Business Review by Segment

Segment overview

Million €

	Sales		Income from operations before depreciation and amortization (EBITDA)		Income from operations (EBIT) before special items	
	2018	**2017**	**2018**	**2017**	**2018**	**2017**
Chemicals	16,501	16,331	4,432	5,374	3,386	4,233
Performance Products	15,812	16,217	2,205	2,427	1,376	1,416
Functional Materials & Solutions	21,435	20,745	1,917	2,251	1,307	1,617
Agricultural Solutions	6,156	5,696	985	1,282	734	1,033
Other	2,771	2,234	(373)	(569)	(450)	(654)
BASF Group	**62,675**	**61,223**	**9,166**	**10,765**	**6,353**	**7,645**

Segment overview

Million €

	Income from operations (EBIT)		Assets		Investments including acquisitions[1]	
	2018	**2017**	**2018**	**2017**	**2018**	**2017**
Chemicals	3,360	4,208	13,264	13,233	1,325	1,149
Performance Products	1,338	1,510	14,903	14,432	765	800
Functional Materials & Solutions	1,235	1,545	17,654	17,364	872	1,056
Agricultural Solutions	591	1,015	16,992	8,096	7,110	185
Other	(491)	(691)	23,743	25,643	663	1,174
BASF Group	**6,033**	**7,587**	**86,556**	**78,768**	**10,735**	**4,364**

1 Additions to property, plant and equipment (of which from acquisitions: €1,425 million in 2018 and €8 million in 2017) and intangible assets (of which from acquisitions: €5,540 million in 2018 and €235 million in 2017)

Contributions to total sales by segment

Chemicals	26%
Performance Products	25%
Functional Materials & Solutions	34%
Agricultural Solutions	10%
Other	5%

Contributions to EBITDA by segment

Chemicals	48%
Performance Products	24%
Functional Materials & Solutions	21%
Agricultural Solutions	11%
Other	(4%)

Sales[1]

Million €

	Q1		Q2		Q3		Q4	
	2018	2017	2018	2017	2018	2017	2018	2017
Chemicals	4,286	4,105	4,132	4,045	4,309	4,023	3,774	4,158
Performance Products	3,991	4,260	3,949	4,142	3,989	3,983	3,883	3,832
Functional Materials & Solutions	5,139	5,198	5,540	5,261	5,238	4,975	5,518	5,311
Agricultural Solutions	1,728	1,855	1,501	1,526	1,243	987	1,684	1,328
Other	556	609	661	475	827	548	727	602
BASF Group	**15,700**	**16,027**	**15,783**	**15,449**	**15,606**	**14,516**	**15,586**	**15,231**

Income from operations (EBIT) before special items[1]

Million €

	Q1		Q2		Q3		Q4	
	2018	2017	2018	2017	2018	2017	2018	2017
Chemicals	1,134	958	1,074	1,120	851	1,102	327	1,053
Performance Products	470	515	409	405	360	385	137	111
Functional Materials & Solutions	333	531	338	422	347	397	289	267
Agricultural Solutions	423	533	278	272	(5)	21	38	207
Other	(79)	(239)	(127)	(99)	(83)	(203)	(161)	(113)
BASF Group	**2,281**	**2,298**	**1,972**	**2,120**	**1,470**	**1,702**	**630**	**1,525**

Income from operations (EBIT)[1]

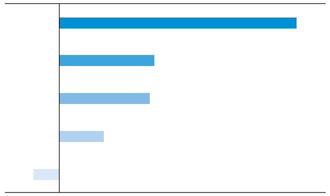
Million €

	Q1		Q2		Q3		Q4	
	2018	2017	2018	2017	2018	2017	2018	2017
Chemicals	1,126	974	1,064	1,119	846	1,089	324	1,026
Performance Products	482	499	402	363	348	567	106	81
Functional Materials & Solutions	325	521	326	427	337	357	247	240
Agricultural Solutions	417	531	259	270	(39)	20	(46)	194
Other	(87)	(233)	(145)	(129)	(97)	(209)	(162)	(120)
BASF Group	**2,263**	**2,292**	**1,906**	**2,050**	**1,395**	**1,824**	**469**	**1,421**

1 Quarterly results not audited

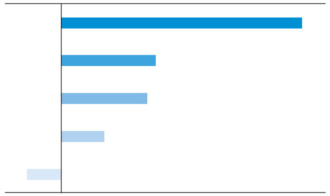
Contributions to EBIT before special items by segment

Chemicals	53%
Performance Products	22%
Functional Materials & Solutions	21%
Agricultural Solutions	11%
Other	(7%)



Contributions to EBIT by segment

Chemicals	56%
Performance Products	22%
Functional Materials & Solutions	20%
Agricultural Solutions	10%
Other	(8%)



Chemicals

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

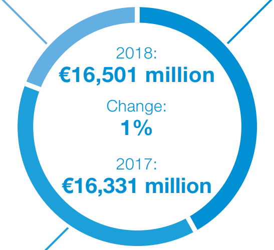
Divisions

Petrochemicals
Broad range of basic products for sectors such as the chemical and plastics industries

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

Intermediates
Most comprehensive intermediates portfolio in the world, including precursors for coatings, plastics, textile fibers and crop protection products

Sales



Factors influencing sales

Volumes	(1%)
Prices	4%
Portfolio	0%
Currencies	(2%)
Sales	**1%**

Income from operations before special items

Million €	
2018	**3,386**
2017	4,233

Change: **–€847 million**

How we create value – an example

Biomass balance approach for methanol

Fossil resource-saving process expanded

Value for BASF

Annual volume of relevant market in Europe

20.5 million
metric tons

Value for the environment

≥50% lower greenhouse gas emissions

Since 2013, BASF has used the biomass balance approach to promote the use of sustainably produced renewable raw materials in the integrated Production Verbund by replacing fossil feedstock with biogas or bio-naphtha at the very beginning of the value chain. BASF has produced methanol according to the biomass balance approach since 2018. This methanol is certified according to the EU-RedCert standard. Methanol is an important raw material for many products in different value chains. Potential applications are biofuels and fuel additives. The European market for methyl-tert-butylether (MTBE), a fuel additive manufactured from methanol, has an annual volume of 20.5 million metric tons.

Biomass balance products actively contribute to saving fossil raw materials and in this way, help reduce greenhouse gas emissions. For instance, using renewable feedstock in the methanol production process reduces climate-damaging greenhouse gas emissions by at least 50% compared with conventionally produced methanol. For the methanol certified according to the EU-RedCert standard, BASF completely replaces fossil methane with biomethane made from waste and residual materials.

Strategy

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

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

We invest in research and development to develop new technologies and to make our existing technologies even more efficient. Cost leadership and a clear orientation along individual value chains are among our most important competitive advantages. We concentrate on the critical success factors of the classic chemicals business: leveraging economies of scale and the advantages of our Verbund, high capacity utilization, continuous optimization of access to raw materials, lean and energy efficient processes – including reducing greenhouse gas emissions – and reliable, cost-effective logistics. Furthermore, we are constantly improving our global production structures and aligning these with regional market requirements.

We plan to build an integrated Verbund chemical production site in Zhanjiang in the southern Chinese province of Guangdong. A non-binding Memorandum of Understanding was signed in July 2018. At the new site, we intend to implement a comprehensive smart manufacturing concept based on implementing cutting-edge digital technologies within the plants.

BASF and Sinopec, Beijing, signed a Memorandum of Understanding in October to further strengthen their partnership in chemical production in China. The partners intend to build an additional steam cracker and to further expand their existing 50:50 joint venture, BASF-YPC Company Limited, at our Verbund site in Nanjing.

To support the growing demand for acrylic monomers in Asia Pacific, BASF PETRONAS Chemicals is looking into expanding the production capacity of its acrylic acid plant and butyl acrylate plants at our Verbund site in Kuantan, Malaysia.

