Facts & figures

This section presents our CR targets, describes the advances we have made in implementing the ten principles of the UN Global Compact, and details our work to promote the United Nations Sustainable Development Goals. The GRI Index documents the extent to which we are fulfilling the GRI G4 standard. Last but not least, the "Recognition and rankings" section reports on the various awards and recognition we have received.

Read more

Report profile

We have a long tradition of corporate responsibility reporting, with this being our eighth Corporate Responsibility (CR) Report. This started in 1993 as a series of environmental reports, but then evolved in 2003 into a full CR Report that has since been published every two years.

With transparency as a key goal, we aim to inform our stakeholders of our activities and successes, as well as the challenges we face. Our 2016 Corporate Responsibility Report documents the progress we’ve made in implementing the principles of the United Nations Global Compact (Communication on Progress) and meets the criteria of the German Sustainability Code (DNK). Our Statement of Compliance with the DNK is publicly accessible in the DNK database.

Reporting framework

This CR report covers the 2015 and 2016 fiscal years and pertains to our entire Group including our subsidiaries in 66 countries. The activities of the U.S.-based life science company Sigma-Aldrich, which we acquired in 2015, are also integrated in this report. Any deviations from this reporting framework are indicated on a case-by-case basis.

Systems for collecting and consolidating data

Since 2005, we’ve been using a Group-wide electronic data acquisition system to collect environmental and occupational health and safety data, which is input locally at our individual sites and approved following review. To maximize the quality of this data, we support the sites in optimizing their collection processes and their corresponding quality assurance measures. Moreover, our Group function Environment, Health, Safety, Security, Quality (EQ) conducts internal EHS audits that review both the processes and the data provided.

We compile environmental performance indicators from all our production sites across the Group, as well as those storage and research sites that are relevant in terms of their environmental impact and employee count. The scope of consolidation therefore covers all Merck Group sites that have relevant impacts on the environment.

The data on employees and community outreach pertain to our entire Group. All employee master data is continually updated in an SAP-based database. Additional employee data, for instance on ILO core labor standards, are generated on an annual basis using a special data software. We use community data management software to log data pertaining to our community outreach at subsidiary level.

Some employee data is only disclosed for select sites or countries, which is accordingly indicated in the respective text passages.

Determining report content

We align the content of our CR Report with the internationally recognized guidelines of the Global Reporting Initiative (GRI) and the principles of completeness and materiality, as well as input from our stakeholders. The present report was drafted in accordance with the GRI G4 standard and complies with the “Comprehensive” application level of the GRI guidelines. Moreover, we have taken into consideration the requirements of the capital market for assessing companies' sustainability performance.

In 2016, we performed a materiality assessment to determine the CR topics of relevance to our Group. As part of this process, we conducted an international online survey as well as interviews with key stakeholders in summer 2016. In autumn, we then held an internal materiality workshop at our site in Darmstadt. We have derived the content of this CR report from the results of the materiality assessment, addressing all issues identified as material. Detailed information on the materiality assessment and the materiality matrix can be found under Materiality assessment (p. 19).

Our Executive Board has reviewed and approved this report.

External audit

KPMG AG Wirtschaftsprüfungsgesellschaft has audited the annual financial statements and management report of the Merck Group for the fiscal year spanning January 1 to December 31, 2016 and issued an unqualified opinion. Furthermore, after undergoing a limited assurance audit, our company has received an independent audit certificate for the following criteria:

- identifying material aspects and boundaries, and involving stakeholders
- select management approaches to the material aspects
- CR performance indicators

The additional content provided on the company's websites and external webpages indicated in this report is not part of the information assured by KPMG.

Contact:

We welcome your feedback and are happy to answer any questions.

Merck KGaA
Public Affairs and Corporate Responsibility

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Our next CR Report is scheduled for publication in April 2018.

Indicators

We use indicators to measure and assess our corporate responsibility performance. The following key figures have undergone a limited assurance by KPMG AG Wirtschaftsprüfungsgesellschaft.

