All relevant sites in Greater China are to introduce certified energy management systems.



Through the application of advanced technologies and process optimization, BASF managed to minimize the environmental impact of its increased production.

ISO 50001) at all relevant sites by 2020. In 2016, global experts held a workshop in Shanghai on BASF's energy management system. External audits, in accordance with ISO 50001, were conducted at two sites in Shanghai in 2016. Five sites in Greater China will be further audited in 2017. Currently, all energy efficiency measures are recorded and analyzed in a global database as best practices for other sites worldwide.

BASF is also committed to continuously reducing carbon emissions through advanced technology and improvement of production process and energy optimization. Seven BASF sites in Shanghai have been actively participating in the pilot carbon emissions trading scheme approved by the National Development and Reform Commission. These sites have fulfilled Emissions Trading System obligations by surrendering the 2015 emission allowances for carbon dioxide (CO<sub>2</sub>). BASF also worked closely with industry bodies such as China Petroleum & Chemical Industry Federation and the Association of International Chemical Manufacturers to conduct dialog with authorities.

### Emissions to air

- Stable greenhouse gas emissions
- Slight increase in emissions into air

In 2016, emissions of greenhouse gases from BASF's chemical operations in Greater China totaled 1,133,264 metric tons (2015: 911,297 metric tons). This was mainly due to the expansion of production at several sites in 2016. To reduce green gas emissions, some sites saved energy consumption via process optimization, while others replaced fuel by optimizing the use of the regenerative thermal oxidizer or even upgraded systems with low energy consumption mode.

#### Greenhouse gas emissions (metric tons of CO<sub>2</sub> equivalents<sup>2</sup>)

2016	1,133,264	
2015	911,297	
2014	910,355	

<sup>2</sup> CO<sub>2</sub> equivalents consists of CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFC, PFC, SF<sub>6</sub>

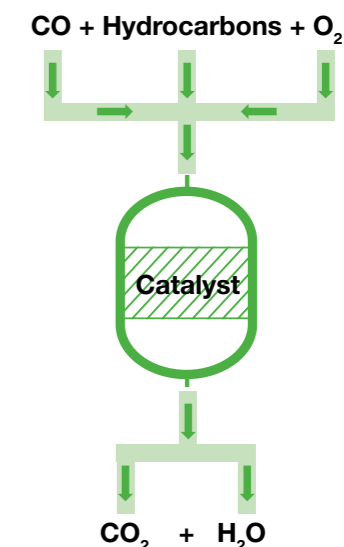
Aside from greenhouse gases, BASF also measures the emissions of other pollutants into the atmosphere, including inorganic compounds such as carbon monoxide (CO), sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>) or ammonia as well as dust or non-methane volatile organic compounds (NMVOC). In 2016, emissions into the air from BASF's chemical operations in Greater China slightly increased to 359 metric tons (2015: 339 metric tons). This was mainly the result of the expansion of production at several sites. However, installation of a catalytic thermal oxidation unit at one site in Shanghai in June 2015 has kept emissions under control despite this expansion, and brought about considerable reduction of CO emissions. With this unit, CO and hydrocarbons are

oxidized and converted to CO<sub>2</sub> and H<sub>2</sub>O in the reactor, through which almost all of the pollutants are removed in the off-gas. Another site in Shanghai implemented the use of low sulfur and nitrogen diesel oil as boiler fuel and tail gas from the boiler was treated with active carbon filtration. In 2016, NMVOC was reduced significantly by implementing leakage detection and repair at several sites in Shanghai and Jiangsu.

#### Air pollutants<sup>1</sup> (without CH<sub>4</sub>) (metric tons)

2016	359	
2015	339	
2014	548	

<sup>1</sup> Air pollutants consists of: CO, NO<sub>x</sub>, NMVOC, SO<sub>x</sub>, dust, NH<sub>3</sub>/other inorganics



Through a catalytic thermal oxidation unit, emissions of CO and Hydrocarbons are converted to CO<sub>2</sub> and H<sub>2</sub>O.

The CDP (formerly: Carbon Disclosure Project) represents more than 820 institutional investors who manage over \$100 trillion in assets. The CDP's indexes serve as assessment tools for investors. In 2016, BASF achieved a rating of "A-" and gained leadership status once again. In an analysis of the largest 350 enterprises in Germany, Austria and Switzerland by market capitalization, CDP named BASF among five companies whose efforts have contributed significantly to a reduction in environmental emissions. In addition, BASF was one of 24 companies in 2016, out of a total of 607 assessed by CDP, to receive the top grade of "A" for sustainable water management.





BASF effectively reduces the emissions of water pollutants by sustainable water management along the entire value chain.

## Water

- Water protection plans prevent unexpected wastewater emissions
- Slight increase of emissions to 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. BASF is committed to responsible water use in its production sites' water catchment areas and along the entire value chain. To this end, it sets global goals of sustainable water management.

### Emissions to water: Organic substances (COD) (metric tons)

2016	170	<div style="width: 100%;"></div>
2015	165	<div style="width: 97%;"></div>
2014	169	<div style="width: 99%;"></div>

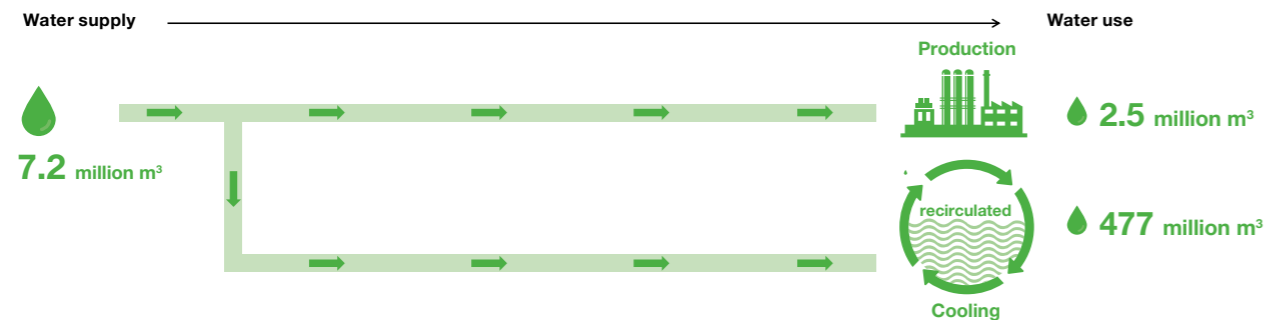
### Emissions to water: Nitrogen (metric tons)

2016	9	<div style="width: 75%;"></div>
2015	12	<div style="width: 100%;"></div>
2014	19	<div style="width: 158%;"></div>

### Emissions to water: Heavy metals (metric tons)

2016	0.1	<div style="width: 100%;"></div>
2015	0.1	<div style="width: 100%;"></div>
2014	0.1	<div style="width: 100%;"></div>

### Water use in Greater China (million cubic meters)



Although we used 477 million cubic meters of water for cooling and 2.5 million cubic meters of water for production in 2016, our actual water supply was only 7.2 million cubic meters thanks to recirculation.

	Water supply (million cubic meters)	Water use (million cubic meters)	
		Production	Cooling
2016	7.2	2.5	477
2015	6.0	2.3	359
2014	6.0	2.3	317

BASF sites in Greater China thoroughly follow a group directive with globally applicable standards and explore measures of sustainable water management, especially in water stressed areas. Several sites in such areas in Greater China have completed European Water Stewardship audits internally since its roll-out in China in 2014.

In order to identify the potential risk of unexpected wastewater emissions and prevent the pollution of surface or groundwater, BASF creates mandatory water protection plans for its sites by evaluating wastewater in terms of risk, drawing up suitable monitoring approaches and auditing the implementation and compliance of these measures. Several sites in Greater China applied online monitoring systems for wastewater to catch relevant pollutants more quickly.