At our Verbund site in Antwerp, Belgium, we are planning a significant capacity expansion of the integrated ethylene oxide complex. The project also includes several downstream derivatives, such as surfactants.

In Ludwigshafen, Germany, we will strengthen our Verbund by replacing our acetylene plant with a modern highly efficient plant by the end of 2019.

The new MDI synthesis unit in Geismar, Louisiana, is a major milestone toward increasing MDI production capacity in North America. This investment supports the growth of our MDI customers in the North American market.

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's integrated polyamide business.

For more information on the current status of the agreement with Solvay, see page 42

Products, customers and applications

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

Investments

Location	Project	Additional annual capacity through expansion (metric tons)	Total annual capacity (metric tons)	Startup
Freeport, Texas	Construction: ammonia plant[1]		750,000	2018
Geismar, Louisiana	Construction: MDI synthesis unit	n/a	300,000	2020
Ludwigshafen, Germany	Replacement: acetylene plant	n/a	90,000	2019
Nanjing, China	Construction: specialty amines plant	21,000	n/a	2019
	Expansion: propionic acid plant[2]	30,000	69,000	2019

1 Operated by an associated company with Yara International ASA
2 Operated by a joint venture with Sinopec

Production capacities of significant products[1]

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

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

Segment data – Chemicals

Million €

		2018	2017	+/–
Sales to third parties		16,501	16,331	1%
of which Petrochemicals		6,904	6,389	8%
Monomers		6,464	6,963	(7%)
Intermediates		3,133	2,979	5%
Intersegment transfers		6,105	6,063	1%
Sales including intersegment transfers		22,606	22,394	1%
Income from operations before depreciation and amortization (EBITDA)		4,432	5,374	(18%)
EBITDA margin	%	26.9	32.9	–
Depreciation and amortization[1]		1,072	1,166	(8%)
Income from operations (EBIT)		3,360	4,208	(20%)
Special items		(26)	(25)	(4%)
EBIT before special items		3,386	4,233	(20%)
EBIT after cost of capital		2,030	2,895	(30%)
Assets		13,264	13,233	0%
Investments including acquisitions[2]		1,325	1,149	15%
Research and development expenses		129	128	1%

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Chemicals segment

- **Sales growth of 1% to €16,501 million due to higher prices**
- **EBIT before special items declines 20% to €3,386 million primarily as a result of lower margins, impacted by low water level of Rhine River**

At €16,501 million, sales to third parties in the Chemicals segment in 2018 were €170 million above the prior-year figure (volumes –1%, prices 4%, portfolio 0%, currencies –2%). This was due to higher prices overall in all divisions, especially in Petrochemicals. By contrast, the Monomers division saw a decrease in isocyanate prices. Currency effects had a negative impact on sales. Sales volumes were also slightly below the prior-year level. We increased volumes overall in the Petrochemicals and Intermediates divisions despite the low water levels on the Rhine River, while sales volumes declined considerably in the Monomers division.

Income from operations (EBIT) before special items declined by €847 million to €3,386 million. This was mainly attributable to lower margins for isocyanates in the Monomers division and steam cracker products in the Petrochemicals division. Stronger margins in the Intermediates division were unable to compensate for this. Plant shutdowns and the low water levels on the Rhine River in the second half of 2018 also contributed to the decline in earnings. EBIT declined by €848 million to €3,360 million. Overall, special items did not have a substantial impact.

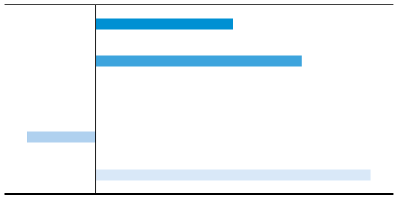
Petrochemicals

- **Sales rise 8% to €6,904 million due to higher prices and volumes**
- **Considerable decline in EBIT before special items attributable to lower margins, higher fixed costs and low water level of Rhine River**

The Petrochemicals division increased sales to third parties by €515 million to €6,904 million in 2018. This was mainly due to significantly higher sales prices. These rose in all regions and business areas, largely following the higher raw materials prices for naphtha and butane, our most important feedstock. We also increased volumes. In Europe, sales volumes were slightly higher than in the previous year, as the supply of raw materials through the North Harbor and thus production in Ludwigshafen, Germany, was severely restricted in 2017. However, the low water levels on the Rhine River in the third and fourth quarters of 2018 led to significant production limitations. Volumes rose in North America, mainly as a result of higher capacity utilization of the condensate splitter in Port Arthur, Texas. Sales were dampened by currency effects.

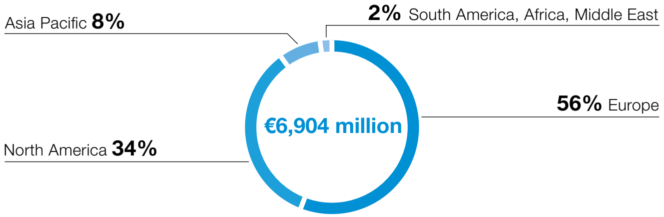
Petrochemicals – Factors influencing sales

Volumes	4%
Prices	6%
Portfolio	0%
Currencies	(2%)
Sales	**8%**



Petrochemicals – Sales by region

Location of customer



EBIT before special items declined considerably. Compared with the very strong prior-year level, margins decreased significantly over the course of the year, especially for steam cracker products. This was due to higher market supply as a result of new capacities in the market, particularly in North America. Fixed costs increased. In the previous year, we received significantly higher insurance refunds; in addition, maintenance expenses were up from the 2017 figure. The low water levels on the Rhine River was a significant contributor to the decline in earnings.

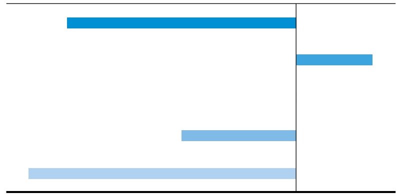
Monomers

- **Sales down 7% to €6,464 million as a result of lower volumes and negative currency effects**
- **Considerable decline in EBIT before special items largely from lower margins and volumes in the isocyanates business**

Sales to third parties in the Monomers division decreased by €499 million to €6,464 million in 2018 due to lower volumes and negative currency effects. Sales volumes declined year on year as a result of higher market supply and the low water levels on the Rhine River. Overall, prices were above the prior-year level. Higher prices for polyamides in particular compensated for the price decrease in the isocyanates business on the back of higher market supply.

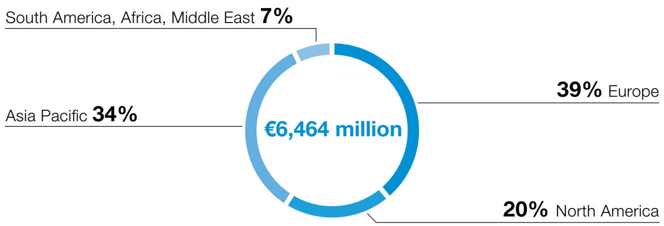
Monomers – Factors influencing sales

Volumes	(6%)
Prices	2%
Portfolio	0%
Currencies	(3%)
Sales	**(7%)**



Monomers – Sales by region

Location of customer



The considerable year-on-year decline in EBIT before special items in the Monomers division was primarily attributable to the lower margins and volumes in the isocyanates business. Earnings development in the fourth quarter of 2018 was also negatively impacted by the low water levels on the Rhine River. The restructuring of our caprolactam production in Europe and reduced fixed costs, mainly owing to lower impairments, had a positive effect on earnings.