Read more

Indicators: Economics

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

€ million	Healthcare	Life Science	Performance Materials	Group[1]
2015				
Net sales	6,934	3,355	2,556	**12,845**
Operating result (EBIT)	1,097	301	878	**1,843**
R&D costs	1,310	197	197	**1,709**
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**

1 As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our 2016 Annual Report.

Indicators: Compliance

Internal audits on corruption and Human Rights Charter

	2013	2014	2015	2016[1]
Number of audits relating to corruption	30	36	49	55
% of audits relating to corruption	64	68	64	68
Number of audits relating to the workplace requirements of our Human Rights Charter	27	32	41	47

1 Includes Sigma-Aldrich as of 2016

In 2015, 17% of all subsidiaries (excluding minority holdings, EMD Millipore Corporation, and Merck KGaA, Darmstadt, Germany) were audited for the period between the third quarter of 2013 and the second quarter of 2014, covering approximately 33% of sales.

In 2016, we audited 12% of all legacy Merck subsidiaries (excluding minority holdings, EMD Millipore Corporation, and Merck KGaA, Darmstadt, Germany) for the period between the third quarter of 2014 and the second quarter of 2015, covering approximately 20% of all sales. We also audited 8% of all Sigma-Aldrich sites, a company acquired in 2015.

Reported compliance violations

	2013	2014	2015	2016[1]
Number of reported compliance incidents	22	26	33	36
Number of confirmed cases	9	11	8	12

1 Includes Sigma-Aldrich as of 2016

Compliance training

	2013	2014[1]	2015	2016[2]
Total number of persons trained on anti-corruption guidelines	**24,168**	**7,519[3]**	**20,404[3]**	**29,764[3]**
% of employees trained on anti-corruption	63	14	43	51
by employee category				
Number of employees Global Grade 10 or higher trained on anti-corruption	12,390	3,071	12,747	14,379
% of employees Global Grade 10 or higher trained on anti-corruption	69	17	64	84
% of employees Global Grade 9 or lower trained on anti-corruption	51	12	22	34
by region (%)[4]				
Europe	–	–	–	54
North America	–	–	–	57
Asia-Pacific (APAC)	–	–	–	38
Latin America	–	–	–	52
Middle East and Africa (MEA)	–	–	–	66

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 (2015: 3,026, 2016: 3,875).
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 Global Grade (GG) 10 or higher.

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

Legal actions

	2013	2014	2015[1]	2016
Total number[2] of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	**3**	**2**	**2**	**2**
pending	2	2	2	2
completed	1	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 2013, pages 132-134 and pages 226-227, no. 48
- 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

Indicators: products

Customer privacy[1]

	2013	2014	2015[2]	2016[2]
Total number of substantiated complaints received from outside parties	0	0	0	0
Total number of complaints from regulatory bodies	0	1	0	0
Total number of identified leaks, thefts, or losses of customer data	0	0	0	1

1 This data only reflects incidents classified as significant.
2 The figures exclude Sigma-Aldrich since the integration process is still underway.

Indicators: Employees

We track data on our employees Group-wide. When the legal frameworks are not comparable or no global data is available, the data will then only reflect our employees in Germany (approximately 25% of our workforce).

Employee facts & figures worldwide

Total number of employees

As of Dec. 31	2013	2014	2015[1]	2016
Total number of employees	**38,154**	**39,639**	**49,613**	**50,414**
Men	22,253	23,273	28,997	28,848
Women	15,901	16,366	20,616	21,566