Despite the expanded production volume at several sites in 2016, emissions of water pollutants increased only slightly compared to 2015. Organic substances (chemical oxygen demand) increased to 170 metric tons (2015: 165 metric tons). Nitrogen decreased to 9 metric tons totally (2015: 12 metric tons). Heavy metals remain unchanged at 0.1 metric tons (2015: 0.1 metric tons). External wastewater treatment plants improved nitrogen elimination efficiency in 2016 and kept the emissions of heavy metals stable.

BASF strives to gradually reduce water consumption and reuse as much as possible. BASF's water use in Greater China increased to 7.2 million cubic meters in 2016 (2015: 6 million cubic meters) as a result of expanded production volume at several sites.

Water saving measures were carried out at some sites in Greater China, including reuse of rainwater to reduce the water supply at one site in Shanghai.

BASF uses most of the water for cooling purposes, hence recirculates water as much as possible. Most BASF sites worldwide have re-cooling facilities that allow water to be reused several times and that reduce the temperature of used cooling water before it is discharged back into a water body. For BASF in Greater China, the water for cooling amounted to 477 million cubic meters in 2016 (2015: 359 million cubic meters). This increase mainly resulted from new cooling water tower systems in Chongqing running through the whole year of 2016. However, overall water resources were saved thanks to the recirculation of water.

## Waste

- Slightly increased waste with reduced recovery rate
- Regular audits of external waste management companies

BASF regularly explores ways to prevent waste. If waste is unavoidable, the company will analyze whether a particular type of waste is suitable for recycling or energy recovery. If no

recovery options are available, it disposes of waste in a correct and environmentally responsible manner.

In 2016, the volume of waste from BASF's chemical operations in Greater China increased slightly to 73,162 metric tons (2015: 68,119 metric tons) and the recovery rate was 72%, slightly decreased from the year before (2015: 75%). This resulted from production expansion at several sites in 2016 that generated 20% more production volume. To reduce waste and encourage recycling to the greatest extent, BASF achieved waste re-utilization among several sites in 2016, while one site in Shanghai significantly reduced sludge by upgrading the sludge filter.

BASF regularly carries out audits to inspect external waste management companies, ensuring that its hazardous waste in particular is properly disposed of. In this way, the company is also contributing to preventive soil protection and keeping today's waste from becoming tomorrow's contamination. BASF has closely monitored site soil and groundwater status in Greater China and documented the information in a global database since 2013.

### Waste (metric tons)

2016	73,162	72%	<div style="width: 72%;"></div>	28%
2015	68,119	75%	<div style="width: 75%;"></div>	25%
2014	69,757	76%	<div style="width: 76%;"></div>	24%

■ Amount of waste ■ Recycling and thermal recovery (%)



Drums for packaging the raw material polyol are recycled and reused for finished goods.

## Emergency response

- Regular emergency drills held across Greater China
- Experience sharing conducted with industry authorities

BASF undertakes fire prevention inspection and regular emergency response (ER) exercise at every production site to meet the ER requirements for fire prevention and ER planning. Multiple drills with various scenarios were organized last year at sites in Greater China. We also initiated a project at one BASF fire brigade in Shanghai to further enhance ER competency and promote the development of industrial fire brigades in China.

BASF continues its cooperation with China's State Administration of Work Safety (SAWS) and China Petroleum & Chemical Industry Federation (CPCIF) to share best practices on ER with other members, and support local authorities in the development of emergency and rescue skills on hazardous chemicals. On behalf of the Shanghai municipal dangerous goods rescue team, BASF supported SAWS in "The 2<sup>nd</sup> National Competition for Dangerous Chemical Rescue" and

the establishment of the International Dangerous Chemical Rescue Organization. BASF has been selected as ER working group leader of both CPCIF and Association of International Chemical Manufacturers (AICM).

## Security

- Global campaign against risks in using information technology
- Online training for travel risks

BASF protects its employees, sites and company knowledge against third-party interference by establishing a worldwide framework with uniform policies, reviewing the implementation of security measures on a regular basis and integrating comprehensive analyses of potential risks into its investment projects.

Due to the increasing risks arising from the use of information technology, BASF started a global campaign to better protect company knowledge, including a simulation of a global phishing attack, to strengthen employees' risk awareness. In 2016, BASF published standardized group-



The BASF fire brigade at Caojing site in Shanghai conducts regular emergency response training.



BASF promotes information protection awareness among its employees to better protect company knowledge against the increasing risks from the use of information technology.

wide recommendations in Greater China to promote information protection awareness.

BASF prepares its employees for security risks during business trips by offering new online training courses on appropriate protection measures as well as individual counselling when necessary. Globally standardized in 2016, a travel research system allows the company to locate employees more quickly and accurately in the affected regions after a major incident.

Aspects of human rights related to site security, such as the right for liberty and security of person, are a component of the global qualification requirements of BASF's security personnel. Respect for human rights is a mandatory element of any contract with BASF's service providers active in Greater China. In 2016, the company standardized the use of security services at more sites in Greater China to increase effectiveness and efficiency.

## Promoting Responsible Care® in Greater China

- Introduction of additional tools in Greater China
- Support China's chemical societies in the promotion of Responsible Care

Comprising the global rules, standards and procedures for safety, security, health and environmental protection, BASF continues to improve its Responsible Care (RC) management system by regular audits, updating of policies and requirements, assessment of potential risks, and promoting Responsible Care to its value chain partners in Greater China.

BASF also introduced additional tools to its partners along the value chain to help apply the standard more broadly. These include self-assessment for continuous improvement, gate check for all trucks before entering production and storage facilities, and the Road Safety & Quality Assessment System (RSQAS) which provides tools for the safe management of logistics transport service providers.

BASF is active in supporting Chinese chemical associations in the promotion of Responsible Care. As a member of CPCIF since 2013, BASF has taken a leading role in supporting improved emergency response, public communication and chemical regulatory advocacy. In 2016, it held an emergency response workshop in Xiangshui, Jiangsu Province to support CPCIF. It helped AICM to upgrade the RSQAS questionnaire and its assessment database in 2016, and organized two workshops for other membership companies. Working closely with SAWS, the company also shared best practice with its delegates who visited the BASF site in Ludwigshafen, Germany.

Meanwhile, BASF also actively supported local government including RC promotion in Taiwan, joint emergency drill and health promotion summits with local governments or associations. BASF also leads the Nation-Wide Toxic Chemical Regional Mutual Aid Team in the Kuanyin region, Taiwan.

BASF has been recognized by local authorities for its efforts in this area. One BASF site in Jiangsu Province was named a Green Credit Company in 2016 by the local municipal government. Two other sites in Chongqing and Jiangsu received the Award of Advanced Enterprise for their excellent safety and environmental performance respectively.

## Business development At a glance

With its innovative and sustainable products and solutions, BASF was able to grow its sales in Greater China to €5.9 billion in 2016 (2015: €5.7 billion). To meet customers' increasing demands and drive new opportunities in the local markets, the company continues to invest in local production and expand its footprint in the region to reach customers with reliable and high-quality supply.

**Sales** (million €)  
(By location of customer)

2016	5,931	<div style="width: 100%; height: 10px; background-color: #0070C0;"></div>
2015	5,730	<div style="width: 96%; height: 10px; background-color: #0070C0;"></div>
2014	5,519	<div style="width: 93%; height: 10px; background-color: #0070C0;"></div>

### New investments

At its existing sites in East China, BASF is investing in parallel with the growth of customer industries. In June 2016, BASF broke ground on a new, world-scale automotive coatings plant at its Caojing site in Shanghai, a joint venture between BASF and Shanghai Huayi Fine Chemical Co., Ltd. To further strengthen its regional research and development activities for automotive coatings, the company set up a world-class coatings and coating resins laboratories at the BASF Innovation Campus Asia Pacific (Shanghai) in July 2016.



