Economics

Net sales, operating result (EBIT) and research and development costs, by business sector

€ million	Healthcare	Life Science	Performance Materials	Group[1]
2016				
Net sales	6,855	5,658	2,511	**15,024**
Operating result (EBIT)	1,593	556	823	**2,481**
R&D costs	1,496	260	213	**1,976**
2017				
Net sales	6,999	5,882	2,446	**15,327**
Operating result (EBIT)	1,447	834	689	**2,525**
R&D costs	1,632	241	225	**2,140**

1 As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our 2017 Annual Report.

compliance

Part of the non-financial report

Internal audits on corruption and Human Rights Charter

	2014	2015	2016[1]	2017 Merck Group	2017 thereof Merck KGaA[2]
Number of audits relating to corruption	36	49	55	50	13
% of audits relating to corruption	68	64	68	65	17
Number of audits relating to the work-place requirements of our Human Rights Charter	32	41	47	45	12

1 Includes Sigma-Aldrich as of 2016
2 Includes global audits which are conducted at the headquarters in Darmstadt and/or the management of the audited function is reporting into KGaA.

In 2017, we audited 16% of all Merck subsidiaries (status June 2017, excluding minority holdings), covering approximately 30% of all sales generated between the third quarter of 2016 and the second quarter of 2017.

In 2017, during 45 of our audits conducted in 22 countries, we additionally reviewed workplace parameters as per our Human Rights Charter. No violations were identified.

Reported compliance violations

	2014	2015	2016[1]	2017 Merck Group	2017 thereof Merck KGaA
Total number of reported compliance violations					
Number of reported compliance incidents	26	33	36	39	1
Number of confirmed cases	11	8	12	14	1
confirmed cases by category					
Violation of the Merck Human Rights Charter	1	0	2	0	0
Bribery and Corruption	2	0	2	1	0
Violation of the Merck Pharmaceutical Guidelines	2	2	4	2	0
Violation of Data Privacy and Confiden-tiality Guidelines	0	1	0	2	1
Manipulation of Business Documents	0	0	2	1	0
Violation of cartel laws and fair competi-tion rules	0	1	0	0	0
Infringements in the areas of finance, accounting and banking	0	0	0	0	0
Theft and fraudulent Actions against Merck	1	2	1	1	0
Other violations of the Merck Compliance Principles for the relations with Business Partners	0	0	1	2	0
Other violations of Merck values, internal guidelines or legal requirements	5	2	0	5	0

1 Includes Sigma-Aldrich as of 2016

In 2017 there was a total of 14 confirmed compliance cases, 2 of which were already reported in 2016, but closed in 2017.

Compliance training

	2014[1]	2015	2016[2]	2017 Merck Group	2017 thereof Merck KGaA
Total number of persons trained on anti-corruption guidelines[3]	**7,519**	**20,404**	**29,764**	**17,044**	**2,326**
Total number of employees trained on anti-corruption guidelines	**5,496**	**17,378**	**25,889**	**13,345**	**1,450**
% of employees trained on anti-corruption	14	43	51	25	14
by employee category					
Number of Role 2+ employees trained on anti-corruption	3,071	12,747	14,379	7,080	635
% of Role 2+ employees trained on anti-corruption	17	64	84	27	13
% of employees below Role 2 trained on anti-corruption	12	22	34	24	15
by region (%)[4]					
Europe	–	–	54	18	14
North America	–	–	57	46	not applicable
Asia-Pacific (APAC)	–	–	38	25	not applicable
Latin America	–	–	52	19	not applicable
Middle East and Africa (MEA)	–	–	66	29	not applicable

1 In Q1 – Q3 2014, Group Compliance performed a thorough analysis and review of its Compliance Training Program. No courses were scheduled for these quarters.
2 Includes Sigma-Aldrich as of 2016
3 Includes contractors, external supervised workers (e.g. temps) and contract partners working on-site who were trained on anti-corruption guidelines (2017: 3,699).
4 As of 2016, we are also reporting the training rate by region. No such data was tracked for the preceding years.

In order to address the special responsibility held by management personnel, as well as by staff with HR responsibility, these employees are increasingly receiving training on anti-corruption guidelines. This applies to all employees rated Role 2+.

Our compliance and anti-corruption principles are communicated to all our business partners, who undergo a Business Partner Risk Management (BPRM) process.

Training increased in 2016 due to the initial integration of employees of Sigma-Aldrich, a company acquired at the end of 2015.

Legal actions

	2014	2015[1]	2016	2017 Merck Group	2017 thereof Merck KGaA
Total number[2] of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	**2**	**2**	**2**	**3**	**2**
pending	2	2	2	3	2
completed	0	0	0	0	0

1 Includes Sigma-Aldrich as of 2015
2 As published in the annual reports, the herein listed total number of legal actions refers to the significant legal risks as per the company’s definition. The significance of legal risks is based on potential negative effects on projected financial objectives as well as on the probability of occurrence.

For further information please see our annual reports:

- Annual Report 2014, pages 130-131 and pages 213-215, no. 48
- Annual Report 2015, pages 128-129 and pages 212-213, no. 27
- Annual Report 2016, pages 135-136 and pages 228-229, no. 26
- Annual Report 2017, pages 148-150 and pages 252-254, no. 27

Products

Part of the non-financial report

Customer privacy[1]

	2014	2015	2016	2017[2]
Total number of substantiated complaints received from outside parties	0	0	0	0
Total number of complaints from regulatory bodies	1	0	0	0
Total number of identified leaks, thefts, or losses of customer data	0	0	1	0

1 This data only reflects incidents classified as significant.
2 Includes Sigma-Aldrich as of 2017

Employees

Part of the non-financial report

Total number of employees

As of Dec. 31	2014	2015[1]	2016	2017 Merck Group	2017 thereof Merck KGaA
Total number of employees	**39,639**	**49,613**	**50,414**	**52,941**	**10,677**
Men	23,273	28,997	28,848	30,083	6,779
Women	16,366	20,616	21,566	22,858	3,898