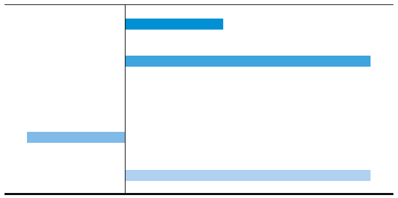
Intermediates

- **Sales increase of 5% to €3,133 million largely driven by higher prices**
- **EBIT before special items slightly above the prior-year level due to margin and volumes growth**

The Intermediates division increased sales to third parties by €154 million year on year to €3,133 million, primarily due to higher prices. We were able to increase prices, particularly in the acids and polyalcohols business in all regions. Prices for butanediol and derivatives rose as well, especially in Europe and North America. We also increased sales volumes in 2018 – across the entire portfolio in Asia and above all in the amines and butanediol and derivatives businesses in North America. Currency effects had a negative impact on sales.

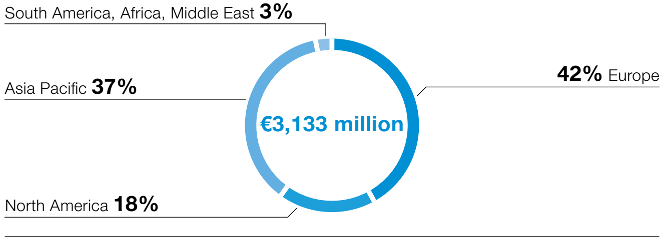
Intermediates – Factors influencing sales

Volumes	2%
Prices	5%
Portfolio	0%
Currencies	(2%)
Sales	**5%**



Intermediates – Sales by region

Location of customer



EBIT before special items rose slightly compared with the previous year as a result of improved margins and volumes growth. This was partly offset by higher fixed costs, mostly from plant shutdowns.

The construction of the new acetylene plant in Ludwigshafen, Germany, is progressing according to schedule, with startup planned by the end of 2019.

Performance Products

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

Divisions

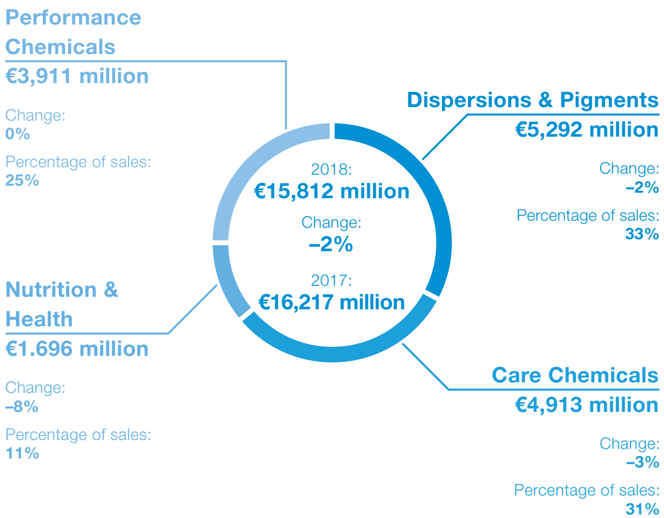
Dispersions & Pigments
Raw materials used to formulate products in the coating, construction, paper, adhesives, printing and packaging, plastics and electronic industries

Care Chemicals
Ingredients for the cosmetics, detergent and cleaner industries, agrochemical and technical applications and the hygiene industry

Nutrition & Health
Products for the food and feed industries, the flavor and fragrance industry, the pharmaceutical industry and the ethanol industry

Performance Chemicals
Customized products for many sectors, from mining and the fuel industry to plastics processing

Sales



Factors influencing sales

Volumes	(2%)
Prices	4%
Portfolio	(1%)
Currencies	(3%)
Sales	**(2%)**

Income from operations before special items

Million €	
2018	**1,376**
2017	1,416

Change: **–€40 million**

Strategy

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

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

Our products create additional value for our customers, providing a competitive advantage. We develop new solutions together with our customers and strive for long-term partnerships that create profitable growth opportunities for both sides.

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

We support our customers by serving as a reliable supplier with consistently high product quality, good value for money and lean processes. Our in-depth knowledge of the areas of application and technological innovations strengthen our customer relationships in key industries.

How we create value – an example

Hepaxa™

First-to-the-world dietary management product for patients with non-alcoholic fatty liver disease

Value for BASF

Annual sales potential of

around **€45 million**

Value for customers

Reduction of fat in the liver of

up to **44%**

Hepaxa™ is a breakthrough in the nutritional support of non-alcoholic fatty liver disease (NAFLD), one of the most common forms of chronic liver disease worldwide and can help tens of millions of patients manage NAFLD. Providing highly concentrated and pure eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), Hepaxa™, which was launched in the United States, is the first product in the world specifically designed to address a build-up of fat in the liver, known as steatosis, in NAFLD patients. We expect an annual sales potential with Hepaxa™ of around €45 million over the medium term.

NAFLD has become a disease of public health significance affecting both adults and children. It has been shown that patients with NAFLD have reduced levels of EPA and DHA. Hepaxa™ helps address a patient's distinct nutritional requirement for such omega-3 long chain polyunsaturated fatty acids. A BASF product-specific clinical trial has shown that Hepaxa™ is safe and effective in the dietary management of steatosis in patients with NAFLD. Patients in the trial showed reductions of fat of up to 44% in the liver after placebo correction.

We plan to increase global production capacities for the antioxidant Irganox® 1010 by 40% at our sites in Jurong, Singapore, and Kaisten, Switzerland. Once the projects are complete – in 2019 in Kaisten and early 2021 in Jurong – BASF wants to even better meet the growing demand from customers in Asia and Europe, the Middle East and Africa at its regional distribution centers. We are expanding our existing ibuprofen production capacities in Bishop, Texas, and started construction of a new world-scale ibuprofen plant in Ludwigshafen, Germany, which is scheduled for startup in 2022. To reliably meet the growing demand for high quality dispersions solutions in the ASEAN countries, Australia and New Zealand, we plan to double the production capacity for acrylics dispersions in Pasir Gudang, Malaysia. The additional capacities are planned to be operational in 2020.

On May 3, 2018, BASF and Solenis announced that they had signed an agreement on the combination of BASF's paper and water chemicals business with Solenis. BASF and Solenis closed the transaction on January 31, 2019.

For more information, see Events after the reporting period on page 122

Products, customers and applications

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

Production capacities of significant products[1]

	Sites				
Product	Europe	North America	Asia Pacific	South America, Africa, Middle East	Annual capacity (metric tons)
Anionic surfactants	■	■	■	■	600,000
Citral	■		■		78,000
Chelating agents	■	■		■	170,000
Methane sulfonic acid	■				30,000
Nonionic surfactants	■	■	■		635,000
Polyisobutene	■		■		265,000
Superabsorbents	■	■	■	■	590,000

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

Investments

Location	Project	Startup
Antwerp, Belgium	Gradual capacity expansion: alkoxylates	2018–2021
Bishop, Texas	Capacity expansion: production plant for ibuprofen	2019
Düsseldorf, Germany	Gradual upgrade of production plants in accordance with the Good Manufacturing Practice Standard issued by the European Federation for Cosmetic Ingredients (EFfCI)	2022
Jiaxing, China	Construction: production plant for electronic-grade sulfuric acid	2018
Jurong, Singapore	Capacity expansion: antioxidants (Irganox®)	2021
Kaisten, Switzerland	Capacity expansion: antioxidants (Irganox®)	2019
Kuantan, Malaysia	Construction: aroma ingredients complex	2017/2018
Ludwigshafen, Germany	Expansion: production plant for dispersions	2018
	Construction: production plant for vitamin A	2020
	Construction: production plant for ibuprofen	2022
Nanjing, China	Capacity expansion: polyacrylamide plant	2018
Pasir Gudang, Malaysia	Capacity expansion: production plant for acrylics dispersions	2020
Shanghai, China	Construction: production plant for plastic additives	2019