Felix Hu (right), General Manager of BASF Markor Chemical Manufacturing (Xinjiang) Co., Ltd., explains the production status to Kurt Bock (left), Chairman of the Board of Executive Directors of BASF SE.



BASF inaugurates a new facility for specialty amines in Nanjing.

Addressing the needs of a growing and aging population, BASF inaugurated a new facility at its wholly-owned Nanjing site in April 2016, producing specialty amines including DMAPA (Dimethylaminopropylamine), a diamine used as a co-surfactant in personal care products like shampoo and body wash. In November of the same year, BASF opened a new plant at its Pudong site in Shanghai for PVP (polyvinylpyrrolidone) K30 powder, a polymer used as a base for several applications including pharma excipients, detergents, and cosmetics. BASF is also building a new plastic additives plant at its Caojing site in Shanghai for antioxidants as well as associated forms and blends, to start up in 2019.



Chinese traditional lion dance during the inauguration ceremony of BASF Coatings (Guangdong) Co., Ltd. in Jiangmen, Guangdong.

In South China, BASF is strengthening its local presence through the acquisition of Guangdong Yinfan Chemistry Co., Ltd. (Yinfan), a Chinese automotive refinish paint manufacturer. A new legal entity named BASF Coatings (Guangdong) Co., Ltd. was established in December 2016 in Jiangmen, Guangdong to further develop Yinfan's automotive refinish coatings business.

BASF is continuously contributing to the economic and industrial development of Western China. BASF collaborated with Xinjiang Markor Chemical Industry Co., Ltd. (Markor) to inaugurate a new 1,4-butanediol (BDO) plant in Korla, Xinjiang Uygur Autonomous Region in January 2016, followed by a new PolyTHF® (polytetramethylene ether glycol) plant at the same site with Markor in July.



The new PolyTHF facility at Korla site

The acquisition of Chemetall in June 2016, a global system solutions provider of surface treatment, added to BASF's local footprint across Greater China. Chemetall's operation is being integrated into the company's local production network.

## Sustainable mobility



BASF's EMPRO™ catalyst solutions can effectively reduce emissions of motor vehicles.

**The automotive industry in China is facing both opportunities and challenges – stringent national emissions regulations, the rise of new energy vehicles, and higher demand for safety, comfort and individualized design by car owners.**

As the leading chemical partner for all major automotive original equipment manufacturers (OEMs), BASF's integrated offerings, strong local production and R&D capabilities add value to customers through its broad range of chemical solutions with innovation focus. The catalyst and coating solutions reduce emissions and energy usage of vehicles significantly; a comprehensive system of automotive fluids improves durability of auto parts; advanced lightweight solutions and battery materials contribute to energy efficiency of electromobility, while a combination of technologies creates safer, more comfortable and individualized driving experience.

### Emission control for cleaner air

- **HC-trap catalysts to meet the new Zero EVAP Standard of China Stage 6 emission regulation**
- **Waterborne coating system and integrated paint process for less VOC and CO<sub>2</sub>**

In 2016, major cities in China declared pollution red alerts due to smog. Analysis shows that motor vehicle emissions

are a leading source of air pollution for some cities. This urged the Chinese government to radically tighten emissions regulations in its Five Year Plan. As the world's leading chemical supplier to the automotive industry, BASF is a key partner to reduce vehicle emissions through a broad range of sustainable solutions.

Evaporative hydrocarbons (HC) react with NO<sub>x</sub> by sunlight, forming ground level smog. As the global leader in catalysis, BASF's EMPRO™ EvapTrap™ portfolio offers HC capture technology with minimal impact on vehicle design and performance, helping OEMs meet the new Zero EVAP Standard of China Stage 6 emission regulation. EvapTrap MX is a HC absorber technology coated on the inner surface of the air cleaner housing, without increase in backpressure or reduction of horsepower and fuel economy. EvapTrap XC is a HC scrubber technology applied in the fuel canister. Both outperform competitive products with much higher capacity.

BASF has focused on supporting OEMs and independent bodyshop customers in the conversion process from solvent-borne to eco-efficient waterborne refinish paint long before the recent stringent regulations in the Chinese automotive refinish industry for VOCs (volatile organic compounds). Under the BASF premium refinish paint brand portfolio are Glasurit® 90 Line and R-M® ONYX HD enhanced waterborne paint systems, which offer as much as 90% fewer VOCs than solvent-borne products, unparalleled color accuracy, easier applications, superior hiding power and blending properties. The most recent addition to the lineup of BASF waterborne basecoats is baslac 45® water-based refinish basecoat

system. BASF has been supplying low VOC waterborne systems to leading 4S shops in China for more than ten years.

For OEM automotive coatings, BASF is committed to driving eco-efficiency in coating process improvement, allowing energy resources to be conserved. Its integrated paint process replaces the primer by integrating its protective properties into a waterborne basecoat layer, thus eliminating one process step. The integrated process enables customers to reduce CO<sub>2</sub> emissions and energy costs.

### Automotive fluids for durability of parts

- **HYDRAULAN® 404 brake fluid enhances the reliability of the brake system**
- **GLYSANTIN® engine coolants provide threefold protection**

BASF's premium brake fluid HYDRAULAN® 404, launched with a one-liter packaging in the Chinese automotive aftermarket in 2016, ensures that the brake system of the car meets the demanding standards of automotive safety legislation. HYDRAULAN 404 enhances the reliability of the brake system, with low viscosity at low temperatures.



The new one-liter packaging of HYDRAULAN 404 brake fluid is tailored to the Chinese market.

Today, many major OEMs in China use HYDRAULAN 404 in all their cars.

GLYSANTIN® premium engine coolant with its threefold protection from corrosion, overheating and frost, is widely recognized and applied by key automobile manufacturers in China.



BASF's coatings technology supports OEM customers to reduce CO<sub>2</sub> emissions and energy costs.



China, the world's largest market of new energy vehicles, is embracing urban electromobility.

### Materials for E-mobility

- **Ultramid® and Ultrasim™ ensure durability and lightweight of new energy vehicles**
- **Cathode materials for longer battery lifetime**

Electromobility is one of the key approaches to reconcile the global desire for individual mobility and the need to significantly reduce emissions. As China has exceeded the United States as the world's largest market for new energy vehicles, BASF's innovative systems are helping to drive the future of electromobility in the country.

Ultramid® is one of the preferred materials for lightweight parts subject to mechanical and thermal stresses. Connectors and wire harnesses in the electric car charging system made with Ultramid can withstand the stresses of delivering high levels of electricity, and resist weathering conditions outdoors. Ultramid has been applied to electric cars of major Chinese OEMs. It is also used for e-motor mount – the first time in China that plastic polyamide has been used for the structural body of an e-motor mount.

Benefitting from our simulation tool Ultrasim™, BASF is able to help customers spot potential problems of design and production before the mold is made, helping to further reduce weight by 40%.

In China's 13th Five-year plan, issues of air quality and development of electromobility are high on the agenda. Performance of electric vehicles depends largely on battery materials of higher energy density, better safety and improved efficiency, which translates into increased battery lifetime, longer driving range, and most importantly, less environmental impact.

BASF addresses this market need by investing heavily in the research and development (R&D) of innovative battery materials. One core R&D activity is to tackle the challenges in cost and sustainability of cathode active materials (CAM). To reduce the amount of cobalt used in the batteries, either the nickel content (short-term) or the manganese content (mid-term) can be increased. This will enable CAMs to achieve higher energy density levels, while reducing cost and environmental impacts. Competitive recycling technologies are another focus of BASF's research in this field, in order to form a closed-loop system without further extraction of virgin materials from beneath the ground.

