

Life Science

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Key figures

€ million	2016	2015	Change	
			€ million	in %
Net sales	5,658	3,355	2,303	68.6%
Operating result (EBIT)	556	301	256	85.0%
Margin (% of net sales)	9.8%	9.0%		
EBITDA	1,378	674	704	>100.0%
Margin (% of net sales)	24.4%	20.1%		
EBITDA pre exceptionals	1,652	856	796	93.0%
Margin (% of net sales)	29.2%	25.5%		
Business free cash flow	1,144	676	468	69.3%

Development of sales and results of operations

In 2016, Life Science posted organic sales growth of 6.3%. In addition to organic growth, sales increased by 63.1% or € 2,119 million due to the acquisition of Sigma-Aldrich whereas foreign exchange had a slightly negative impact of -0.8% or € -28 million. Taking these effects into account, Life Science net sales increased overall by 68.6% to € 5,658 million in 2016 (2015: € 3,355 million).

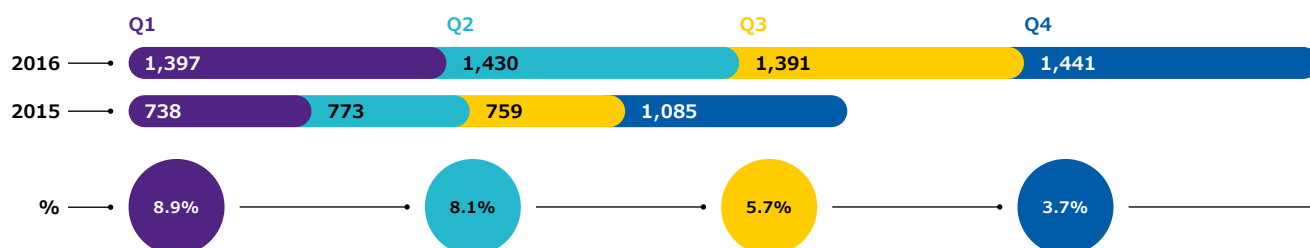
All three business areas contributed favorably to the organic growth of the Life Science business sector in 2016. In particular, the Process Solutions business area generated double-digit organic sales growth of 10.5%, thanks to high demand across the portfolio. Applied Solutions continued to perform well, posting organic growth of 4.3%. Research Solutions generated an organic increase of 1.2%.

The development of sales in the individual quarters are presented in the following overview:

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Net sales and organic growth by quarter¹

€ million/organic growth in %

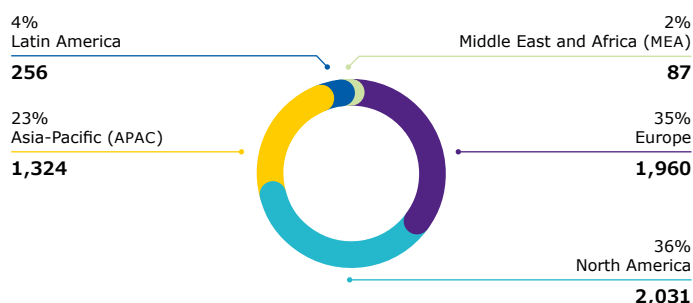


¹ Quarterly breakdown unaudited.

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Net sales by region – 2016

€ million/% of net sales of the business sector



North America was the Life Science business sector's largest geographic market, accounting for 36% (2015: 33%) of net sales. The organic sales decline of –1.3% in North America was primarily attributable to Research Solutions and soft market demand in the region. By contrast, Applied Solutions and Process Solutions contributed positively to organic growth. Overall, sales in North America rose to € 2,031 million (2015: € 1,098 million), which in addition to organic growth includes an acquisition-related increase of € 936 million due to Sigma-Aldrich as well as a slightly positive exchange rate effect.

Within Asia-Pacific, sales grew organically by 8.1%, with all businesses contributing favorably. Growth was primarily driven by Process Solutions. Overall, sales in Asia-Pacific rose to € 1,324 million (2015: € 831 million), which in addition to organic growth

From a geographic perspective, all regions – with the exception of North America – contributed positively to the organic sales growth of Life Science.

In Europe, sales increased organically by 11.0%, with the Process Solutions and Research Solutions business areas generating double-digit organic growth of 16.9% and 10.4%, respectively, while Applied Solutions posted moderate organic growth of 3.2%. Overall, sales in Europe increased to € 1,960 million (2015: € 1,168 million), which in addition to organic growth included a sales increase of € 677 million due to the Sigma-Aldrich acquisition, corresponding to an overall contribution of 35% (2015: 35%) of Life Science net sales in 2016.

includes an acquisition-related sales increase of € 420 million due to the acquisition of Sigma-Aldrich, representing an overall contribution of 23% (2015: 25%) to Life Science net sales in 2016.