Segment data – Performance Products

Million €

		2018	2017	+/–
Sales to third parties		15,812	16,217	(2%)
of which Dispersions & Pigments		5,292	5,398	(2%)
Care Chemicals		4,913	5,079	(3%)
Nutrition & Health		1,696	1,844	(8%)
Performance Chemicals		3,911	3,896	0%
Intersegment transfers		498	506	(2%)
Sales including intersegment transfers		16,310	16,723	(2%)
Income from operations before depreciation and amortization (EBITDA)		2,205	2,427	(9%)
EBITDA margin	%	13.9	15.0	–
Depreciation and amortization[1]		867	917	(5%)
Income from operations (EBIT)		1,338	1,510	(11%)
Special items		(38)	94	.
EBIT before special items		1,376	1,416	(3%)
EBIT after cost of capital		(131)	26	.
Assets		14,903	14,432	3%
Investments including acquisitions[2]		765	800	(4%)
Research and development expenses		394	395	(0%)

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Performance Products segment

- **Sales 2% lower at €15,812 million, mainly as a result of currency effects and lower volumes**
- **EBIT before special items down 3% to €1,376 million, primarily due to lower sales volumes and negative currency effects**

At €15,812 million, sales to third parties in the Performance Products segment in 2018 were €405 million below the prior-year figure (volumes –2%, prices 4%, portfolio –1%, currencies –3%). This is mainly attributable to negative currency effects in all divisions. Sales were also negatively impacted by lower volumes in the Nutrition & Health and Care Chemicals divisions as well as portfolio effects. Higher sales prices in all divisions had an offsetting effect.

Despite an overall improvement in margins, income from operations (EBIT) before special items declined by €40 million year on year to €1,376 million. This was largely due to lower sales volumes and negative currency effects. Excluding the negative currency effects, EBIT before special items was flat year on year. Compared with 2017, EBIT declined by €172 million to €1,338 million. In the previous year, we generated special income from the transfer of BASF's leather chemicals business to the Stahl group; in 2018, special charges arose from various individual items.

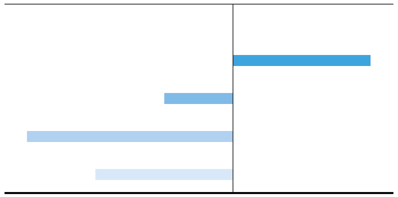
Dispersions & Pigments

- **Sales 2% below the prior-year figure at €5,292 million, largely from negative currency effects**
- **Considerable decline in EBIT before special items, primarily as a result of lower margins and higher fixed costs**

Sales to third parties in the Dispersions & Pigments division amounted to €5,292 million, €106 million below the prior-year level. This was mainly due to negative currency effects in almost all regions. Sales were also reduced by the divestiture of the production site for styrene butadiene-based paper dispersions in Pischelsdorf, Austria. The slight increase in prices, especially in the dispersions and resins businesses, was unable to compensate for this. Volumes were on a level with the prior year. Higher sales volumes in the dispersions business in Europe and North America as well as in the electronic materials business were offset by lower volumes in the additives and pigments businesses as a result of stronger competition and in the resins business due to raw materials shortages.

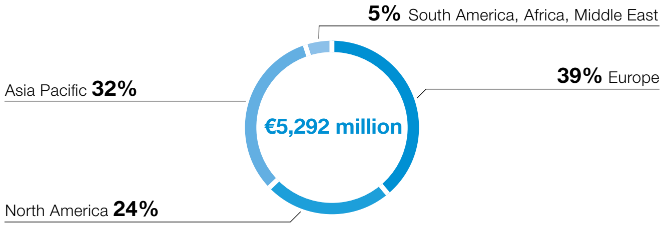
Dispersions & Pigments – Factors influencing sales

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



Dispersions & Pigments – Sales by region

Location of customer



EBIT before special items declined considerably compared with 2017. This was mainly due to lower margins as a result of the increase in raw materials prices, negative currency effects and higher fixed costs. In 2017, fixed costs were partly offset by an insurance refund; in 2018, additional fixed costs arose in connection with new production facilities in Ludwigshafen, Germany, and a new electronic materials plant in Yeosu, South Korea.

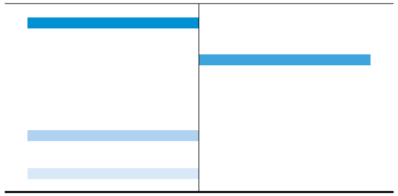
Care Chemicals

- **Sales decline 3% to €4,913 million due to lower volumes and currency effects**
- **Considerable increase in EBIT before special items, primarily from higher margins**

In the Care Chemicals division, sales to third parties declined by €166 million to €4,913 million in 2018. This was attributable to lower sales volumes, especially for oleochemical surfactants and fatty alcohols and in the hygiene business, as well as negative currency effects. By contrast, sales were positively impacted by higher prices in almost all business areas.

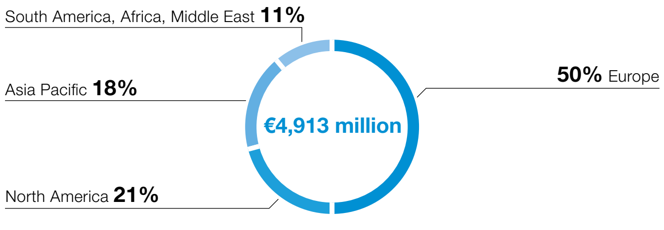
Care Chemicals – Factors influencing sales

Volumes	(3%)
Prices	3%
Portfolio	0%
Currencies	(3%)
Sales	**(3%)**



Care Chemicals – Sales by region

Location of customer



EBIT before special items increased considerably compared with 2017. This was mainly due to higher margins for products for the cosmetics industry, especially for oleochemical surfactants and fatty alcohols. Fixed costs declined slightly as a result of currency effects, insurance refunds and successful restructuring measures, especially in North America.

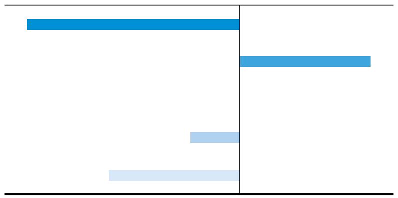
Nutrition & Health

- **Sales down 8% year on year at €1,696 million, largely as a result of lower product availability**
- **EBIT before special items considerably above the 2017 figure due to lower fixed costs and higher margins**

In the Nutrition & Health division, sales to third parties declined by €148 million to €1,696 million in 2018. This was mainly attributable to lower volumes from the reduced availability of citral-based products. In October 2017, a fire occurred during startup of the citral plant in Ludwigshafen, Germany. As a result, we had to declare Force Majeure for all citral and isoprenol-based aroma ingredients, and consequently for vitamin A, vitamin E and several carotenoid products as well. We were able to gradually lift Force Majeure for almost all affected products in 2018. Sales were weighed down by negative currency effects. Higher sales prices had an offsetting effect.

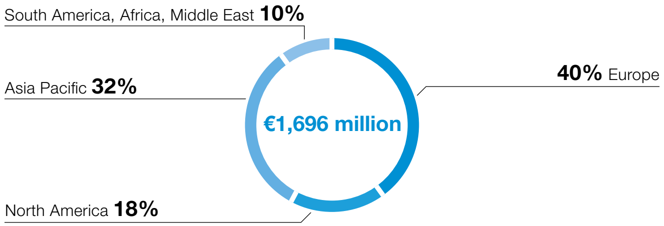
Nutrition & Health – Factors influencing sales

Volumes	(13%)
Prices	8%
Portfolio	0%
Currencies	(3%)
Sales	**(8%)**



Nutrition & Health – Sales by region

Location of customer



EBIT before special items increased considerably compared with 2017. Insurance refunds for production outages in 2017 and 2018 led to lower fixed costs. Despite higher raw materials prices, we achieved higher margins in the animal nutrition business in particular.