1 Includes Sigma-Aldrich as of 2015

Number of employees by hierarchical level

As of Dec. 31	2013	2014[1]	2015[2]	2016[3]
Total employees	**38,154**	**39,639**	**40,718**	**50,414**
Senior management (Global Grade above 17)	63	63	75	87
Low and middle management (Global Grade 14–17)	1,949	2,108	2,333	2,800
Other employees (Global Grade below 14)	36,142	37,468	38,310	47,527
% of women (total)	**42**	**41**	**41**	**43**
thereof in senior management (Global Grade above 17)	10	10	12	15
thereof in low and middle management (Global Grade 14–17)	498	562	633	817
thereof other employees (Global Grade below 14)	15,393	15,794	16,182	20,734
% of men (total)	**58**	**59**	**59**	**57**
thereof in senior management (Global Grade above 17)	53	53	63	72
thereof in low and middle management (Global Grade 14–17)	1,451	1,546	1,700	1,983
thereof other employees (Global Grade below 14)	20,748	21,673	22,128	26,793
by age group **Up to 29 years old (%)**	**15**	**15**	**15**	**15**
thereof in senior management (Global Grade above 17)	0	0	0	0
thereof in low and middle management (Global Grade 14–17)	5	6	5	8
thereof other employees (Global Grade below 14)	5,901	5,884	5,848	7,411
30 to 49 years old (%)	**64**	**64**	**64**	**62**
thereof in senior management (Global Grade above 17)	27	24	29	35
thereof in low and middle management (Global Grade 14–17)	1,233	1,340	1,469	1,720
thereof other employees (Global Grade below 14)	23,302	24,082	24,680	29,768
50 years or older (%)	**20**	**21**	**21**	**23**
thereof in senior management (Global Grade above 17)	36	39	46	52
thereof in low and middle management (Global Grade 14–17)	711	762	859	1,072
thereof other employees (Global Grade below 14)	6,939	7,502	7,782	10,348

1 Figures do not include the employees of AZ Electronic Materials, a company acquired in July 2014, because our Global Grading System had not yet been implemented for them as of December 31, 2014. These employees are included under "thereof other employees (Global Grade below 14)".

2 As of Dec. 31 2015, the Global Grading System had not yet been implemented for employees of Sigma-Aldrich, a company acquired in November 2015. These figures therefore exclude Sigma-Aldrich.

3 From 2016 on, these figures include Sigma-Aldrich, but as of Dec. 31 2016 the Global 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 (Global Grade below 14)".

Average number of employees by functional area

Average number of employees	2013[1]	2014[1]	2015[2]	2016[2]
Group	**38,282**	**38,930**	**41,511**	**50,439**
Thereof women	**not recorded**	**16,110**	**17,180**	**21,136**
Production	9,985	10,176	11,563	14,829
Thereof women	not recorded	3,202	3,642	4,698
Logistics	1,779	2,207	2,581	3,955
Thereof women	not recorded	774	913	1459
Marketing and Sales	12,214	12,113	12,871	14,887
Thereof women	not recorded	4,814	5,204	6,401
Administration	5,106	6,342	6,763	8,190
Thereof women	not recorded	3,557	3,757	4,421
Research and Development	4,433	4,738	5,097	6,249
Thereof women	not recorded	2,534	2,674	3,274
Infrastructure and Other	4,765	3,354	2,636	2,329
Thereof women	not recorded	1,230	990	883

1 Average headcount (HC) 2014 and 2013 is calculated based on the End HC of the last 5 quarters divided by 5.
2 The average employee headcount for 2015 and 2016 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.

Number of employees by region

As of Dec. 31	2013	2014	2015[1]	2016
Total	**38,154**	**39,639**	**49,613**	**50,414**
Employees in Europe	20,013	20,537	23,429	24,438
thereof women	8,755	8,893	10,316	10,884
Employees in North America	4,911	5,092	9,794	10,037
thereof women	2,246	2,272	4,183	4,308
Employees in Asia-Pacific (APAC)	8,862	9,488	11,096	10,754
thereof women	2,947	3,176	3,706	3,981
Employees in Latin America	3,798	3,883	4,352	4,140
thereof women	1,699	1,745	1,986	1,910
Employees in the Middle East and Africa (MEA)	570	639	942	1,045
thereof women	254	280	425	483

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	2013	2014	2015[1]	2016
Healthcare employees	**17,278**	**17,757**	**18,566**	**18,837**
Thereof women	7,909	8,130	8,522	9,090
Thereof women (%)	46	46	46	48
Life Science employees	**9,837**	**9,796**	**18,611**	**19,178**
Thereof women	4,124	4,134	7,883	7,928
Thereof women (%)	42	42	42	41
Performance Materials employees	**4,709**	**5,995**	**6,228**	**5,469**
Thereof women	1,210	1,498	1,531	1,427
Thereof women (%)	26	25	25	26