In Latin America, Life Science reported double-digit organic growth of 12.7%, primarily driven by the Applied Solutions business area. In addition to organic growth, the acquisition-related sales contribution by Sigma-Aldrich increased sales by € 55 million to € 256 million (2015: € 203 million). Currency headwinds of –13.9% lowered sales growth. Latin America accounted for 4% (2015: 6%) of Life Science net sales in 2016.

The Middle East and Africa (MEA) region posted strong organic sales growth of 6.9%. Net sales for the region grew to € 87 million (2015: € 55 million) and included a sales increase of € 31 million due to the acquisition of Sigma-Aldrich.

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Net sales components by region – 2016

€ million/change in %	Net sales	Organic growth	Exchange rate effects	Acquisitions/divestments	Total change
Europe	1,960	11.0%	–1.2%	58.0%	67.8%
North America	2,031	–1.3%	1.0%	85.2%	84.9%
Asia-Pacific (APAC)	1,324	8.1%	0.7%	50.5%	59.3%
Latin America	256	12.7%	–13.9%	26.9%	25.7%
Middle East and Africa (MEA)	87	6.9%	–4.5%	57.4%	59.8%
Life Science	5,658	6.3%	–0.8%	63.1%	68.6%

The Process Solutions business area, which markets products and services for the pharmaceutical production value chain, generated organic sales growth of 10.5%. Including the acquisition-related sales increase (€ 505 million), net sales amounted to € 2,146 million (2015: € 1,492 million). The share of sales generated by Process Solutions represented 38% (2015: 45%) of Life Science net sales. All Process Solutions businesses contributed to this strong performance.

The Research Solutions business area, which provides products and services to support life science research for pharmaceutical, biotechnology and academic research laboratories, posted slight organic growth of 1.2% in 2016. Research Solutions suffered weak demand in the Biology business and faced a difficult market environment in North America. However, including Sigma-Aldrich acquisition-related sales (€ 1,239 million), sales increased to € 2,055 million (2015: € 814 million) representing 36% (2015: 24%) of Life Science sales.

The Applied Solutions business area generated organic sales growth of 4.3% with its broad range of products for researchers and scientific laboratories. Taking the Sigma-Aldrich acquisition-related sales into account (€ 374 million), net sales amounted to

€ 1,457 million (2015: € 1,050 million). The sales performance of Applied Solutions was primarily driven by the Analytical and Biomonitoring portfolios.

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Net sales components by business area¹ – 2016

€ million/change in %	Net sales	Organic growth	Exchange rate effects	Acquisitions/divestments	Total change
Process Solutions	2,146	10.5%	-0.5%	33.9%	43.8%
Research Solutions	2,055	1.2%	-1.0%	152.3%	152.6%
Applied Solutions	1,457	4.3%	-1.1%	35.6%	38.8%

¹The business areas were restructured in the context of the Sigma-Aldrich acquisition.

The results of operations developed as follows:

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Results of operations

€ million	2016		2015		Change	
	in € million	in %	in € million	in %	€ million	in %
Net sales	5,658	100.0%	3,355	100.0%	2,303	68.6%
Cost of sales	-2,679	-47.4%	-1,483	-44.2%	-1,197	80.7%
<i>(of which: amortization of intangible assets)¹</i>	<i>(-63)</i>		<i>(-51)</i>		<i>(-12)</i>	<i>(23.6%)</i>
Gross profit	2,978	52.6%	1,872	55.8%	1,106	59.1%
Marketing and selling expenses	-1,706	-30.1%	-1,038	-31.0%	-667	64.2%
<i>(of which: amortization of intangible assets)¹</i>	<i>(-453)</i>		<i>(-197)</i>		<i>(-256)</i>	<i>(>100.0%)</i>
Administration expenses	-248	-4.4%	-151	-4.5%	-96	63.8%
Research and development costs	-260	-4.6%	-197	-5.9%	-62	31.5%
<i>(of which: amortization of intangible assets)¹</i>	<i>(-1)</i>		<i>(-1)</i>		<i>(-)</i>	<i>(1.0%)</i>
Other operating expenses and income	-209	-3.7%	-185	-5.5%	-24	13.3%
Operating result (EBIT)	556	9.8%	301	9.0%	256	85.0%
Depreciation/amortization/impairment losses/reversals of impairment losses	822	14.5%	373	11.1%	448	>100.0%
<i>(of which: exceptionals)</i>	<i>(27)</i>		<i>(1)</i>		<i>(26)</i>	<i>(>100.0%)</i>
EBITDA	1,378	24.4%	674	20.1%	704	>100.0%
Restructuring costs	1		7		-6	-83.5%
Integration costs/IT costs	122		43		79	>100.0%
Gains/losses on the divestment of businesses	-		-		-	-
Acquisition-related exceptionals	150		132		18	14.0%
Other exceptionals	-		-		-	-
EBITDA pre exceptionals	1,652	29.2%	856	25.5%	796	93.0%

¹Excluding amortization of internally generated or separately acquired software.