1 Includes Sigma-Aldrich as of 2015

Number of employees by hierarchical level[1]

As of Dec. 31	2014	2015[2]	2016[2]	2017 Merck Group[2]	2017 thereof Merck KGaA
Total employees	**39,639**	**49,613**	**50,414**	**52,941**	**10,677**
Senior management (Role 6+)	118	146	181	197	90
Middle management (Role 4 & 5)	1,973	2,211	2,685	2,927	1,037
Low management (Role 3)	6,109	6,622	8,139	8,904	2,451
Other employees (below Role 3)	31,439	40,634	39,409	40,913	7,099
% of women (total)	**41**	**41**	**43**	**43**	**37**
thereof in senior management (Role 6+)	20	21	25	30	16
thereof in middle management (Role 4 & 5)	539	611	805	917	319
thereof in low management (Role 3)	2,385	2,636	3,361	3,714	950
thereof other employees (below Role 3)	13,422	17,348	17,375	18,197	2,613
% of men (total)	**59**	**59**	**57**	57	63
thereof in senior management (Role 6+)	98	125	156	167	74
thereof in middle management (Role 4 & 5)	1,434	1,600	1,880	2,010	718
thereof in low management (Role 3)	3,724	3,986	4,778	5,190	1,501
thereof other employees (below Role 3)	18,017	23,286	22,034	22,716	4,486
by age group					
Up to 29 years old (%)	**15**	**15**	**15**	**15**	**15**
thereof in senior management (Role 6+)	0	0	0	0	0
thereof in middle management (Role 4 & 5)	6	5	7	3	3
thereof in low management (Role 3)	127	130	183	194	100
thereof other employees (below Role 3)	5,750	7,424	7,229	7,479	1,486
30 to 49 years old (%)	**64**	**64**	**62**	**62**	**55**
thereof in senior management (Role 6+)	64	68	76	72	33
thereof in middle management (Role 4 & 5)	1,264	1,407	1,670	1,782	648
thereof in low management (Role 3)	4,424	4,770	5,784	6,308	1,670
thereof other employees (below Role 3)	19,703	24,815	23,996	24,733	3,487
50 years or older (%)	**21**	**21**	**23**	**23**	**30**
thereof in senior management (Role	54	78	105	125	57

1 In 2017, we switched our job architecture from a Global Grading System to Roles. Figures have been retroactively adjusted for previous years.

2 From 2015 on, these figures include Sigma-Aldrich, however as of Dec. 31, 2017 the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. These employees are included under "thereof other employees (Role 3 and below)".

Number of employees by hierarchical level[1]

As of Dec. 31	2014	2015[2]	2016[2]	2017 Merck Group[2]	2017 thereof Merck KGaA
6+)					
thereof in middle management (Role 4 & 5)	703	799	1,008	1,142	386
thereof in low management (Role 3)	1,558	1,722	2,172	2,402	681
thereof other employees (below Role 3)	5,986	8,395	8,184	8,701	2,126

1 In 2017, we switched our job architecture from a Global Grading System to Roles. Figures have been retroactively adjusted for previous years.

2 From 2015 on, these figures include Sigma-Aldrich, however as of Dec. 31, 2017 the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. These employees are included under "thereof other employees (Role 3 and below)".

Average number of employees by functional area

Average number of employees	2014[1]	2015[2]	2016[2]	2017[2]
Group	**38,930**	**41,511**	**50,439**	**52,053**
Thereof women	**16,110**	**17,180**	**21,136**	**22,353**
Production	10,176	11,563	14,829	15,571
Thereof women	3,202	3,642	4,698	5,059
Logistics/ Supply Chain[3]	2,207	2,581	3,955	3,729
Thereof women	774	913	1,459	1,442
Marketing and Sales/ Commercials[3]	12,113	12,871	14,887	15,115
Thereof women	4,814	5,204	6,401	6,609
Administration	6,342	6,763	8,190	9,286
Thereof women	3,557	3,757	4,421	4,798
Research and Development	4,738	5,097	6,249	6,789
Thereof women	2,534	2,674	3,274	3,591
Infrastructure and Other	3,354	2,636	2,329	1,564
Thereof women	1,230	990	883	854

1 Average headcount (HC) 2014 is calculated based on the End HC of the last 5 quarters divided by 5.

2 The average employee headcount for 2015 through 2017 is calculated by adding up all employees at the end of each of the last 13 months, and dividing this total by 13. Employees of Sigma-Aldrich, a company acquired in November 2015, are only included in the employee headcount calculations as of November 2015.

3 In conjunction with the new job architecture implemented in 2017, some functional areas have been renamed and reorganized. Due to the new structure from 2017 on, it will only be possible to deliver a limited trend forecast in a year-on-year comparison.

Number of employees by region

As of Dec. 31	2014	2015[1]	2016	2017 Merck Group	2017 thereof Merck KGaA
Total	**39,639**	**49,613**	**50,414**	**52,941**	**10,677**
Europe	**20,537**	**23,429**	**24,438**	**25,980**	**10,677**
women	8,893	10,316	10,884	11,627	**3,898**
women (%)	43	44	45	45	37
Number of employees with temporary contracts	906	1,079	1,031	1,279	513
% of employees with temporary contracts	4	5	4	5	5
North America	**5,092**	**9,794**	**10,037**	**10,520**	**0**
women	2,272	4,183	4,308	4,518	not applicable
women (%)	45	43	43	43	not applicable
Number of employees with temporary contracts	18	22	122	138	not applicable
% of employees with temporary contracts	0.4	0.2	1	1	not applicable
Asia-Pacific (APAC)	**9,488**	**11,096**	**10,754**	**11,294**	**0**
women	3,176	3,706	3,981	4,298	not applicable
women (%)	33	33	37	38	not applicable
Number of employees with temporary contracts	156	1,888	2,231	2,603	not applicable
% of employees with temporary contracts	2	17	21	23	not applicable
Latin America	**3,883**	**4,352**	**4,140**	**4,050**	**0**
women	1,745	1,986	1,910	1,896	not applicable
women (%)	45	46	46	47	not applicable
Number of employees with temporary contracts	28	43	40	40	not applicable
% of employees with temporary contracts	1	1	1	1	not applicable
Middle East and Africa (MEA)	**639**	**942**	**1,045**	**1,097**	**0**
women	280	425	483	519	not applicable
women (%)	44	45	46	47	not applicable
Number of employees with temporary contracts	111	127	153	172	not applicable
% of employees with temporary contracts	17	13	15	16	not applicable