The citral plant in Ludwigshafen, Germany, was restarted in April 2018. We started production of citral, citronellol and menthol at our new aroma ingredients complex in Kuantan, Malaysia.

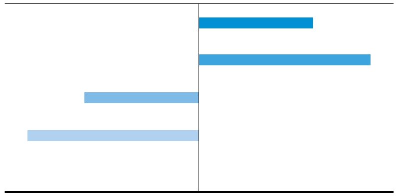
Performance Chemicals

- **Sales of €3,911 million at prior-year level**
- **EBIT before special items slightly below previous year, mainly due to lower margins**

At €3,911 million, sales to third parties in the Performance Chemicals division were on a level with the previous year. Sales were positively impacted by higher sales prices in all regions and almost all business areas, as well as higher volumes in the oilfield and mining chemicals and lubricant and plastic additives businesses. Negative currency effects, mainly from the U.S. dollar, and the transfer of BASF's leather chemicals business to the Stahl group dampened sales development.

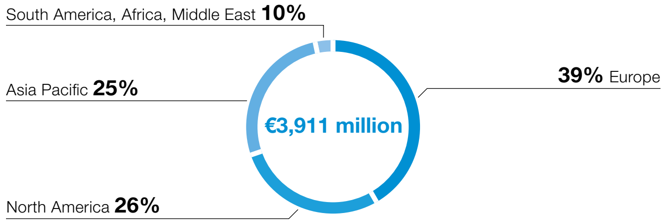
Performance Chemicals – Factors influencing sales

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



Performance Chemicals – Sales by region

Location of customer



EBIT before special items declined slightly compared with the previous year. This was mainly attributable to lower margins, in particular as a result of negative currency effects. Fixed costs were at the prior-year level.

Functional Materials & Solutions

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

Divisions

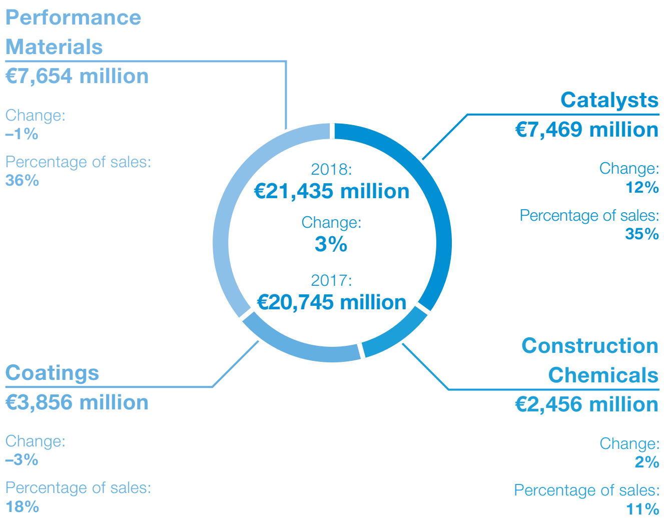
Catalysts
Automotive and process catalysts, battery materials, precious metal trading

Construction Chemicals
Solutions for building structure and envelopes, interior construction and infrastructure

Coatings
Coatings solutions, surface treatments, decorative paints

Performance Materials
Polyurethanes, thermoplastics and foams

Sales



Factors influencing sales

Volumes	2%
Prices	5%
Portfolio	0%
Currencies	(4%)
Sales	**3%**

Income from operations before special items

Million €	
2018	**1,307**
2017	1,617

Change: **−€310 million**

Strategy

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

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

We aim to continuously optimize our product and services portfolio and our structures according to different regional market requirements as well as trends in our customer industries.

The focus is on securing our leading market position in Europe, profitably expanding our position in the North American market and purposefully extending our activities in the growth regions of Asia, South America, eastern Europe and the Middle East. New business fields such as battery materials play a particularly important role here. On October 22, 2018, we announced that Harjavalta, Finland, will be the location of our first site to produce battery materials for the European automotive market. The plant will be constructed adjacent to the nickel and cobalt refinery owned by Norilsk Nickel (Nornickel). BASF and Nornickel have signed a long-term, market-based supply agreement for nickel and cobalt from Nornickel's metal refinery. With the investment, BASF will be present in all major regions with local production and increased customer proximity.

How we create value – an example

Novel diesel oxidation catalyst (DOC)

Efficient design for removing hydrocarbons and carbon monoxide with lower consumption of precious metals

Value for BASF

Enabled business wins since first introduction in 2015 with a value of

>€700 million

Value for our customers and the environment

Meets the latest emission regulations while reducing precious metal consumption by

≥25%

Diesel oxidation catalysts (DOC) reduce the emissions of heavy duty diesel engines by removing hydrocarbons and carbon monoxide from the exhaust. Furthermore, they provide the functionality to facilitate the removal of soot and nitrogen oxides by the downstream soot filter and the selective catalytic reduction catalyst. BASF has developed a novel DOC design to better utilize the precious metals of such catalysts, while significantly improving the catalysts' performance. Since its first introduction in 2015, the technology has been continuously further developed and has enabled business wins of more than €700 million.

The novel DOC design is used on-road in all major markets and thus provides a significant benefit for air quality and fuel economy. With our DOC catalyst in the front of the emission control system, it is possible to meet the most stringent of current emission control regulations such as US HDD 2010 (United States), EUVI (Europe), NSVI (China) and BSVI (India). The technology not only reduces precious metal consumption by at least 25%, but also significantly broadens the temperature region to implement removal of soot and prevent build-up of back pressure on the engine, thereby reducing fuel consumption.

On September 18, 2017, we signed an agreement with Solvay on the acquisition of Solvay's integrated polyamide business.

For more information on the current status of the agreement with Solvay, see page 42

We are also evaluating strategic options for our construction chemicals business to ensure the successful and profitable development of the business area in the long term, and to take advantage of opportunities in the market. The outcome of this review is open. We are considering the possibility of merging with a strong partner as well as the option of a divestiture. We strive to sign an agreement in 2019.

Products, customers and applications

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

Investments

Location	Project	Startup
Brighton, Colorado	Capacity expansion: plant for sealants	2019
Dahej, India	Capacity expansion: for Cellasto®	2019
Gimcheon, South Korea	Construction: plant for Ultraform®	2018
Greenville, Ohio	Capacity expansion: resin plant	2019
Hamm, Germany	Capacity expansion: logistics for floor installation systems	2019
Harjavalta, Finland	Construction: battery materials plant for the automotive market	2018
Langelsheim, Germany	Capacity expansion: for Naftoseal® aircraft sealants	2019
Ludwigshafen, Germany	Construction: specialty zeolites plant for emissions catalysts	2019
Münster, Germany	Construction: modular laboratory for automotive OEM coatings	2018
	Construction: plant for functional film coatings	2019
	Construction: laboratory building for automotive coatings	2020
Pinghu, China	New surface treatment site	2021
Rayong, Thailand	Construction: plant for automotive emissions catalysts	2018
Shanghai, China	Construction: technical competence center for automotive coatings	2018
	Construction: plant for mobile emissions catalysts	2019
Środa Śląska, Poland	Capacity expansion: plant for emissions catalysts	2020
Tultitlán, Mexico	Capacity expansion: automotive coatings plant	2019

Segment data – Functional Materials & Solutions

Million €

		2018	2017	+/–
Sales to third parties		21,435	20,745	3%
of which Catalysts		7,469	6,658	12%
Construction Chemicals		2,456	2,412	2%
Coatings		3,856	3,969	(3%)
Performance Materials		7,654	7,706	(1%)
Intersegment transfers		837	805	4%
Sales including intersegment transfers		22,272	21,550	3%
Income from operations before depreciation and amortization (EBITDA)		1,917	2,251	(15%)
EBITDA margin	%	8.9	10.9	–
Depreciation and amortization[1]		682	706	(3%)
Income from operations (EBIT)		1,235	1,545	(20%)
Special items		(72)	(72)	–
EBIT before special items		1,307	1,617	(19%)
EBIT after cost of capital		(512)	(190)	.
Assets		17,654	17,364	2%
Investments including acquisitions[2]		872	1,056	(17%)
Research and development expenses		412	431	(4%)

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Functional Materials & Solutions segment

- **Sales growth of 3% to €21,435 million from higher prices and volumes**
- **EBIT before special items declines 19% to €1,307 million, primarily due to lower margins and increase in fixed costs**

Sales to third parties in the Functional Materials & Solutions segment grew by €690 million to €21,435 million, especially in Catalysts. This was mainly attributable to higher prices in all divisions. Volumes also increased. Sales were reduced by currency effects (volumes 2%, prices 5%, portfolio 0%, currencies –4%).