1 Includes Sigma-Aldrich as of 2015

Employees by contract type

As of Dec. 31	2013	2014	2015[1]	2016
Total employees	**38,154**	**39,639**	**49,613**	**50,414**
Number of employees with permanent contracts	36,908	38,410	46,454	46,837
Number of employees with temporary contracts	1,246	1,219	3,159	3,577
% of employees with permanent contracts	97	97	94	93
% of employees with temporary contracts	3	3	6	7
full-time employees	34,911	37,573	47,292	48,056
% full-time	95	98	95	95
thereof women	13,524	14,497	18,557	19,457
thereof women (%)	39	39	39	40
part-time employees	1,994	2,066	2,321	2,358
% part-time	6	5	5	5
thereof women	1,839	1,869	2,059	2,109
thereof women (%)	92	90	89	89

1 Includes Sigma-Aldrich as of 2015

New employees

	2013	2014	2015[1]	2016
Total number of new employee hires	**5,007**	**6,212**	**5,710**	**7,085**
by age group				
Up to 29 years old	2,358	2,305	2,088	2,930
30 to 49 years old	2,397	3,361	3,252	3,736
50 or older	252	546	370	419
by gender				
Women	2,051	2,513	2,450	3,388
Men	2,945	3,689	3,260	3,697
by region				
Europe	1,757	2,312	2,119	2,689
North America	526	826	730	1,348
Asia-Pacific (APAC)	2,060	2,298	1,913	2,201
Latin America	548	619	780	636
Middle East and Africa (MEA)	116	157	168	211

Rate of new employee hires[2] (%)	**13**	**16**	**14**	**14**
by age group[3]				
Up to 29 years old	47	37	37	41
30 to 49 years old	48	54	57	53
50 or older	5	9	6	6
by gender[3]				
Women	41	41	43	48
Men	59	59	57	52
by region[3]				
Europe	35	37	37	38
North America	11	13	13	19
Asia-Pacific (APAC)	41	37	33	31
Latin America	11	10	14	9
Middle East and Africa (MEA)	2	3	3	3

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 preceeding years have been retroactively adjusted.

Staff turnover[1]

	2013[2]	2014[2]	2015[3]	2016[3,4]
Total turnover rate	**14.61**	**11.01**	**10.38**	**12.07**
Turnover rate by gender				
Men	13.98	10.75	10.13	12.87
Women	15.00	11.38	10.73	10.96
Turnover rate by age group				
Up to 29 years old	21.55	18.71	17.49	19.20
30 to 49 years old	13.44	9.72	9.69	11.37
50 or older	13.01	9.49	8.08	9.19
Turnover rate by region				
Europe	14.61	7.05	6.22	6.23
North America	10.51	12.45	12.72	11.50
Asia-Pacific (APAC)[5]	not recorded	17.55	15.95	22.37
Latin America[5]	not recorded	13.67	15.29	18.85
Middle East and Africa (MEA)[5]	not recorded	13.62	12.00	10.80
Total number of leavers	**5,573**	**4,364**	**4,168**	**6,087**
by gender				
Men	3,110	2,502	2,386	3,771
Women	2,385	1,862	1,782	2,316
by age group				
Up to 29 years old	1,273	1,102	943	1,464
30 to 49 years old	3,300	2,474	2,505	3,589
50 or older	1,000	788	720	1,034
by region				
Europe	2,367	1,447	1,290	1,490
North America	516	634	638	1,132
Asia-Pacific (APAC)[5]	not recorded	1,665	1,540	2,543
Latin America[5]	not recorded	531	618	814
Middle East and Africa (MEA)[5]	not recorded	87	82	108

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 2013 and 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 and 2016 is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount (see table "average number of employees by functional area") multiplied by 100. These figures exclude Sigma-Aldrich, which is still undergoing integration. In consequence of the modified calculation method for turnover rate, it is only possible to make a limited statement concerning interannual trends.

4 Includes Sigma-Aldrich as of 2016

5 We have no 2013 data for the Asia-Pacific (APAC), Latin America, and Middle East and Africa (MEA) regions, which were realigned in 2015.