1 Includes Sigma-Aldrich as of 2015

External contractors are currently not logged in our employee data system, nor do we currently have any plans to integrate them.

Employees by business sector

As of Dec. 31	2014	2015[1]	2016	2017
Healthcare employees	**17,757**	**18,566**	**18,837**	**19,795**
Thereof women	8,130	8,522	9,090	9,656
Thereof women (%)	46	46	48	49
Life Science employees	**9,796**	**18,611**	**19,178**	**19,607**
Thereof women	4,134	7,883	7,928	8,276
Thereof women (%)	42	42	41	42
Performance Materials employees	**5,995**	**6,228**	**5,469**	**5,529**
Thereof women	1,498	1,531	1,427	1,455
Thereof women (%)	25	25	26	26

1 Includes Sigma-Aldrich as of 2015

Employees by contract type

As of Dec. 31	2014	2015[1]	2016	2017
Total employees	**39,639**	**49,613**	**50,414**	**52,941**
Number of employees with permanent contracts	38,410	46,454	46,837	48,709
% of employees with permanent contracts	97	94	93	92
thereof women	15,826	19,034	19,741	20,741
thereof women (%)	41	41	42	43
Number of employees with temporary contracts	1,219	3,159	3,577	4,232
% of employees with temporary contracts	3	6	7	8
thereof women	536	1,563	1,744	2,117
thereof women (%)	44	49	49	50
full-time employees	37,573	47,292	48,056	50,498
% full-time	98	95	95	95
thereof women	14,497	18,557	19,457	20,677
thereof women (%)	39	39	40	41
part-time employees	2,066	2,321	2,358	2,443
% part-time	5	5	5	5
thereof women	1,869	2,059	2,109	2,181
thereof women (%)	90	89	89	89

1 Includes Sigma-Aldrich as of 2015

New employees

	2014	2015[1]	2016	2017 Merck Group	2017 thereof Merck KGaA
Total number of new employee hires	**6,212**	**5,710**	**7,085**	**7,285**	**1,032**
by age group					
Up to 29 years old	2,305	2,088	2,930	2,940	435
30 to 49 years old	3,361	3,252	3,736	3,848	543
50 or older	546	370	419	497	54
by gender					
Women	2,513	2,450	3,388	3,412	462
Men	3,689	3,260	3,697	3,873	570
by region					
Europe	2,312	2,119	2,689	3,058	1,032
North America	826	730	1,348	1,603	not applicable
Asia-Pacific (APAC)	2,298	1,913	2,201	1,955	not applicable
Latin America	619	780	636	497	not applicable
Middle East and Africa (MEA)	157	168	211	172	not applicable
Rate of new employee hires[2] (%)	**16**	**14**	**14**	**14**	**10**
by age group[3]					
Up to 29 years old	37	37	41	40	42
30 to 49 years old	54	57	53	53	53
50 or older	9	6	6	7	5
by gender[3]					
Women	41	43	48	47	45
Men	59	57	52	53	55
by region[3]					
Europe	37	37	38	42	100
North America	13	13	19	22	not applicable
Asia-Pacific (APAC)	37	33	31	27	not applicable
Latin America	10	14	9	7	not applicable
Middle East and Africa (MEA)	3	3	3	2	not applicable

1 These figures exclude the 8,975 Sigma-Aldrich employees, who are not classified as new hires because they joined Merck as part of the Sigma-Aldrich acquisition.

2 Formula for calculating the rate of new employee hires: Total number of new employee hires divided by Number of employees at the end of the fiscal year.

3 Formula for calculating the rate of new employee hires by age/gender/region: New employee hires of the focus group divided by the total number of new employee hires. In consequence of the modified calculation method and the new composition of our regions effective January 1, 2015 corresponding figures for the preceding year have been retroactively adjusted.

Staff turnover[1]

	2014[2]	2015[3]	2016[3,4]	2017 Merck Group[3]	2017 thereof Merck KGaA[3]
Total turnover rate	**11.01**	**10.38**	**12.07**	**9.05**	**2.35**
Turnover rate by gender					
Men	10.75	10.13	12.87	8.75	2.18
Women	11.38	10.73	10.96	9.46	2.43
Turnover rate by age group					
Up to 29 years old	18.71	17.49	19.20	13.66	3.51
30 to 49 years old	9.72	9.69	11.37	8.38	2.08
50 or older	9.49	8.08	9.19	7.87	2.22
Turnover rate by region					
Europe	7.05	6.22	6.23	6.22	2.35
North America	12.45	12.72	11.50	11.02	not applicable
Asia-Pacific (APAC)	17.55	15.95	22.37	12.53	not applicable
Latin America	13.67	15.29	18.85	13.74	not applicable
Middle East and Africa (MEA)	13.62	12.00	10.80	11.22	not applicable
Total number of leavers	**4,364**	**4,168**	**6,087**	**4,710**	**244**
by gender					
Men	2,502	2,386	3,771	2,596	162
Women	1,862	1,782	2,316	2,114	82
by age group					
Up to 29 years old	1,102	943	1,464	1,058	55
30 to 49 years old	2,474	2,505	3,589	2,713	120
50 or older	788	720	1,034	939	69
by region					
Europe	1,447	1,290	1,490	1,488	244
North America	634	638	1,132	1,143	not applicable
Asia-Pacific (APAC)	1,665	1,540	2,543	1,387	not applicable
Latin America	531	618	814	570	not applicable
Middle East and Africa (MEA)	87	82	108	122	not applicable

1 The table contains unadjusted turnover rates. The rate excludes employees who depart due to parental leave or a long-term illness, as well as employees who are transitioning to the non-working phase of partial retirement.