### Solutions for the car interior

- **Less emissions for PU foam and synthetic leather**
- **Low odor for better cabin environment**

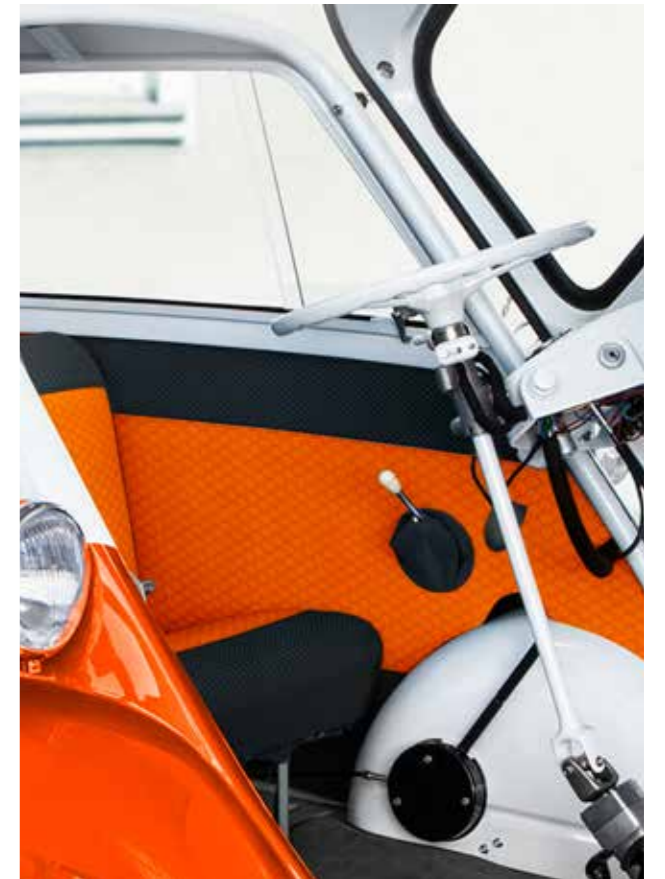
A healthy and comfortable interior space is increasingly important for car owners. To create a better cabin space and improve driving experience, BASF's innovative solutions contribute to air purification and odor improvement as well as more comfort features of the car interior space.

The new polyol grade Luprano® is used in the production of automotive applications such as highly resilient flexible and semi-rigid polyurethane parts for car seat, roof and steering wheel. Tested by Centre Testing International Group, it outperforms all the current polyurethane solutions for auto applications in reducing aldehyde emissions, especially Volatile Organic Compounds (VOCs), acetaldehyde and acrolein.

Hexamoll® DINCH®, a plasticizer with a unique cyclohexane structure, has special properties such as lower odor and lower volatility which can effectively reduce VOC emissions when applied to the automotive foot pad.

For synthetic leather in car interiors, the thermoplastic polyurethane Elastollan® is effective in reducing VOC emissions and odor. Suzhou Ruigao New Material Co. Ltd, a leading synthetic leather producer, adopted Elastollan as car seat leather for the latest model of one Chinese automaker.

As the first non-solvent based polyurethane system for synthetic leather, Haptex® can meet the most stringent VOC norms, avoiding the use of solvents by saving one production step. It also improves the haptic experience of the car interiors, thus enhancing comfort for car passengers.



Valure creates a unique look and feel for auto interiors.

### Automotive design

- **Surface design expertise**
- **New Colors & Effects brand introduced**

Today's car owners demand both art and function of their vehicles. The design of the car exterior and interior is the subject of both creativity and innovative technology.

BASF's transfer coating technology valure®<sup>1</sup> is applied to the surface of leather and many substrates (both natural and synthetic based) for auto interiors. It uses a laser engraved mold which can replicate natural surfaces, technical structures and complex designs and creates a soft hand feel.

Integrating its broad portfolio of colorants and effect pigments, the newly established "Colors & Effects" brand further strengthens BASF's expertise in the color design for automotive coating, in addition to other industries including industrial coating, plastics, printing and ink, cosmetics, agriculture, etc. It offers car makers a diverse selection in designing for the increasingly individualized demands of car buyers.



A healthy and comfortable interior space is crucial to the driving experience.

<sup>1</sup> valure® is a registered trademark of BASF SE in many countries

## Better living spaces



BASF solutions for the construction industry help reduce emissions and foster sustainable living.

The construction industry in Greater China is facing the challenges of high energy consumption and greenhouse gas emission. Through innovative energy-saving and sustainable building materials, solutions and concepts, BASF is dedicated to making buildings more energy-efficient and durable, thus minimizing environmental impact for a better and healthier living space.

### Ultra low-energy buildings

- Tallest passive house receives design pre-certification
- Ultradur® window profiles co-developed with Shide

Buildings certified to the passive house standard consume much less energy than conventional “low-energy” buildings. BASF is committed to promoting and developing passive houses in China by providing building sustainability consulting services, enhancing the environmental performance of energy-saving materials and collaborating with building materials suppliers in China for joint research and development projects.

BASF is contributing to the world's tallest building (16 floors) certified to the passive house standard, a project by Sino-Singapore Tianjin Eco-City. Supported by LUWOG, a BASF affiliated architecture design and consultancy company in Germany, and SoftGrid (Shanghai) in China,

this project obtained the passive house design pre-certification from Passive House Institute (PHI) in July 2016.

Jointly developed by BASF and Shide Group, the polyester alloy window profile is among the few of its kind in China to meet the requirements of passive house design and is certified by Passive House Institute of Germany. The two flat strips made of Ultradur® are co-extruded into the insulated PVC door and window profiles of Shide to replace metal profiles as reinforcement, not only saving time and costly work steps, but also reducing weight and improving product lifespan and energy efficiency.



BASF is contributing to the world's tallest building certified to the passive house standard.

### Energy-efficient and durable building materials

- Insulation material Neopor® upgraded with safer flame retardant
- Chimassorb® 2020 keeps rooftop dry and durable



Chimassorb 2020 ensures longer lasting rooftops.

Neopor®, a proven insulation material, has been upgraded in China with a safer polymeric flame retardant. Due to its outstanding environmental properties, it can be applied as external insulation for both passive houses and conventional energy-efficient buildings, as inside insulation for better air quality, and as sound insulation for flooring after extra processing. The property developer Landsea has selected Neopor as the exclusive product for all of its high-end house projects. Neopor has been applied in several large-scale building projects in China, including the new indemnificatory buildings in the Yangjiazhai community of Xi'ning, Qinghai Province and an energy saving renovation project for 240 existing buildings in the same city.

The plastic additive Chimassorb® 2020 makes roofing membranes made of TPO (thermoplastic polyolefin) last longer with a better environmental footprint. Keeping out moisture, it ensures the rooftop remains stable and durable even under the conditions of extreme heat and ultraviolet radiation – thus helping the Chinese architects to enjoy more flexibility in roof design, and local building owners to save maintenance costs.

### Healthier running tracks and playing fields

- Integrated solution for sports surfaces

Safety is an important concern for running tracks and playing fields in neighborhoods, schools and kindergartens. Based on polyurethane, BASF's integrated sports surfaces package offers a safer and long-lasting solution, bundled with a quality service control program to meet stringent national safety standards.

Following its proven success in schools, stadiums and athletic fields in Taiwan, the package is now available in mainland China to meet the increasing demand. Consisting of a binder and coating as well as EPDM (ethylene propylene diene monomer) rubber chips, it does not require any additional solvent or heavy metal content to be used before or during installation, thus minimizing its environmental impact.

As part of the sports surfaces package, BASF has also introduced a quality service control program with its partner, Du Bai Cheng Environmental Protection Engineering. The package has been successfully applied in Shanghai Nanshi Middle School.



The call for safe and stable sports surfaces and playing fields is on the rise.

## Sustainable agriculture

The unpredictability of the weather, ineffective control of pests and weeds, shrinking arable lands, increasing product prices and higher standards of environmental protection pose challenges for Chinese agriculture. With a broad portfolio of fungicides, insecticides, herbicides and seed treatments, BASF helps farmers to sustainably increase the yields and quality of their crops to meet the demand of a growing population.