Income from operations (EBIT) before special items was €1,307 million, down €310 million from the 2017 figure. This was mainly driven by lower margins as a result of the increase in raw materials prices and higher fixed costs. EBIT declined by €310 million to €1,235 million in 2018. Overall, special items did not have a substantial impact.

Catalysts

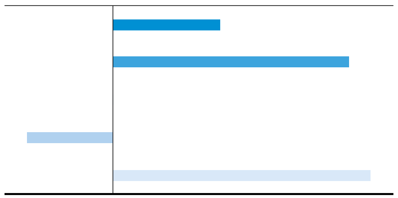
- **Sales increase of 12% to €7,469 million mainly driven by higher prices**
- **EBIT before special items slightly higher, largely as a result of volumes growth**

The Catalysts division increased sales to third parties by €811 million to €7,469 million in 2018. This was largely attributable to higher sales prices on the back of an increase in precious metal prices. Our sales volumes also increased. This was dampened by currency effects.

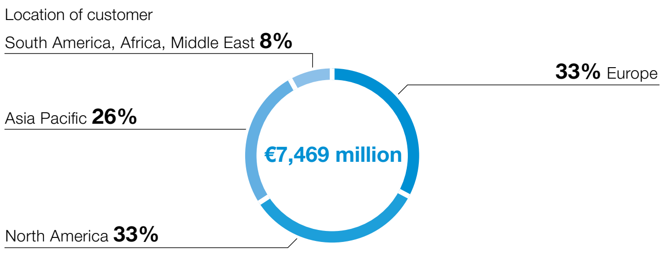
We recorded considerable volumes growth in the chemical catalysts, battery materials and refining catalysts businesses. By contrast, sales volumes declined for automotive catalysts, especially in Europe. In precious metal trading, sales rose considerably by €672 million to €3,190 million, primarily due to higher prices and volumes.

Catalysts – Factors influencing sales

Volumes	5%
Prices	11%
Portfolio	0%
Currencies	(4%)
Sales	**12%**



Catalysts – Sales by region



EBIT before special items was slightly above the prior-year figure, mainly owing to higher sales volumes. Fixed costs increased due among other factors to the startup of new plants in the chemical catalysts, automotive catalysts and battery materials businesses.

Construction Chemicals

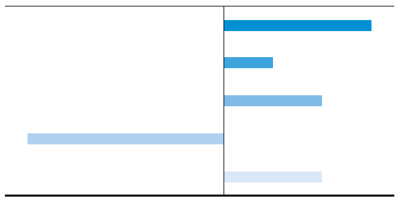
- **Sales 2% above previous year at €2,456 million, primarily due to higher volumes**
- **EBIT before special items slightly lower, mainly from softer margins**

In the Construction Chemicals division, we increased sales to third parties by €44 million compared with the previous year to €2,456 million. This was largely driven by higher sales volumes. The acquisition of Grupo Thermotek, Monterrey, Mexico, in September 2017 and higher prices also contributed to the increase in sales. By contrast, currency effects had a negative impact in all regions.

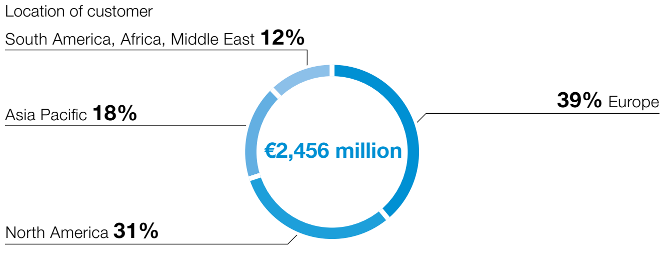
Higher volumes and prices led to sales growth in Europe, while in North America, the increase was attributable to the Thermotek acquisition and higher sales volumes. In Asia, higher volumes and prices were unable to completely offset the negative currency effects. Despite volumes growth, negative currency effects pushed down sales in the region South America, Africa, Middle East.

Construction Chemicals – Factors influencing sales

Volumes	3%
Prices	1%
Portfolio	2%
Currencies	(4%)
Sales	**2%**



Construction Chemicals – Sales by region



Although sales volumes rose and fixed costs declined, mainly as a result of currency effects, EBIT before special items was slightly below the 2017 figure. This was primarily attributable to lower margins.

Coatings

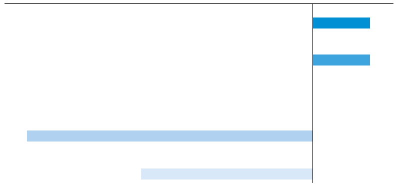
- **Sales decline 3% to €3,856 million as a result of negative currency effects**
- **EBIT before special items considerably below prior-year figure, mainly due to higher fixed costs and lower margins**

Sales to third parties in the Coatings division declined by €113 million to €3,856 million in 2018. This was attributable to negative currency effects in all regions, especially in South America. Sales were positively impacted by higher volumes and prices.

Despite slightly higher volumes, particularly in Asia and North America, sales of automotive OEM coatings declined due to negative currency effects in all regions. We recorded sales growth in the automotive refinish coatings business as negative currency effects were more than offset by higher sales volumes in Asia, North America and Europe, and higher prices. Sales in the decorative paints business in Brazil were considerably below the prior-year figure, with significantly higher sales prices unable to compensate for strongly negative currency effects and slightly weaker demand. We increased sales in the surface treatments business. Higher sales volumes in all regions compensated for negative currency effects.

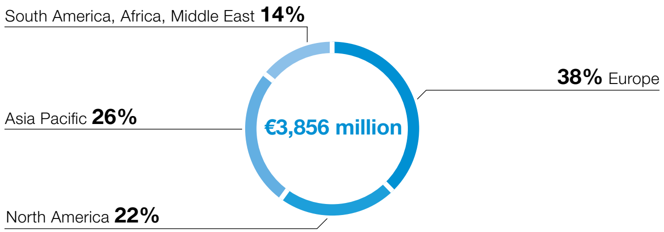
Coatings – Factors influencing sales

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



Coatings – Sales by region

Location of customer



EBIT before special items declined considerably. This was mainly due to higher fixed costs, largely as a result of higher personnel costs and integration costs for the Chemetall business, as well as lower margins from the increase in raw materials prices.

In September 2018, we opened a new laboratory for automotive OEM coatings in Münster, Germany, with a focus on optimized, digital and transparent processes as well as using resources efficiently.

Performance Materials

- **Sales of €7,654 million, down 1% from the previous year due to currency effects and lower volumes**
- **Considerable year-on-year decrease in EBIT before special items, mainly as a result of lower margins**

At €7,654 million, sales to third parties in the Performance Materials division in 2018 were €52 million below the prior-year level. Price increases due to significantly higher raw materials prices, particularly in the first half of 2018, were unable to completely offset the negative currency effects in all regions and business areas, as well as slightly lower volumes. Sales volumes declined, primarily as a result of weaker demand from the construction and consumer goods industries.