2 Employee turnover for fiscal year 2014 is calculated as follows: Total number of leavers of the past 12 months multiplied by 100 divided by the employee headcount as of December 31.

3 Employee headcount for fiscal 2015, 2016 and 2017 is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount multiplied by 100.

4 Includes Sigma-Aldrich as of 2016

Work-related accidents[1]

	2014	2015[2]	2016	2017 Merck Group	2017 thereof Merck KGaA
Lost Time Injury Rate (LTIR = workplace accidents resulting in missed days of work per one million man-hours)	**1.8**	**1.4**	**1.3**	**1.5**	**3.1**
by region					
Europe	2.9	2.6	2.2[3]	2.4	3.1
North America	1.0	0.9	1.1	1.0	not applicable
Asia-Pacific (APAC)	0.5	0.3	0.4	0.3	not applicable
Latin America	1.3	0.7	0.4	1.3	not applicable
Middle East and Africa (MEA)	0.9	0.5	1.6	0.0	not applicable
Number of deaths	**2**	**2**	**0**	**0**	**0**
by region					
Europe	0	1	0	0	0
North America	0	1	0	0	0
Asia-Pacific (APAC)	1	0	0	0	0
Latin America	1	0	0	0	0
Middle East and Africa (MEA)	0	0	0	0	0
by gender					
Women	1	1	0	0	0
Men	1	1	0	0	0

1 Including supervised workers
2 Includes Sigma-Aldrich as of 2015
3 Figure retroactively adjusted.

Both Merck employees as well as contractors have been included in the calculation of these indicators.

Through the LTIR, we record work-related accidents that involve at least one day of missed work. A work-related accident is an injury that results from the type of work, in the course of doing said work, and that has no internal cause. Work-related accidents are considered relevant if they occur on the premises, on business trips, during goods transport, as a result of external influences (e.g. natural disasters), or due to criminal acts involving personal injury. Commuting accidents and accidents during company sporting activities are not included. First-aid incidents are generally not included in the LTIR since these usually do not result in more than one day of missed work.

By 2020, we intend to sustainably lower the LTIR to 1.5. The aim is to permanently stabilize or outperform this challenging number, which we achieved for the first time in 2015.

We have defined the LTIR as a key indicator for the Merck Group. Therefore, we do not publish any other indicators such as workplace accidents, lost days or days of absence. The LTIR is not broken down by gender as this differentiation is not relevant to our strategic planning.

For the Merck KGaA (about 20% of the employees of the Merck Group), we only report work-related illnesses if these have been diagnosed and verified by a physician. In 2017 period, no cases of work-induced illness were verified.

Employees who regularly receive a performance and development evaluation

	2014[1]	2015[2]	2016[3]	2017 Merck Group	2017 thereof Merck KGaA
% of employees who receive a performance and development evaluation	**79**	**88**	**97**	**–[4]**	**–[4]**
by gender					
Women	84	90	97	–[4]	–[4]
Men	77	87	97	–[4]	–[4]
by employee category					
Senior management (Global Grade above 17)	97	100	100	–[4]	–[4]
Low and middle management (Global Grade 14–17)	96	100	100	–[4]	–[4]
Other employees (Global Grade below 14)	78	88	97	–[4]	–[4]

1 The 2014 data is based on a reporting date of March 2, 2015.
2 The 2015 data is based on a reporting date of February 29, 2016.
3 From 2016 on, figures include Sigma-Aldrich, but as of Dec. 31 2017, the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany and of Allergopharma.
4 Figure will be available on Dec. 31, 2018.

Regular feedback and employee performance evaluations are essential to fairly ranking individual performance and to helping all employees follow their own career path at Merck. Our globally uniform Performance and Talent Management Process requires annual feedback meetings and performance assessments for all employees rated Role 2 and up in the job grading system that was used in 2017 (corresponds to Global Grade 10 or higher in the job grading system that was used until the end of 2016). Apart from evaluating employee performance, this helps us to identify individual development opportunities.

When it comes to applying this process, our individual subsidiaries can decide for themselves whether to include employees rated below Role 2 (corresponds to Global Grade 9 or lower in the job grading system that was used until the end of 2016). In Germany, all permanent employees have been participating in the Performance and Talent Management Process since 2013. In 2017, a total of 51,240 employees worldwide were involved in the process. The Performance and Talent Management Process is coordinated via our online platform HR4You.

Internationality of employees

As of Dec. 31	2014[1]	2015[2]	2016[3]	2017 Merck Group[3]	2017 thereof Merck KGaA
Number of nationalities	122	122	129	131	97
Number of nationalities in management positions (Role 4 or above)	67	64	70	65	41
% of non-Germans in management positions (Role 4 or above)	60	61	65	64	17

1 These figures do not include the employees of AZ Electronic Materials, a company that was acquired in July 2014. As of December 31, 2014, the job grading system had not yet been implemented there.
2 These figures do not include the employees of Sigma-Aldrich, a company that was acquired in November 2015. As of December 31, 2015, the job grading system had not yet been implemented there.
3 From 2016 on, figures include Sigma-Aldrich. However, as of Dec. 31 2017, the job grading system had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany or for employees of Allergopharma.