Throughout 2016, the primary focus for the Life Science business sector was the integration of Sigma-Aldrich. Gross profit rose by 59.1% to € 2,978 million (2015: € 1,872 million). This tremendous increase was mainly attributable to strong organic sales growth and the acquisition of Sigma-Aldrich. The increases in marketing and selling expenses, administration expenses and R&D costs in 2016 were mainly due to the consolidation of Sigma-Aldrich. As Life Science continues to integrate Sigma-Aldrich, spending is being closely monitored and there is a strong focus on the execution of synergy initiatives. In comparison with 2015, the operating result

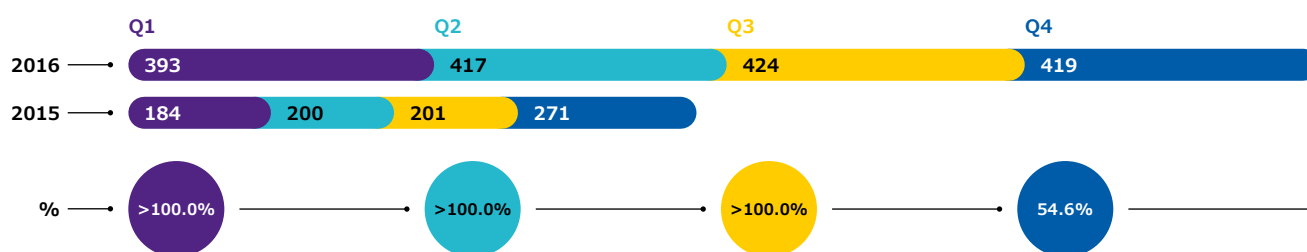
(EBIT) of Life Science rose by € 256 million to € 556 million. After eliminating depreciation and amortization, and adjusting for exceptionals, the key financial indicator EBITDA pre exceptionals rose by 93.0% to € 1,652 million (2015: € 856 million). This reflects the strong performance of both legacy life science businesses of Merck and Sigma-Aldrich.

The development of EBITDA pre exceptionals in the individual quarters in comparison with 2015 is presented in the following overview:

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EBITDA pre exceptionals and change by quarter¹

€ million/change in %



¹ Quarterly breakdown unaudited.

Development of business free cash flow

In 2016, the business free cash flow of the Life Science business sector amounted to € 1,144 million, which was 69.3% more than in 2015. This very strong increase was primarily due to the positive development of EBITDA pre exceptionals and was partially offset by higher capital spending.

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Business free cash flow

€ million	2016	2015 ¹	Change	
			€ million	in %
EBITDA pre exceptionals	1,652	856	796	93.0%
Investments in property, plant and equipment, software as well as advance payments for intangible assets	-313	-150	-163	>100.0%
Changes in inventories	5	-840	845	>100.0%
Changes in trade accounts receivable as well as receivables from royalties and licenses	-64	-375	311	-82.8%
Adjustments first-time consolidation of Sigma-Aldrich	-146	1,185	-1,331	>100.0%
Adjustments first-time consolidation of BioControl Systems	10	-	10	>100.0%
Business free cash flow	1,144	676	468	69.3%

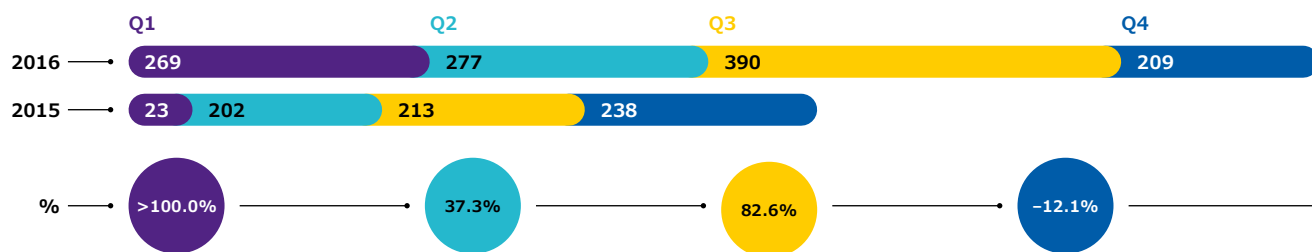
¹ Previous year's figures have been adjusted, see "Acquisitions, assets held for sale and disposal groups" in the Notes to the Consolidated Financial Statements.

The development of business free cash flow in the individual quarters in comparison with 2015 is presented in the following overview:

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Business free cash flow and change by quarter¹

€ million/change in %



¹Quarterly breakdown unaudited.