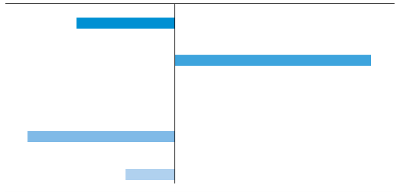
Sales to the automotive industry rose slightly due to higher prices, in particular for engineering plastics in Asia and Europe. Volumes declined slightly overall. While higher volumes contributed to sales growth in South America, demand in Europe, Asia and North America remained below the prior-year level, especially for polyurethane systems.

Sales in the consumer goods industry decreased slightly. As well as currency effects, this was mainly attributable to lower demand for polyurethane systems, particularly in Europe. This could not be completely offset by higher volumes in our engineering plastics and specialty businesses and higher prices.

Sales to the construction industry declined slightly due to lower volumes and currency effects. Although we achieved higher sales prices overall in the polyurethane systems business, demand was down from the prior-year level, especially in Europe. Scheduled plant turnarounds in the first half of 2018 also reduced sales volumes in the styrene foams business.

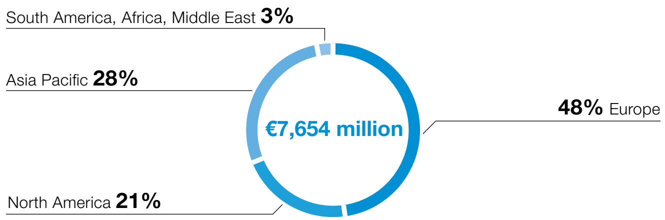
Performance Materials – Factors influencing sales

Volumes	(2%)
Prices	4%
Portfolio	0%
Currencies	(3%)
Sales	**(1%)**



Performance Materials – Sales by region

Location of customer



EBIT before special items was considerably below the prior-year level. This was mainly attributable to lower margins. The increase in raw materials prices could only be partly offset by higher sales prices. Fixed costs rose slightly. Higher expenses, especially from the startup of new plants for thermoplastic polyurethanes, Ultraform® and Ultrason®, were partly offset by insurance refunds, mainly for production outages.

Agricultural Solutions

The Agricultural Solutions segment consists of the division of the same name. We develop and produce innovative solutions to improve crop health and yields, and market them worldwide.

Indications and sectors

Fungicides
Protecting crops against harmful fungal diseases

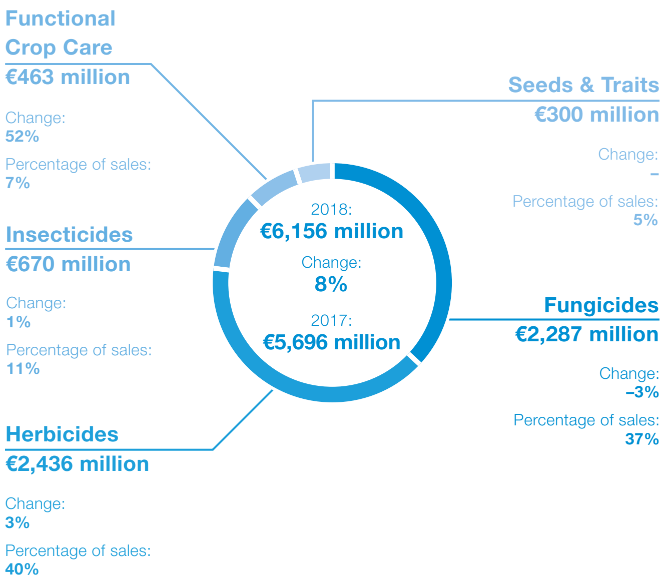
Herbicides
Reducing competition from weeds for water and nutrients

Insecticides
Combating insect pests in agriculture and beyond

Functional Crop Care
Biological crop protection, seed treatment, polymers and colorants

Seeds & Traits
Optimization and development of seeds and new traits

Sales



Factors influencing sales

Volumes	1%
Prices	4%
Portfolio	10%
Currencies	(7%)
Sales	**8%**

Income from operations before special items

Million €	
2018	**734**
2017	1,033

Change: **–€299 million**

Strategy

- **Integrated provider of crop protection and biotechnology products, seeds for selected field crops and vegetables, and digital farming**
- **Long-term innovation strategy ensures future growth**
- **Development of solutions that go beyond conventional crop protection**

Natural resources such as land and arable area are limited, while the world's population and its demand for food continue to grow. This means that farmers around the world face the challenge of increasing their crop yields. We offer our customers innovative solutions combined with practical, down-to-earth advice to support them in the efficient and safe production of high-quality crops over the long term.

In August 2018, we closed the acquisition of a range of businesses and assets from Bayer to be able to provide farmers with an even wider range of solutions in the future, and to better meet the growing demand for high-quality seeds as well as chemical and biological crop protection. The acquisition is a strategic complement to our crop protection, biotechnology and digital farming activities. At the same time, it marks our entry into the seed business for key field crops and vegetables, as well as non-selective herbicides and nematicide seed treatments. With the transaction, our portfolio now also includes the global glufosinate-ammonium non-selective herbicide business, which is marketed under the Liberty®, Basta® and Finale® brands. The seed businesses comprise traits, research and breeding capabilities as well as the corresponding brands for key field crops in selected markets. These include canola hybrids in North America under the InVigor® brand with LibertyLink® trait technology, as well as the oilseed rape business mainly in European markets, cotton in the Americas and Europe, and soybean in the Americas. We also acquired the R&D platform for hybrid wheat,[1] a range of seed treatment products, certain glyphosate-based herbicides in Europe used predominantly for industrial applications, xarvio® digital farming solutions and other non-selective herbicide and nematicide research projects. We are committed to ensuring the responsible use of our products and the preservation of a healthy environment. We also invest continuously in our development pipeline to provide our customers an increasingly wide range of integrated offers. The combination of our existing activities and the acquired businesses increases our innovation potential and strengthens our market position and competitiveness in the long term.

For more information on our R&D activities, see Research and development on page 82

The success of our customers depends on many factors such as weather, plant health, soil conditions and prices for agricultural produce. Modern farmers have to analyze more and more data of

1 Reported under Other

How we create value – an example

InVigor®

Patented pod shatter reduction technology for canola/oilseed rape seed pods enabling innovative yield protection and greater harvesting flexibility for growers

Value for BASF

Market share of InVigor® seed portfolio in main markets of North America

>55%

Value for customers

Yield improvement for growers of

>5%

InVigor® hybrids with pod shatter reduction (PSR) technology are an innovative solution for minimizing lost yield due to seed pods splitting open and seeds prematurely falling out. The first canola hybrids with patented PSR technology from the newly acquired seed business were launched on the Canadian market in 2014. By 2019, more than half of BASF's InVigor® product line-up in the United States, Canada and Australia will contain the PSR feature. The market share of the InVigor® seed portfolio in its main markets of North America is greater than 55% and popularity in Australia is increasing rapidly.

The patented PSR technology in InVigor® hybrid canola continues to revolutionize the way canola growers approach their season. The PSR feature naturally strengthens the pod seam and connective tissue, reducing premature seed losses prior to harvest. It offers the flexibility to harvest canola by straight cutting, therefore allowing the pod to fill for a longer period of time and providing a yield increase of over 5%.

increasing complexity to make the right cultivation decisions. BASF's innovative digital applications help our customers to use this data to their advantage, supporting better decision-making and ensuring more efficient and sustainable resource allocation. The acquisition of xarvio® digital farming solutions complements our digital offering with novel products with additional functionalities and access to new technologies.