Employee age by region

As of Dec. 31

Number of employees	Worldwide	North America	Europe (including Germany)	Germany[1]	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2016							
Up to 29 years old	7,419	1,319	3,087	1,757	2,260	562	191
thereof women	3,331	548	1,470	695	922	312	79
30 to 49 years old	31,523	5,224	15,023	6,938	7,625	2,972	679
thereof women	13,849	2,327	6,985	2,780	2,817	1,405	315
50 or older	11,472	3,494	6,328	3,755	869	606	175
thereof women	4,386	1,433	2,429	1,333	242	193	89
Average age	**41.3**	**44.3**	**42.4**	**42.9**	**36.7**	**39.9**	**39.3**
Total employees	**50,414**	**10,037**	**24,438**	**12,450**	**10,754**	**4,140**	**1,045**
2017							
Up to 29 years old	7,676	1,438	3,272	1,589	2,257	521	188
thereof women	3,512	608	1,585	634	945	294	80
30 to 49 years old	32,895	5,465	15,680	5,838	8,099	2,913	738
thereof women	14,540	2,423	7,287	2,195	3,074	1,405	351
50 or older	12,370	3,617	7,028	3,250	938	616	171
thereof women	4,806	1,487	2,755	1,069	279	197	88
Average age	**41.4**	**44.1**	**42.5**	**42.6**	**36.9**	**40.3**	**39.4**
Total employees	**52,941**	**10,520**	**25,980**	**10,677**	**11,294**	**4,050**	**1,097**

1 From 2017 on, the figure only includes the employees of Merck KGaA.

Age of youngest employee

As of Dec. 31	2014	2015	2016[1]	2017
Age of youngest employee, excluding apprentices	17	17	17	18

1 Includes Sigma-Aldrich as of 2016

Voluntary insurance benefits (voluntarily introduced and (co-) financed)

As of Dec. 31	2014[1]	2015[1]	2016	2017 Merck Group	2017 thereof Merck KGaA
% of employees with healthcare benefits[2]	–	–	68[3]	68	0
% of employees with Group accident insurance[4]	–	–	39	42	1
% of employees with life insurance[5]	–	–	57	58	0
% of employees with disability insurance (short-term and long-term)[6]	–	–	32	35	0

1 Since 2016, we've been reporting voluntary insurance benefits that we offer our employees. No such data was tracked for the preceding years.
2 Any spend on voluntarily introduced and (co-) financed healthcare benefits for employees and possibly their dependents. Not taking into consideration any mandatory social security cover (Mostly covered by an insurance policy).
3 Figure retroactively adjusted.
4 Any spend on voluntarily introduced and (co-) financed accident insurance that pays a defined amount in case of death or disability caused by a work-related accident (not taking into consideration any mandatory social security cover, e.g. workman's compensation).
5 Any spend on voluntarily introduced and (co-) financed life insurance cover that pays a defined amount of money in case of natural death (not accidental).
6 Any spend on voluntarily introduced and (co-) financed insurance cover that disability pays for salary continuation in case of inability to work caused by an insured incident.

All our employees are covered by either statutory or voluntary accident and health insurance. Employees of Merck KGaA are covered by statutory insurance as stipulated by the regulations in force in Germany.

We offer a company pension in numerous countries along with various programs for supplemental company pensions and survivor's benefits.

The global benefits listed in the table above are designed to provide additional security to our workforce and their families and to improve their quality of life. Benefits represent voluntarily employer-initiated as well as employer-financed assistance to our workforce in addition to the regular compensation package.

Our benefits offer meaningful choices, where possible, to support a diverse workforce and are sensitive to the needs and customs of the employees who use them, regardless of country, age, family status, interests, or values.

Long-term pension obligations and post-employment benefits

€ million	2014	2015[1]	2016	2017
Present value of all defined benefit obligations as of Dec. 31	3,813	4,153	4,698	4,707
Pension expenses	157	210	226	304

1 Includes Sigma-Aldrich as of 2015

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for the employees of the Merck Group. Generally, these systems are based on the years of service and salaries of the employees. Pension obligations of the Merck Group include both defined benefit and defined contribution plans and comprise both obligations from current pensions and accrued benefits for pensions payable in the future. In the Merck Group, defined benefit plans are funded and unfunded (see our Annual Report 2017, Note on Provisions for pensions and other post-employment benefits).

Flexible working hours in Germany

As of Dec. 31	2014	2015	2016[1]	2017[2]
% of employees utilizing the "mywork@Merck" working model	31	35	36	40

1 Includes Sigma-Aldrich as of 2016
2 Essentially reflects the figures of Merck KGaA.

In coordination with their teams and supervisors, employees taking advantage of "mywork@merck" can choose when and where they work.

Parental leave in Germany

As of Dec. 31	2014[1]	2015[1]	2016[1]	2017[2]
Number of employees with a right to parental leave	331	317	359	353
thereof women (recorded via maternity leave in the respective year)	165	149	191	151
thereof men (recorded via special paternity leave in the respective year)	166	168	168	202
Number of employees who took parental leave[3]	507	485	480	352
thereof women	349	301	303	150
thereof men	158	184	177	202
Number of employees on parental leave who worked part time during their leave	99	102	102	49
thereof women	94	99	95	47
thereof men	5	3	7	2
Number of employees who returned from parental leave	187	183	174	312
thereof women	83	51	62	143
thereof men	104	132	112	169
Return to work rate (%)	36.9	37.7	36.3	88.6
thereof women	23.8	16.9	20.5	95.3
thereof men	65.8	71.7	63.3	83.7
Number of employees still working for Merck one year after their return from parental leave	137	184	190	–[4]
thereof women	35	55	73	–[4]
thereof men	102	129	117	–[4]
Retention rate (%)	90.7	96.8	95.6	–[4]
thereof women	58.3	98.2	93.8	–[4]
thereof men	112.1	96.3	96.8	–[4]

1 Figures only pertain to the Darmstadt and Gernsheim sites in Germany (which accounted for around 20 % of Merck Group employees in 2017). Figures are calculated on the basis of the data from one entire year, which also includes those employees who took parental leave during the calendar year, but who had not returned by Dec. 31.
2 Figures only pertain to Merck KGaA (which accounted for around 20 % of Merck Group employees in 2017). Figures are calculated on the basis of the data from one entire year, which also includes those employees who took parental leave during the calendar year, but who had not returned by Dec. 31.
3 Since parental leave can be taken for a period ranging from one month to three years, it is possible for employees to be recorded across a period of up to four calendar years. This explains why the number of employees on parental leave exceeds the number of employees who have a right to it.
4 Figure will be available on Dec. 31, 2018.