BASF helps farmers increase the yields and quality of their crops.



Seltima® effectively protects rice from fungal diseases, while preserving the aquatic environment.

### Zero growth of pesticide and fertilizer

- Limus® raises efficiency of urea-based fertilizers
- Seltima® protects rice from fungal diseases
- Emulan® and Agnique® maximize effect of pesticide
- Librel® increases plant nutrition

In 2015, the Chinese Ministry of Agriculture launched the campaign “Zero growth of fertilizer and pesticide consumption by 2020”. Responding to these new policies, BASF is actively exploring new methods of modern agriculture through its innovative chemical solutions, targeting higher efficiency of fertilizers and pesticides, safer products, and less harm to the environment.

To address the pressing issue of nitrogen loss in urea-based fertilizers, Limus®, a treatment for fertilizers, allows farmers to achieve greater harvests with less input to supply the increasing demand for food and feed. With an outstanding biological performance through two active ingredients, Limus also has a longer shelf life thanks to BASF’s formulation technology. This enables the reduction of nitrogen volatilization up to 90%. In a recent partnership with Kingenta Ecological Engineering Group Co., Ltd. (Kingenta), one of the largest fertilizer suppliers in China, BASF will provide its Limus technology to Kingenta, who will directly promote and sell Limus-treated fertilizers in the local market.

As part of BASF’s AgCelence portfolio, Seltima® can protect rice plants from fungal diseases, while preserving the aquatic environment. Its special encapsulation technology ensures a precise release of the blockbuster active ingredient F 500® directly on the rice leaf surface where it acts, thus considerably improving the toxicological profile of the product. Aside from disease protection, it also promotes



higher rice yields and better grain quality. Launched in 2016 in China, Seltima is one of the key products in the “High Grain Yield Creation” program by the National Agricultural Technology Extension Service Center. In the first year of launch, about 50,000 hectares of rice were treated with Seltima, benefitting around 80,000 farmers.

BASF also provides agrochemical additives to improve the effectiveness of pesticides and fertilizers. Due to its superior wetting properties, Emulan® LVA can help the pesticide quickly spread on the leaf surface and increase its efficiency. Agnique® PG Alkyl Polyglucosides, a unique class of surfactants, offer formulators a broad spectrum of solutions and are exceptionally mild, sustainable and readily biodegradable. Librel® chelates enhance plant development and maximize yield by improving plant nutrition and soil fertility. BASF micronutrients replace key soil elements that major N-P-K fertilizers usually do not replenish.



BASF’s “BanCare” project supports banana farmers in South China during the typhoon season.

### Soil protection

- Sino-German Modern Agriculture Innovation Center set up
- Application of ecovio® mulch film and compostable waste bags

Partnering with Dezhou City, Shandong Province, BASF is setting up a Sino-German Modern Agriculture Innovation Center in the city as an educational platform for biodegradation in soil to local farmers, and the application and benefits of modern agricultural technologies.

The partnership also includes a project in Pingyuan County and Ling District for the application of ecovio® biodegradable mulch film, and a pilot project for the use of ecovio compostable waste bags. As the mulch film can be plowed back into the soil and biodegrades after harvest, it will protect the soil from being polluted.

### Support to farmers

- “BanCare” supports farmers in times of disasters
- BASF protection toolkit for farmers’ safety

In fall 2016, BASF supported banana farmers in Hainan who suffered from a typhoon by offering its products for free to minimize their losses after the disaster. It is part of the company’s “BanCare” project, an initiative to compensate banana farmers in Guangdong, Guangxi and Hainan during the typhoon season from mid-June till November.

To avoid potential hazardous injuries to farmers when applying pesticides to crops, BASF offers a protection toolkit for farmers, including glasses, gloves, breathing masks and uniforms.



## Smart and healthy lifestyles

**BASF is committed to developing health-driven solutions for a growing and aging population with its innovative chemical solutions for all age groups. At the same time, modern consumers desire a better quality of life. BASF solutions contribute to a smarter, more versatile lifestyle that brings greater comfort, safety and convenience to urban living.**

### Nutrition for every life stage

#### ■ Omega-3 for tailored health solutions

With growing consumer sophistication in health and increased disposable income, there is increasing demand at every life stage for high quality nutrition and tailored health solutions. BASF is investing in research and innovation to bring more extensive knowledge on the health benefits of Omega-3 to customers in the Chinese food, beverage and supplement market.

In 2016, BASF invited international experts to reveal the latest insights and findings about Omega-3 formulations as nutrition for adults' cardiovascular health and cognitive function as well as babies within the first 1,000 days of life.



**BASF's high concentrate Omega-3 has been approved by China's National Health and Family Planning Commission.**

In the same year, BASF received approval from Chinese National Health and Family Planning Commission to use its high concentrate Omega-3 in supplements and functional foods, a step forward to customized health solutions and enhanced compliance through smaller capsule size.

### Skin protection from sun damage

- Support for China's updated sunscreen effect labeling
- Natural-based Cetiol® Ultimate emollient



**New sunscreen product labeling reflects needs of consumers.**

In June 2016, China's Food and Drug Administration (CFDA) implemented its Requirement for Sunscreen Labeling Regulation (No. 107 of 2016), revising the labeling requirements for the rating systems of Sun Protection Factor (SPF) and Protection Grade of UVA (PA/PFA). Effective from December 2016 on, the new regulations uplift the max. SPF claim from SPF 30+ to SPF 50+ and introduce PA++++ for PFAs equal or higher than 16.

Taking reference from the respective labeling regulations from the European Union and Japan, the new Chinese rating system posed challenges for cosmetic producers in China. BASF helped its customers optimize the formulations within short notice to meet the new regulatory requirements, by leveraging its comprehensive technological expertise and extensive knowledge of global regulations. In addition, it also supported its customers in adding further beauty benefits to satisfy the ever-sophisticated consumer needs.

Chinese consumers are also showing greater interest in the sources of cosmetic ingredients. BASF is the largest provider of raw materials approved for natural and organic cosmetic products under the COSMOS and NATRUE standards. Among its approved products is Cetiol® Ultimate, a light and ultrafast-spreading emollient applied in a variety of skin care products including those for sun protection, and it is 100% renewable-based and readily biodegradable.

### Smart electronic devices

- Catamold® for smartphones in the era of 4.5G
- TPU solution for children's wristband



**The new generation of smartphones relies on Catamold high-tech granulate.**

4.5G is the basic technology for digital transformation in China today. Therefore, new models of mobile devices for the 4.5G network are creating a critical demand for materials. Catamold is a ready-to-use high-tech granulate with feedstock for metal injection molding. Geometrically challenging components can be produced economically with Catamold on conventional injection molding machines.



**Elastollan makes Paiband more comfortable to wear.**

It allows the complex-shaped parts of a smartphone to be easily injection molded with high utilization of raw materials. These parts include camera bezels, earphone holes, power/volume keys, SIM/SD card trays and mobile camera frames, as well as back covers, watch cases and band housing buckles for smart watches.

BASF's thermoplastic polyurethane (TPU) Elastollan® is now used in the PaiBand, a wearable wristband produced by Putao Technology for children. The lightweight property of Elastollan makes the wristband more comfortable to wear, while its combination of mechanical properties improves durability and opens up more design possibilities. Certified by ISO10993-10, the aliphatic Elastollan grade for wearable devices will not cause skin irritation and sensitivity.