Investments

Capital expenditures (capex) amounted to €157 million in 2018. Major projects included the startup of new production capacities for our fungicide Revysol® in Hannibal, Missouri, and our insecticide Inscalis® in Elbeuf, France, as well as modernization measures at plants in North America and Europe. A state-of-the-art global breeding station for the vegetable seeds business was opened at the Nunhem site in the Netherlands. We also invested in plant infrastructure in North America and research and development in Limburgerhof, Germany. To meet the continuing high demand for our innovative solutions in the future, we will invest around €1,270 million in developing and expanding our infrastructure and in our production and formulation capacities for active ingredients between 2019 and 2023. This increase in investment is driven by the expansion of production capacities for the planned market launches of a large number of products from our crop protection pipeline, as well as for the acquired businesses.

Research and development

In 2018, we invested €679 million in research and development in the Agricultural Solutions division, representing around 11% of sales for the segment. Our well-stocked innovation pipeline comprises products with a launch date between 2018 and 2028. With a peak sales potential[1] of more than €6 billion, the pipeline includes innovations from all business areas. The expanded research and development activities in the Agricultural Solutions division range from seeds, including traits, research and breeding capacities, and solutions to protect plants against fungal diseases, insect pests and weeds, to improved soil management and plant health.

With the acquisition of the Bayer businesses in 2018, our team grew by approximately 1,600 research and development employees at 17 locations worldwide. We expanded our biotechnology activities and our research and development capabilities considerably – from advanced breeding techniques, analytics, technology platforms and trait validation to specific discovery expertise. These are closely aligned with further activities in the field of biotechnology, which remain part of BASF's Bioscience Research unit. Research and development expenses, sales, earnings and all other data for BASF's Bioscience Research unit are not reported in the Agricultural Solutions segment; they continue to be reported under Other.

Our combined, complementary seeds and traits research and development activities across field crops and vegetables ensure even better innovation capabilities and scale while positioning us to seize future market opportunities and increase our competitiveness. With our expanded network of research sites, new seed breeding and production facilities, we help farmers meet the growing demand for increased agricultural productivity and better nutrition. With a pioneering platform for gene identification, we have specialized in the development of plant characteristics, such as higher yield, herbicide tolerance, disease resistance, drought tolerance and quality traits. Our goal is to optimize crops so that farmers can achieve greater and more secure yields. In this way, we make an important contribution to securing a better food supply for a growing world population. We also contribute to sustainable agriculture, as the cultivation of these plants significantly reduces the amount of land, water and energy required for food production.

Products, customers and applications

Indications and sectors	Applications	Example products
Fungicides	Protecting crops from harmful fungal diseases; improving plant health	AgCelence® (umbrella brand), boscalid, dimethomorph, F 500®, Initium®, metiram, metrafenone, Xemium®
Herbicides	Reducing competition from weeds for water and nutrients	Basta®, Clearfield®, dimethenamid-P, Engenia®, Finale®, imazamox, Kixor®, Liberty®, pendimethalin, topramezone
Insecticides	Combating insect pests in agriculture and beyond, such as in the fields of public health, professional pest control and landscape maintenance	Alpha-cypermethrin, chlorfenapyr, fipronil, Inscalis®, Interceptor®, Nealta®, teflubenzuron, Termidor®
Functional Crop Care	Products for plant health and increased yield potential that go beyond traditional crop protection, such as biological crop protection, seed treatments, polymers and colorants	COPeO®, Flo Rite®, ILeVO®, Integral®, Limus®, Nodulator® PRO, PONCHO®, Serifel®, Systiva®, Vault® HP, Velondis®, Vizura®, VOTiVO®
Seeds & Traits	Seeds and traits for key field crops such as canola (oilseed rape), cotton, soybean and wheat, as well as vegetable seeds	Credenz®, FiberMax®, InVigor®, LibertyLink®, Nunhems®, Stoneville®

1 Peak sales describes the highest sales value to be expected in one year. For more information, see the Glossary on page 288

Segment data – Agricultural Solutions

Million €

		2018	2017	+/–
Sales to third parties		6,156	5,696	8%
Intersegment transfers		58	36	61%
Sales including intersegment transfers		6,214	5,732	8%
Income from operations before depreciation and amortization (EBITDA)		985	1,282	(23%)
EBITDA margin	%	16.0	22.5	–
Depreciation and amortization[1]		394	267	48%
Income from operations (EBIT)		591	1,015	(42%)
Special items		(143)	(18)	.
EBIT before special items		734	1,033	(29%)
EBIT after cost of capital		(562)	171	.
Assets		16,992	8,096	110%
Investments including acquisitions[2]		7,110	185	.
Research and development expenses		679	507	34%

1 Amortization of intangible assets and depreciation of property, plant and equipment (including impairments and reversals of impairments)
2 Additions to intangible assets and property, plant and equipment

Agricultural Solutions segment

- **Sales improve by 8% to €6,156 million due to portfolio effects, higher prices and increased volumes**
- **EBIT before special items down 29% year on year at €734 million as a result of negative currency effects and the negative contribution from the acquired businesses**

The Agricultural Solutions segment increased sales to third parties by €460 million to €6,156 million in 2018. The addition of the businesses and assets acquired from Bayer in August 2018 made a significant contribution. A higher price level and growth in sales volumes also contributed to the positive year-on-year sales development. In a continuing difficult market environment, strongly negative currency effects dampened sales in all regions.

Sales in **Europe** were €39 million higher than in the previous year, at €2,022 million. This was attributable to the acquired businesses and higher sales volumes in almost all indications, despite the extreme weather conditions and long dry period. Sales development was dampened by negative currency effects, particularly in eastern Europe and Turkey.

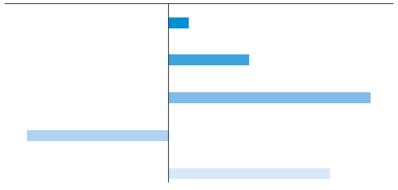
We increased sales in **North America** by €163 million to €2,166 million. The acquired businesses and a higher price level more than compensated for the negative currency effects. Lower volumes, especially for fungicides in Canada and the United States, also had an offsetting effect.

At €645 million, sales in **Asia** exceeded the prior-year figure by €63 million. We achieved volumes growth in all indications, particularly fungicides. The acquired businesses and a higher price level also contributed to the sales increase. Negative currency effects reduced sales development considerably.

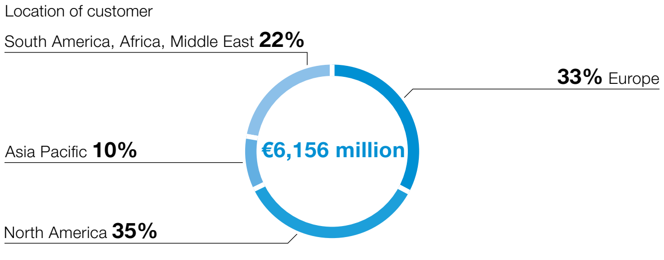
In the region **South America, Africa, Middle East**, sales rose by €195 million to €1,323 million. The increase was largely driven by a higher price level and the contribution of the acquired businesses. Especially for fungicides in Brazil, sales volumes increased considerably. Negative currency effects had an offsetting impact.

Agricultural Solutions – Factors influencing sales

Volumes	1%
Prices	4%
Portfolio	10%
Currencies	(7%)
Sales	**8%**



Agricultural Solutions – Sales by region



Income from operations (EBIT) before special items was €734 million, down €299 million from the prior-year figure. This was attributable to negative currency effects in all regions, as well as the strongly negative contribution from the acquired businesses due to the late, intrayear timing of the transaction, the seasonality of the business as well as costs for integrating the businesses into the BASF Group. EBIT decreased by €424 million to €591 million. Special items primarily arose from the acquisition.