Employees with disabilities[1] (%)

As of Dec. 31	2014	2015	2016	2017
Employees with disabilities[1]	4.7	4.7	4.5	4.3

1 Only pertains to Merck KGaA (which accounted for around 20% of Merck Group employees in 2017, calculations based on the German Social Code IX - SGB IX).

Apprentices

As of Dec. 31	2014[1]	2015[2]	2016[3]	2017[3]
Number of apprentices	498	506	576	588
% of apprentices	5.4	5.3	4.6	4.4

1 Only pertains to Merck KGaA sites in Darmstadt, Gernsheim and Grafing, Germany (which accounted for roughly 24% of the Merck Group's employees in 2014).
2 Only pertains to Merck KGaA (roughly 19% of the Merck Group's total employee headcount in 2015).
3 Only pertains to Merck sites in Germany (approximately 25% of the Group's total workforce in 2016 and 2017). Essentially reflects the figures of Merck KGaA.

Environment

Spending on environmental protection, safety and health

€ million	2014	2015	2016[1]	2017
Spending	145	148	189	200

1 Includes Sigma-Aldrich as of 2016

These figures include both investments in as well as internal and external spending on waste and wastewater management, water, occupational safety, fire protection, noise reduction, air pollution prevention, decontamination, preservation of nature and the landscape, climate impact mitigation, and energy efficiency. We do not further break down our spending on environmental protection by type.

Total greenhouse gas emissions (Scope 1 and 2 of the GHG Protocol)[1]

metric kilotons	2006[2]	2014	2015	2016	2017
Total CO_2eq[3] emissions	**793**	**731**	**726**	**711**	**731**
Thereof					
direct CO_2eq emissions	379	390	393	387	374
indirect CO_2eq emissions	414	341	333	324	357
Biogenic CO_2 emissions	**6**	**11**	**54**	**56**	**38**

1 In line with the Greenhouse Gas Protocol, for all previous years (up to the 2006 baseline) the greenhouse gas emissions have been calculated based on the current corporate structure of the reporting year and retroactively adjusted for acquisitions (e.g. Sigma-Aldrich in 2015) or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).
2 Baseline for our emission targets is 2006.
3 eq = equivalent

Our response to the Carbon Disclosure Project contains a detailed description of our calculation methods.

We have included the following gases in our calculation of direct and indirect CO_2eq emissions:

- Direct CO_2 emissions: CO_2, HFCs, PFCs; CH_4/N_2O negligible; SF_6/NF_3 not available.
- Indirect CO_2 emissions: CO_2.

In 2017, we emitted 0.048 kg of CO_2eq per euro of net sales.

Other relevant indirect greenhouse gas emissions (Scope 3 of the GHG Protocol)

	2014[1]	2015[1]	2016[1,2]	2017
Total gross other indirect emissions (metric kilotons CO_2eq[3])	**319**	**349**	**426**	**353**
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	97	95	127	118
Waste generated in operations (category 5)	96	123	127	68
Business travel - air travel (category 6)	74	79	103[4]	98
Business travel - rail travel (category 6)	0.02	0.02	0.02	0.02[5]
Business travel - rental car travel (category 6)	1.2	1.1	0.6	0.6
Employee commuting (category 7)	51	51	68	68
Upstream leased assets (category 8)	0	0[6]	0[6]	0[6]
Processing of sold products (category 10)	0	0[7]	0[7]	0[7]
Downstream leased assets (category 13)	0	0	0	0
Franchises (category 14)	0	0	0	0

1 Because of the characteristics of the Scope 3 emissions data we do not correct these data subsequently.
2 Includes Sigma-Aldrich as of 2016
3 eq = equivalent
4 This figure covers roughly 80% - 85% of the employees of the Merck Group because the data for the employees of Sigma-Aldrich, acquired in November 2015, are only partially available.
5 German Railway
6 Already covered under Scope 1 and 2 emissions
7 Merck produces a huge variety of intermediate products for various purposes. Due to their many applications and our customer structure, the associated GHG emissions cannot be tracked in a reasonable fashion.

No data is available for Scope 3 categories not listed above. Their relevance to Merck is assessed in the Scope 3 document.

Biogenic emissions (Scope 3), if present, are not being recorded.

Emissions of ozone-depleting substances

metric tons	2014	2015	2016	2017
Total emissions of ozone-depleting substances	2.0	2.5	2.2	2.1
CFC-11eq[1]	0.1	0.1	0.1	0.1

1 CFC-11eq is a unit of measure used to compare the potential of various substances to deplete the ozone. Reference figure 1 indicates the potential of CFC-11 to cause the depletion of the ozone layer.

Substances included: R-12, R-22, R-141b, R-402a, R-409a, R-401a.

Source for the emission factors: Montreal Protocol.

Other air emissions

metric kilotons	2014	2015	2016[1]	2017
Volatile organic compounds (VOC)	0.3	0.3	0.3	0.3
Nitrogen oxide	0.2	0.3	0.2	0.2
Sulfur dioxide	0.02	0.05	0.05	0.03
Dust	0.02	0.06	0.02	0.04

1 Includes Sigma-Aldrich as of 2016

The VOC, nitrogen oxide, sulfur dioxide, and dust emissions reported here are attributable to production activities as well as energy generation. These figures do not include emissions from vehicles. Emissions are determined partially based on measurements and partially based on calculations or estimates. Only some sites are required to measure individual parameters.