### Intelligent privacy and comfort

- Combination of lounge chair and bed uses Elastollan® for better durability and haptics



**BASF Design Center Asia Pacific collaborates with a leading Finnish design startup to produce unique bubble furniture.**

In collaboration with BASF Design Center Asia Pacific, the Finnish design startup eloSpaces Ltd. developed a design for bubble furniture — a combination of a lounge chair and bed, enveloped in air inflated core structure to provide a private and quiet environment for both working and relaxing. The concept was realized by using durable thermoplastic polyurethane Elastollan®, to withstand the wear and tear from daily use. BASF's Haptex®, a polyurethane solution for synthetic leather, is used as the upholstery material to enhance tactile impression.

# Employees and society

## Employees



Members of BASF “Grow” Graduate Program® are equipped with necessary knowledge and skills in their job rotation.

Employees are the foundation of our excellent performance and ensure our long-term success: their skills, commitment and motivation make BASF competitive and fit for the future. This belief is seen in the tangible efforts and resources the company puts into the development of the employees as well as into company-sponsored activities to strengthen the team. As of the end of 2016, BASF had 8,805 employees (2015: 8,416) in Greater China.

Number of employees (as of December 31)

2016	8,805	<div style="width: 100%; height: 10px; background-color: #e91e63;"></div>
2015	8,416	<div style="width: 95%; height: 10px; background-color: #e91e63;"></div>
2014	8,033	<div style="width: 90%; height: 10px; background-color: #e91e63;"></div>

### Recruitment

- BASF “Grow” Graduate Program®
- Apprentice programs for lab and production
- Engineering master program with School of Chemical Engineering, ECUST

To encourage the best people to seek out a career at BASF, the company has designed various recruitment programs in China for fresh graduates.

BASF “Grow” Graduate Program® accelerates our talent pipeline at the entry level. During a 24-month period, each trainee experiences three to four rotations in one of the three professional areas: business and functions, manufacturing and engineering, and research and development. Coached by designated mentors, “Grow” trainees are well equipped with tailor-made knowledge and skills in the job rotation. Since 2007, the BASF “Grow” Graduate Program has enrolled several hundred trainees, who are now working in various professional areas.

BASF also provides other training programs for specific target groups, including its apprentice program, “ROOTS”. Students enroll to be trained as laboratory technicians or production operators. Candidates are selected from various colleges and technical schools for the program, including students from Yangzhou Industry Vocational and Technical College, Nanjing Vocational and Technical College of Chemical Technology and Shanghai Petrochemical Industrial School. The selected “ROOTS” lab apprentices study for six months at East China University of Science and Technology (ECUST), followed by a half-year on-the-job training at BASF. For ‘ROOTS’ operator apprentices, BASF offers customized training courses. The first batch of apprentices has successfully graduated and started to work at BASF.

BASF also cultivates its talent pool through cooperation with Chinese universities. In its full-time engineering master’s degree joint training program with School of Chemical Engineering, ECUST, students finish their first year’s study at the university, followed by a six-month internship at BASF where BASF assigns experienced operation managers to offer on-job training to the students through one-on-one coaching.

### Career development

- Leadership programs contribute to Best Team
- “Marketplace of Connected Minds” enriches the learning experience of employees

The concept of life-long learning is central to career development at BASF. By constantly developing and improving specific capabilities of employees, BASF is able to meet its own business needs while improving employees’ satisfaction and commitment.

Leaders are role models and key to leading the team to realize business targets. In June 2016, BASF rolled out the “New Leader Program” in Greater China, a two-year global leadership development program with several modules. Coupled with feedback loops, it will equip the new leaders with essential knowledge and skills to motivate people, manage resources and build a high-performing team.

In 2016, BASF also revamped its “Leadership Excellence Acceleration Program” to meet changing business demands. The Greater China Development Center also added new coaching.



Learning from each other enriches employees’ career experiences in BASF.

features such as an intensive schedule and online self-help guidance.

In 2016, the “Marketplace of Connected Minds” program was successfully held again in Shanghai. The program enriched the learning experience of employees and helped them acquire a deeper insight into the organization. Participants from across the Asia Pacific region came together to exchange thoughts in various breakout sessions and townhall discussions.

For the seventh consecutive year, BASF has been recognized as one of China’s Top Employers by the Top Employers Institute, one of the world’s leading research institutions in the field of human resources, leadership and strategy. BASF was also awarded “China’s Employer Excellence 2016” by 51job.com for the seventh year, and additionally acknowledged in the category “Excellence in Employee Care Plan” for its “Compelling Total Offer”.



**Working at BASF**

- Support for personal and professional life
- Promote sports and health

BASF strives to create a workplace to meet employees’ needs of both personal and professional life. The company constantly reviews working conditions at both office and production sites to ensure a safe, convenient and pleasant working environment.

BASF’s Joint Trade Union supports employees by nurturing a harmonious and enjoyable working environment. As part of a program dedicated to different phases of motherhood for female employees, nursing rooms were set up for new mothers at several BASF sites in Greater China. Focusing on “sports and health” this year, the Union held the fifth BASF Sports Day in 2016 in Shanghai, attracting more than 3,000 employees and their families from 13 locations throughout the city. A group of “BASF little journalists”, made up of employees’ kids, were active on site for real-time reporting.

Since its launch in mainland China, BASF’s “Employee Assistance Program” (EAP) has been offering psychological and emotional support to employees and their direct family members. They can call a round-the-clock hotline answered by external qualified psychotherapists and treated with strict confidentiality.



Employees collaborate and compete on BASF Sports Day.

In 2016, a wide variety of EAP workshops were held at BASF locations in mainland China including topics of “Communicating with your Supervisors”, “Inner Energy for Fighting Workplace Burnout”, “Simplifying Complicated Work”. These workshops aim towards a harmonious and healthy working environment for better job satisfaction and life quality of the employees. In Taiwan, the program also provides legal, financial and medical counseling in addition to psychological consultation.

**Diversity + Inclusion**

- Inclusion of diversity – a key component for business success
- Equal opportunities to all employees



BASF attracts people from diverse background to work under one roof.

The inclusion of diversity is an important component of BASF’s strategic human resources management. It helps to continuously improve the team’s performance and power of innovation, and increases creativity, motivation and identification with the company – and ultimately to attract and retain the best people. Employees are offered equal opportunities at BASF regardless of gender, race, and age. In 2016, the largest proportion (62.2%) of employees at BASF in China was in the 26-39 year old range (2015: 62.3%).

**BASF employee age structure**  
(Proportion of employees %)

1	Up to and including 25 years	5.9
2	Between 26 and 39 years	62.2
3	Between 40 and 54 years	29.4
4	55 years and older	2.4



**Compliance**

- BASF expects strong commitment to laws, labor standards and business ethics
- Global Policy for Antitrust Compliance effective as of December 1, 2016

Compliance with national laws and the core labor standards of the International Labor Organization forms the basis of BASF’s operations around the world and in Greater China. Commitment to the highest standards of legal compliance and business ethics runs deeply through the entire organization, as every employee is an ambassador for the company. To this end, the BASF Code of Conduct summarizes important laws and corporate policies that govern the behavior of all BASF employees in their dealings with business partners, officials, other employees and society. BASF’s Chief Compliance Officer manages the implementation of the company’s Compliance Management System, supported by 104 compliance officers worldwide, including the three in Greater China. Employees in Greater China regularly receive a mandatory compliance training.

BASF particularly encourages its employees to actively and promptly seek guidance on compliance issues if in doubt. For this, they can consult not only their managers but also dedicated specialist departments and company compliance officers. The company has also set up 56 external hotlines worldwide, including in Greater China, which employees can turn to anonymously. Through these means, we ensure that all concerns are processed and answered within a short period of time.

On November 15, 2016, the BASF Board of Executive Directors approved the global Policy for Antitrust Compliance which took effect on December 1, 2016. The new global policy is designed to make both management and employees aware of the basic antitrust law rules and to provide guidance to make the right choices when making commercial decisions.



The BASF Code of Conduct defines the behavior of all BASF employees in their dealings with business partners, officials, other employees and society.