Core labor standards of the International Labour Organization (ILO)

As of Dec. 31	2013	2014	2015	2016[1]
% of full-time employees (standard contract, excluding exempts) with contractually stipulated working hours of maximally 48 hours/week[2]	99	99	100	100
% of full-time employees (standard contract) with at least 15 vacation days/year[3]	98	95	97	95
% of female employees with access to maternity leave programs[4]	100	100	100	100
% of employees with the right to collective bargaining[5]	97	97	98	92
% of employees working at companies where collective agreements apply	68	66	71	54
% of sites that rule out complicity in child labor as described in ILO Convention 138	100	100	100	100
Age of youngest employees, excluding apprentices	16	17	17	17

1 Includes Sigma-Aldrich as of 2016
2 ILO: Hours of Work (Commerce and Offices) Convention, 1930 (No. 30)
3 ILO: Holidays with Pay Convention (Revised), 1970 (No. 132)
4 ILO: Maternity Protection Convention (Revised), 1952 (No. 103)
5 ILO: Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)

Local minimum wage

As of Dec. 31	2013	2014	2015	2016[1]
% of sites that guarantee a salary above the local minimum wage[2]	100	100	100	100

1 Includes Sigma-Aldrich as of 2016
2 Minimum wage as stipulated by law, or derived from other provisions such as collective agreements.

The Global Rewards Policy applies across all our subsidiaries worldwide and guarantees a systematic compensation structure. Base pay is oriented on the median base pay, and short-term variable compensation is based on the third quartile of the relevant reference market. All employees within the lowest Grades are paid within this salary band, which corresponds at least to the local minimum wage.

Work-related accidents[1]

	2013	2014	2015[2]	2016
Lost Time Injury Rate (LTIR=workplace accidents resulting in missed days of work per one million man-hours)	**2.2**	**1.8**	**1.4**	**1.3**
by region				
Europe	3.7	2.9	2.6	2.1
North America	0.9	1.0	0.9	1.1
Asia-Pacific (APAC)	0.3	0.5	0.3	0.4
Latin America	2.1	1.3	0.7	0.4
Middle East and Africa (MEA)	1.8	0.9	0.5	1.6
Number of deaths	**0**	**2**	**2**	**0**
by region				
Europe	0	0	1	0
North America	0	0	1	0
Asia-Pacific (APAC)	0	1	0	0
Latin America	0	1	0	0
Middle East and Africa (MEA)	0	0	0	0
by gender				
Women	0	1	1	0
Men	0	1	1	0

1 Including supervised workers
2 Includes Sigma-Aldrich as of 2015

Despite our efforts to prevent accidents, we had two fatal workplace accidents in 2015; one employee died in a car accident in the United States, and in Germany one employee suffered a fatal accident involving a forklift.

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 sites in Darmstadt and Gernsheim (about 19% of the employees of the Merck Group), we only report work-related illnesses if these have been diagnosed and verified by a physician. In the 2015-2016 period, no cases of work-induced illness were recorded.

Spending on advanced training for employees

€	2013	2014	2015	2016[1]
Average continuing education spending per employee	679	718	775	736

1 Includes Sigma-Aldrich as of 2016

We record and report the costs of vocational training and continuing education for our employees. We are not currently tracking the average number of continuing education hours consolidated at Group level, but we are working on a technical solution.

Employees who regularly receive a performance and development evaluation

	2013[1]	2014[2]	2015[3]	2016[4]
% of employees who receive a performance and development evaluation	**72**	**79**	**88**	**97**
by gender				
Women	75	84	90	97
Men	71	77	87	97
by employee category				
Senior management (Global Grade above 17)	100	97[5]	100	100
Low and middle management (Global Grade 14–17)	100	96[5]	100	100
Other employees (Global Grade below 14)	72	78[5]	88	97

1 The 2013 data is based on a reporting date of March 12, 2014.
2 The 2014 data is based on a reporting date of March 2, 2015.
3 The 2015 data is based on a reporting date of February 29, 2016.
4 From 2016 on, figures include Sigma-Aldrich, but as of Dec. 31 2016, the Global Grading System had not yet been implemented for employees of Sigma-Aldrich legal entities in Germany and of Allergopharma.
5 The fluctuations in participant numbers by employee category can be explained by the process of Merck’s acquisition of AZ Electronic Materials.