Transport of finished goods, by means of transportation

	2014[1]	2015[1]	2016[2]	2017
% Truck	56	53	71	73
% Boat	38	41	18	15
% Airplane	6	6	11	12

1 The figures until 2015 pertain to goods shipped by our Darmstadt, Gernsheim and Hohenbrunn sites in Germany (excluding Sigma-Aldrich).

2 From 2016 on, the figures contain the volumes of the biggest global distribution centers of our Healthcare, Life Science and Performance Materials business sectors. These figures pertain to the total weight of transported products and indicate the primary means of transport.

In shipping finished goods from our production sites to the local warehouses of our subsidiaries, we have been working to reduce the use of air shipping in favor of sea freight. This change aims to both reduce costs as well as lower transport-related CO_2 emissions.

Energy consumption[1]

In GWh	2014	2015	2016	2017
Total energy consumption	**2,162**	**2,260**	**2,241**	**2,270**
Direct energy consumption	**1,354**	**1,452**	**1,445**	**1,386**
Natural gas	1,207	1,206	1,267	1,256
Liquid fossil fuels[2]	120	111	37	34
Biomass and self-generated renewable energy	27	135	141	96
Indirect energy consumption	**808**	**808**	**796**	**884**
Electricity	711	712	701	740
Steam, heat, cold	97	96	95	144
Total energy sold	**0.6**	**0.5**	**0.5**	**0.3**
Electricity	0.6	0.5	0.5	0.3
Steam, heat, cold	0	0	0	0

In TJ	2014	2015	2016	2017
Total energy consumption	**7,783**	**8,137**	**8,068**	**8,172**
Direct energy consumption	**4,874**	**5,228**	**5,202**	**4,990**
Natural gas	4,345	4,342	4,561	4,522
Liquid fossil fuels[2]	432	400	133	122
Biomass and self-generated renewable energy	97	486	508	346
Indirect energy consumption	**2,909**	**2,909**	**2,866**	**3,182**
Electricity	2,560	2,563	2,524	2,664
Steam, heat, cold	349	346	342	518
Total energy sold	**2.2**	**1.8**	**1.8**	**1.1**
Electricity	2.2	1.8	1.8	1.1
Steam, heat, cold	0.0	0.0	0.0	0.0

1 In line with the Greenhouse Gas Protocol, for all previous years (up to the 2006 baseline) the energy consumption has been calculated based on the current corporate structure of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).
2 Light and heavy fuel oil, liquefied petroleum gas (LPG), diesel and gasoline

At our sites in Billerica (MA, USA), Bedford (MA, USA), Molsheim (France), Tel Aviv (Israel), Rome (Italy), Guatemala City (Guatemala), Shizuoka-ken (Japan), and Shanghai (China), we use photovoltaics to produce power.

Merck currently only records purchased secondary energy – this is primarily electricity and, to a lesser extent, heat/steam/cold. Details on the local energy mix, including the respective percentage of primary energy, renewable energy, etc. are not available. Data on local energy efficiency in electricity or heat generation are not available either. Our production sites are located in countries with a widely varying energy mix.

Our Darmstadt and Gernsheim sites in Germany consume the most energy, representing 28% of our Group-wide total. At these sites, fossil energy (coal, gas, etc.) accounts for approx. 53.7%, nuclear energy approx. 14.3% and renewable energies approx. 32% of the energy mix. Renewable energies account for a higher share of electricity generation at production sites in Switzerland, with nuclear energy taking the lead in France. Based on an estimated global energy efficiency of 37% for the conversion and distribution of generated electricity, this results in a primary energy consumption of 2,000 GWh for 2017. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 170 GWh for 2017. This yields a total primary energy consumption of 2,170 GWh for 2017. (The calculation is based on factors stated in the "Manual for energy management in practice - Systematically reducing energy costs" published by DENA, 12/2012.)

In 2017, Merck's energy intensity relative to net sales totaled 0.150 kWh/€.

Water consumption

millions of m^3	2014	2015[1]	2016	2017
Total water consumption	**11.1**	**13.7**[2]	**13.8**[2]	**14.0**
Surface water (rivers, lakes)	1.2	1.8[2]	1.8[2]	1.8
Groundwater	6.3	7.1[2]	7.2	7.3
Drinking water (from local suppliers)	3.6	4.8[2]	4.8[2]	4.9
Rain water and other sources	0.01	0.01	0.01	0.01

1 Includes Sigma-Aldrich as of 2015
2 Figure retroactively adjusted.

These figures do not include the ground water that we use for safety measures at our Gernsheim site in Germany. Here, the water is fed back directly into natural circulation.

Water reused

millions of m^3	2014	2015[1]	2016	2017
Water reused	16.0	23.0	22.7	22.4

1 Includes Sigma-Aldrich as of 2015

The increase in reused water in 2015 is attributable to the recirculating cooling system that went online at our facility in Darmstadt, Germany. This system provides recirculating cooling water to both our new co-generation unit as well as our new cold and compressed air generator. The recirculating cooling system largely accounts for the amount of reused water as it allows the water to be re-utilized multiple times. The volume of reused water is thus greater than the total volume of consumed water.

Wastewater volume and quality

	2014	2015[1]	2016	2017
Total wastewater volume (millions of m^3)	**10.1**	**11.8**	**12.1**	12.3
Chemical oxygen demand (metric tons of O_3)	1,319	1,933	1,535	1,654
Phosphorous (metric tons)	10	10	12	8
Nitrogen (metric tons)	81	487[2]	379[2]	254
Zinc (kg)	410	491[2]	448[2]	351
Chromium (kg)	36	42	34	34
Copper (kg)	34	78[2]	48[2]	61
Nickel (kg)	128	127[2]	124	138
Lead (kg)	55	54	56	63
Cadmium (kg)	10	13	11	12
Mercury (kg)	1	2	2	1
Arsenic (kg)	4	5	4	3

1 Includes Sigma-Aldrich as of 2015
2 Figure retroactively adjusted.

The wastewater volume includes indirect discharge into both public and Merck-owned wastewater treatment plants, as well as direct discharge (such as rainwater and cooling water).