## Occupational health & safety

### Occupational health

- Global standards for occupational health management
- Global health campaign in 2016 focused on heart attack and stroke prevention

BASF's worldwide standards for occupational medicine and health protection are specified in a directive that is implemented by a global network of experts. Supported by numerous emergency drills and health promotion measures in 2016, its health management system promotes and maintains the health and productivity of its employees.

BASF measures its performance in health protection using the Health Performance Index (HPI). The HPI is composed of five components: recognized occupational diseases, medical emergency planning, first aid, preventive medicine and health promotion. Each component contributes a maximum of 0.2 to the total score. The highest possible score is 1.0. By fulfilling its goal to reach a value of more than 0.9 every year, BASF achieved an HPI of 0.96 (2015: 0.97) in 2016.

BASF's 2016 global Health Campaign for employees centered on heart attack and stroke prevention. Employees in Greater China filled out questionnaires to obtain a self-evaluation of their heart age and the risk of heart attack and stroke. The campaign also offered tailored recommendations for individual risk factors and employees were encouraged to contact with a physician in the case of increased risks. It complemented the regular BASF health check which is offered to employees at regular intervals and forms the foundation of its global health promotion programs. The 2017 BASF global health campaign will focus on the lungs and respirator system.

For more on occupational medicine, health promotion campaigns and the HPI, see [basf.com/health](http://basf.com/health).



The five components of the BASF Health Performance Index.



The global Health Campaign of BASF in 2016 allowed its employees to test their heart ages.

### Occupational safety

- Safety management for both employees and contractors
- Cultivating a safety culture at workplace

With safety as its priority, BASF works continuously to maintain safe working conditions for both employees and contractors by systematic risk assessments, comprehensive preventive measures as well as the cultivation of a safety culture at the workplace.

In order to identify workplace risks and develop effective measures of prevention or control, risk-conscious working behaviors have been promoted for every individual through systematic hazard assessment tools, such as the "Permit to Work" system for non-routine tasks.

In line with its global safety initiative, BASF has been cultivating a safety culture through various campaigns. Under the main themes of "Permit to Work" and "Information Protection", the company held its 2016 "Global Safety Days" with activities at nearly all of its sites or offices in Greater China, hosting thousands of employees and contractors. Another program, "Safety Champion", was rolled out at all sites in the region, to further improve safety awareness and share best practices.



BASF cultivates a safety culture at workplace for the welfare of its employees and contractors.

All employees including leasing and contractor staff in Greater China are encouraged to openly report any incident in the regional "Accident & Incident Management System", including input about the root causes and corrective actions. Every critical incident is shared monthly among all site Responsible Care Managers, while a monthly "lessons learned" is distributed to all sites.

Safety management for contractors has been enhanced through a new project-contractor pool including environment, health and safety prequalification as well as performance assessment. In particular, supervision of site safety has been consolidated to improve contractors' safety behaviors.

BASF has made its goal to reduce its worldwide lost-time injury rate per one million working hours to 0.5 at most by 2025. At its Greater China sites, the lost-time injury rate per one million working hours for BASF own and leased employees

was 0.5 in 2016, the same as in 2015. The work-related lost-time injury rate for contractors was 0.4 in 2016, higher than in the previous year (2015: 0.3). Unfortunately, one contractor experienced a fatal accident in Kuanyin, Taiwan in 2016.

Lost time injury rate - BASF employees and leased personnel (per million working hours)

2016	0.5
2015	0.5
2014	0.4

Fatalities (total)

2016	1
2015	1
2014	0

Lost time injury rate - contractors (per million working hours)

2016	0.4
2015	0.3
2014	0.6

**2025 Goal**  
Reducing worldwide lost time injury rate per million working hours to **0.5** at most

## Social commitment

**In Greater China, BASF is strengthening its social engagement through a variety of activities. With the United Nations' Sustainable Development Goals (SDGs) as its guiding principles, BASF continues its commitment to enabling a better community for its neighbors, employees and their families where it operates.**

### Social activities around production sites

- **Community Advisory Panels support open dialog**
- **Collaboration with local authorities on community development**

Through a variety of corporate social initiatives, BASF is reaching out to communities around its production sites in Greater China to support their development.

Community Advisory Panels (CAPs), primarily set up at larger production sites and consisting of residents from the neighboring community, enable open and transparent dialog between citizens and plant management. BASF supports CAPs in Shanghai, Nanjing, Chongqing and Taiwan among its other CAPs worldwide .



**New CAP members in Chongqing receive certificates of appointment from the site's General Manager.**

After successful operation of the CAP for five years, the second-term of BASF's Chongqing CAP was officially formed at the end of 2016. Two-thirds of its 16 members were newly selected from over 200 community applicants by the panel consisting of representatives from the first-term of CAP members, Yanjia Neighborhood Committee and BASF. The new CAP members represent community members from diverse age groups and educational backgrounds.

BASF-YPC CO. Ltd. (BASF-YPC), the joint venture Verbund site of BASF and SINOPEC in Nanjing, held its annual environmental impact dialog session in 2016, inviting delegates from the neighboring community, officials from local authorities and environmental experts. During the session, participants exchanged opinions on topics about environmental protection and deepening communication between BASF-YPC and its nearby community.



**BASF-YPC hosts an annual environmental impact dialog session with the neighboring community.**

BASF is working closely with governmental authorities for development of the local communities. At its Pudong site in Shanghai, the company hosted the leadership team of the nearby Gaoqiao County, introducing advanced operations and technologies to the representatives. Under a new cooperation agreement with nearby Beixin Village and Xixin Village, BASF has been supporting residents in the key issues of community development. Villagers were also invited to activities such as BASF Kids' Lab. In 2016, 60 children from the two villages attended Kids' Lab and participated in a tour of the newly expanded BASF Innovation Campus Asia Pacific (Shanghai).

BASF works with communities to prepare for potential risks. For example, in 2016 a BASF site in Shanghai Chemical Industry Park (SCIP) participated in a desktop drill to examine the emergency response system of the park and interaction with the authorities.

Connecting with young members of the community is a key approach of BASF's educational projects. To cultivate interest in chemistry among the next generation, BASF invited EnviroFriends, a local NGO in Chongqing, to give a lecture to students of the nearby Yanjia Middle School



**Gaoqiao government officials visit Shanghai Pudong site to learn about BASF's operation.**

on how to make soap and washing powder from recycled kitchen waste.

Close to Eastern China University of Science & Technology (ECUST), a BASF site in SCIP shared its experience in lab safety with teachers and students of the university. Design and facility maintenance of firefighting were presented to the attendees together with information about environment, health and safety.

In 2016, BASF Care Chemicals (Shanghai) Co. Ltd. held a family open day for its employees who live in the neighboring community. Under the theme "Connected to build a better community", it helped employees and their families to understand BASF, the products produced at the



**Representatives of Shanghai Caojing site share their experience in lab safety with students and professors of ECUST.**

site, and safety programs at the site. The event consisted of a site tour and an experiment for kids about the site's main product – surfactants.

Following the inauguration of a new PolyTHF® plant in July 2016, the Korla site in Xinjiang Uygur Autonomous Region hosted its first Family Open Day in October 2016. At the event, the team shared information about chemistry, the history of BASF, the product PolyTHF and its applications. The event helped employees and their families understand chemistry and workplace safety procedures. It also cultivated interest in chemistry among the children of employees through various interactive sessions.



**During the Family Open Day at Korla site, an employee explains to her son the daily safety operations of the site.**

### The magic of chemistry at Kids' Lab

- More than 10,000 children participated in Greater China in 2016
- Launch of Virtual Kids' Lab

Since its launch in 1997 in Germany, BASF Kids' Lab has been offering interactive, safe and free-of-charge chemical experiment sessions for children aged six to twelve. Guided by volunteer instructors on site, the young participants can experience the magic of chemistry, and understand its contribution to environmental protection and better quality of life. As a scientific education activity with growing popularity, BASF Kids' Lab has attracted participants from 30 countries.