The wastewater treatment plant at our Gernsheim, Germany site also treats wastewater from the neighboring municipality of Biebesheim. The communal wastewater from Biebesheim is included in the wastewater volume as well as in the emissions stated in the table.

Emissions are determined partially based on measurements and partially based on calculations or estimates. Only some sites are required to measure individual parameters.

Hazardous and non-hazardous waste

metric kilotons	2014	2015[1]	2016	2017
Total waste	**228**	**320[2]**	**252[2]**	**252**
Hazardous waste disposed[3]	53	55	47[2]	43
Non-hazardous waste disposed[3]	55	35	38[2]	34
Hazardous waste recycled[4]	49	73	78[2]	69
Non-hazardous waste recycled[4]	71	157[2]	89[2]	106

1 Includes Sigma-Aldrich as of 2015
2 Figure retroactively adjusted.
3 Disposed = incineration (without energy recovery) and landfill
4 Recycled = incineration (with energy recovery) and material recycling

Exported/Imported hazardous waste

metric kilotons	2014	2015[1]	2016	2017
Exported[2]	9.6	5.1	4.6	4.9
Imported[3]	0.003	0.010	0.010	0.005

1 Includes Sigma-Aldrich as of 2015
2 Disposal within the EU and the United States.
3 As part of the return system for our cell tests, these kits are brought to our Gernsheim site in Germany for proper disposal.

In 2017, less than 2% of hazardous waste was shipped internationally.

Waste by disposal method

	2014	2015[1]	2016	2017
Total waste (metric kilotons)	**228**	**320[2]**	**252[2]**	**252**
Disposed waste (metric kilotons)	**108**	**90**	**85[2]**	**77**
Landfilled waste (metric kilotons)	37	16	15[2]	13
Incinerated waste (metric kilotons)	71	74	70[2]	64
Recycled waste (metric kilotons)	**120**	**230[2]**	**167[2]**	**175**
Material recycling (metric kilotons)	93	198[2]	135[2]	145
Waste-to-energy (metric kilotons)	27	32	32[2]	30
Recycling rate (%)	**53**	**72**	**66[2]**	**69**

1 Includes Sigma-Aldrich as of 2015
2 Figure retroactively adjusted.

As in previous years, the total waste generated continues to be heavily influenced by the waste from construction and remodeling activities. Construction, excavation and demolition waste accounted for 37% of our waste in 2017. Around 74 metric kilotons of construction, excavation and demolition waste was recycled.

Significant spills

	2014	2015[1]	2016	2017
Total number of significant spills	0	0	0	0

1 Includes Sigma-Aldrich as of 2015

Community

Spending on community involvement

€ million	2014	2015	2016[1,2]	2017
Total spending	50.8	100.0	43.0	33.8

1 Includes Sigma-Aldrich as of 2016
2 From 2016 on, we are separating spending on patient support programs such as our Erbitux® China Patients Assistance Program from our community involvement figures.

We calculate the value of pharmaceutical product donations according to the WHO Guidelines for Medicine Donations; for other product donations, we apply their fair value.

Community involvement spending by region[1]

	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2016					
€ million	10.1	2.3	4.4	1.1	25.1
%	24	5	10	3	58
2017					
€ million	**8.7**	**2.9**	**3.2**	**0.5**	**18.5**
%	**26**	**9**	**9**	**1**	**55**

1 This table presents the regions across the globe in which we support initiatives. For projects that benefit multiple regions, we have calculated the amount per region by dividing the project spending evenly per country.

Focus of our local community involvement[1]

%	2014	2015	2016[2,3,4]	2017
Health	33	33	35	38
Education and culture	38	33	36	43
Environment	10	7	5	4
Disaster relief	4	6	2	2
Other	15	21	22	13

1 Based on number of projects
2 Includes Sigma-Aldrich as of 2016
3 Since 2016, we have integrated our global projects into our community outreach figures, specifically the Global Pharma Health Fund, the Merck Praziquantel Donation Program and the Deutsche Philharmonie Merck. This change in approach was due to the increasingly international nature of our efforts. We are spearheading a rising number of global projects that account for a growing percentage of our project portfolio. To ensure maximal accuracy, we are therefore including all international initiatives in our figures as of 2016.
4 From 2016 on, we are separating spending on patient support programs such as our Erbitux® China Patients Assistance Program from our charitable spending figures.

Motivations for our community involvement[1]

%	2014	2015	2016[2,3,4]	2017
Charitable activities	9	3	4	9
Community investment	59	92	87	84
Commercial initiatives in the community	32	5	9	7

1 Based on total spending on all projects
2 Including Sigma-Aldrich as of 2016
3 Since 2016, we have been integrating our global projects into our community outreach figures, specifically the Global Pharma Health Fund, the Merck Praziquantel Donation Program and the Deutsche Philharmonie Merck. This change in approach was due to the increasingly international nature of our efforts. We are spearheading a rising number of global projects that account for a growing percentage of our project portfolio. To ensure maximal accuracy, we are therefore including all international initiatives in our figures as of 2016.
4 As of 2016, we are separating patient support programs such as our Erbitux® China Patients Assistance Program from our charitable spending.

We categorize the motivations for our activities based on the London Benchmarking Group model as well as the guidelines of the Bertelsmann Foundation for corporate social responsibility. Projects that primarily aim to make improvements within the community are classified as community investment.

Initiatives that are predominantly aimed at company-relevant factors such as image or personnel recruitment are classified as commercial initiatives in the community. Charitable activities cover any other projects that benefit a charitable organization, but cannot be listed under either of the other two motivation categories due to missing data or their narrow scope.