The newly launched platform Virtual Kids' Lab allows children to conduct experiments online.



At Kids' Lab, young participants learn sustainable ways to use plastics in their daily lives.



Two journalists act as on-site volunteers at 2016 Kids' Lab in Shanghai.

Since its inception in 2002 in Greater China, about 170,000 children have participated in this annual program in Shanghai, Beijing, Chongqing, Taipei, Kaohsiung and Hong Kong. In addition, "Experiment party" as a new form of Kids' Lab was held for the first time in Guangzhou in 2016. BASF partners with local science and technology museums in these cities to reach a broader audience. Overall, 10,139 children participated in China in 2016.

Two new experiments, Poly Lab and Washing Lab, were introduced last year. At Poly Lab, children can learn various separation methods for plastics recycling, and how renewable resources such as corn starch are used in making plastics. Washing Lab shows the magic of surfactants in laundry detergents, along with tricks for softening clothes and preventing discoloration. The online platform Virtual Kids' Lab was newly launched in 2016, offering children the opportunity to participate in the classic programs at home all year long.

### Kids' Lab in Greater China: Milestones

**2002:** Launched in Beijing, the first Kids' Lab outside Germany

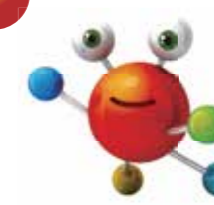
**2007-2009:** Included in the five-city tour "Germany and China, Moving Ahead Together"

**2010:** Presence at Shanghai EXPO

**2011:** Tenth Anniversary of its entry into China

**2013:** Start of annual summer sessions in Chongqing

**2016:** New "Experiment party" launched in Guangzhou



### BASF Taiwan Volunteer Club

- Completion of Kindgarden expansion project
- Career exploration camp to inspire vocational interest of underprivileged students

The BASF Taiwan Volunteer Club is dedicated to environmental protection initiatives and support for neighboring communities.

Near the company's Kuanyin site, the social welfare organization Kindgarden was expanded in August 2016. Home to people with intellectual disabilities, the organization now has a new energy-efficient dormitory to host more of those in need, as a result of the Volunteer Club's public fundraising efforts and donation of BASF construction materials. The Volunteer Club also built a recycling system for waste water and an automatic watering equipment system for lawn irrigation inside Kindgarden.

Together with Hsiuping Education Foundation, the Volunteer Club held a two-day "Career exploration camp" for about 25 middle school students from underprivileged families



Members of BASF Taiwan Volunteer Club support the "Career exploration camp" for underprivileged students.

in Chia Yi County. Students were encouraged to explore their vocational interests by getting to know occupations as drivers, engineers, social workers and fashion designers.

### Stakeholder dialog with NGOs

- Annual stakeholder dialog session in Shanghai

To enhance mutual understanding with key stakeholders in Greater China, BASF conducts dialog events on a regular basis. In October 2016, representatives from 12 Chinese environmental and educational non-governmental organizations (NGOs) across the country were invited to BASF for its annual event in Shanghai.

Highlighting the topic of soil protection and redemption, BASF executives and experts exchanged their views and shared experiences in the identification and treatment of soil contamination with NGOs. Participants were also engaged in a set of hands-on chemical experiments, an immersive tour at Design Center Asia Pacific and interactive demonstrations of BASF solutions.



A NGO representative conducts an experiment during the 2016 stakeholder dialog session.

## Ten-year summary

Million €	2007	2008	2009	2010	2011	2012 <sup>1</sup>	2013 <sup>2</sup>	2014	2015	2016
<b>Sales and earnings</b>										
Sales	57,951	62,304	50,693	63,873	73,497	72,129	73,973	74,326	70,449	57,550
Income from operations (EBIT)	7,316	6,463	3,677	7,761	8,586	6,742	7,160	7,626	6,248	6,275
Income before taxes	6,935	5,976	3,079	7,373	8,970	5,977	6,600	7,203	5,548	5,395
Income before minority interests	4,325	3,305	1,655	5,074	6,603	5,067	5,113	5,492	4,301	4,255
Net income	4,065	2,912	1,410	4,557	6,188	4,819	4,792	5,155	3,987	4,056
Income from operations before depreciation and amortization (EBITDA)	10,225	9,562	7,388	11,131	11,993	10,009	10,432	11,043	10,649	10,526
EBIT before special items	7,614	6,856	4,852	8,138	8,447	6,647	7,077	7,357	6,739	6,309
EBIT after cost of capital	2,895	1,621	(226)	3,500	2,551	1,164	1,768	1,368	194	1,136
<b>Capital expenditures, depreciation and amortization</b>										
Additions to property, plant and equipment and intangible assets	4,425	3,634	5,972	5,304	3,646	5,263	7,726	7,285	6,013	7,258
Thereof property, plant and equipment	2,564	2,809	4,126	3,294	3,199	4,084	6,428	6,369	5,742	4,377
Depreciation and amortization of property, plant and equipment and intangible assets	2,909	3,099	3,711	3,370	3,407	3,267	3,272	3,417	4,401	4,251
Thereof property, plant and equipment	2,294	2,481	2,614	2,667	2,618	2,594	2,631	2,770	3,600	3,691
<b>Number of employees</b>										
At year-end	95,175	96,924	104,779	109,140	111,141	110,782	112,206	113,292	112,435	113,830
Annual average	94,893	95,885	103,612	104,043	110,403	109,969	111,844	112,644	113,249	111,975
<b>Personnel expenses</b>										
	6,648	6,364	7,107	8,228	8,576	8,963	9,285	9,224	9,982	10,165
<b>Research and development expenses</b>										
	1,380	1,355	1,398	1,492	1,605	1,732	1,849	1,884	1,953	1,863
<b>Key data</b>										
Earnings per share <sup>3</sup>	€ 4.16	3.13	1.54	4.96	6.74	5.25	5.22	5.61	4.34	4.42
Cash provided by operating activities <sup>4</sup>	5,807	5,023	5,693	6,460	7,105	6,602	8,100	6,958	9,446	7,717
EBITDA margin	% 17.6	15.3	14.6	17.4	16.3	13.9	14.1	14.9	15.1	18.3
Return on assets	% 16.4	13.5	7.5	14.7	16.1	11.0	11.5	11.7	8.7	8.2
Return on equity after tax	% 22.4	17.0	8.9	24.6	27.5	19.9	19.2	19.7	14.4	13.3
<b>Appropriation of profits</b>										
Net income of BASF SE <sup>5</sup>	2,267	2,982	2,176	3,737	3,506	2,880	2,826	5,853	2,158	2,808
Dividend	1,831	1,791	1,561	2,021	2,296	2,388	2,480	2,572	2,664	2,755
Dividend per share <sup>3</sup>	€ 1.95	1.95	1.70	2.20	2.50	2.60	2.70	2.80	2.90	3.00
<b>Number of shares as of December 31<sup>3,6</sup></b>										
	million	956.4	918.5	918.5	918.5	918.5	918.5	918.5	918.5	918.5

<sup>1</sup> We have applied International Reporting Standards IFRS 10 and 11 as well as International Accounting Standard 19 (revised) since January 1, 2013. Figures for 2012 have been restated; no restatement was made for 2011 and earlier.

<sup>2</sup> Figures for 2013 have been adjusted to reflect the dissolution of the natural gas trading business disposal group.

<sup>3</sup> We conducted a two-for-one stock split in the second quarter of 2008. The previous year's figures for earnings per share, dividend per share and number of shares have been adjusted accordingly for purposes of comparison.

<sup>4</sup> Includes the change in reporting from 2009 onward of the effects of regular extensions of U.S. dollar hedging transactions

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

<sup>6</sup> After deduction of repurchased shares earmarked for cancellation

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