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 Global Grade 10 and up in the position ranking system that was used in 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 Global Grade 10. In Germany, all permanent employees have been participating in the Performance and Talent Management Process since 2013. In 2016, a total of 49,000 employees worldwide were involved in the process. The Performance and Talent Management Process is coordinated via our HR Suite IT system.

Internationality of employees

As of Dec. 31	2013	2014[1]	2015[2]	2016[3]
Number of nationalities	114	122	122	129
Number of nationalities in management positions (Global Grade 14 or above)	64	67	64	70
% of non-Germans in management positions (Global Grade 14 or above)	60	60	61	65

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 Global 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 Global Grading System had not yet been implemented there.
3 From 2016 on, figures include Sigma-Aldrich. However, as of Dec. 31 2016, the Global 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	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2015[1]							
Up to 29 years old	7,565	1,314	2,912	1,624	2,496	666	177
thereof women	3,233	522	1,378	649	898	367	68
30 to 49 years old	31,047	5,117	14,589	6,775	7,651	3,092	598
thereof women	13,242	2,285	6,673	2,674	2,576	1,434	274
50 or older	11,001	3,363	5,928	3,539	949	594	167
thereof women	4,141	1,376	2,265	1,241	232	185	83
Average age	**41.2**	**44.2**	**42.4**	**43.0**	**36.7**	**39.5**	**39.5**
Total employees	**49,613**	**9,794**	**23,429**	**11,938**	**11,096**	**4,352**	**942**
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**

1 Figures include Sigma-Aldrich as of 2015

Global voluntary insurance benefits (voluntarily introduced and (co-) financed)

As of Dec. 31	2013[1]	2014[1]	2015[1]	2016
% of employees with healthcare benefits[2]	–	–	–	90
% of employees with Group accident insurance[3]	–	–	–	39
% of employees with life insurance[4]	–	–	–	57
% of employees with disability insurance (short-term and long-term)[5]	–	–	–	32

1 Since 2016, we've been reporting global 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 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).
4 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).
5 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.

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	2013	2014	2015[1]	2016
Present value of all defined benefit obligations as of Dec. 31	2,737	3,813	4,153	4,698
Pension expenses	147	157	210	226

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 2016, Note on Provisions for pensions and other post-employment benefits).

Flexible working hours

As of Dec. 31	2013	2014	2015	2016[1]
% of employees with the option of working flexible hours	75	74	80	78

1 Includes Sigma-Aldrich as of 2016

Employee facts and figures, Germany

Parental leave in Germany[1]

As of Dec. 31	2013	2014	2015	2016
Number of employees with a right to parental leave	254	331	317	359
thereof women (recorded via maternity leave in the respective year)	120	165	149	191
thereof men (recorded via special paternity leave in the respective year)	134	166	168	168
Number of employees who took parental leave[2]	433	507	485	480
thereof women	292	349	301	303
thereof men	141	158	184	177
Number of employees on parental leave who worked part time during their leave	81	99	102	102
thereof women	77	94	99	95
thereof men	4	5	3	7
Number of employees who returned from parental leave	151	187	183	174
thereof women	60	83	51	62
thereof men	91	104	132	112
Return to work rate (%)	34.9	36.9	37.7	36.3
thereof women	20.6	23.8	16.9	20.5
thereof men	64.5	65.8	71.7	63.3
Number of employees still working for Merck one year after their return from parental leave	152	137	184	–[3]
thereof women	57	35	55	–[3]
thereof men	95	102	129	–[3]
Retention rate (%)	93.8	90.7	96.8	–[3]
thereof women	91.9	58.3	98.2	–[3]
thereof men	95.0	112.1	96.3	–[3]

1 Figures only pertain to the Darmstadt and Gernsheim sites in Germany (which accounted for around 20.9% of Merck Group employees in 2016). 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 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.

3 Figure will be available on Dec. 31, 2017.

Employees with disabilities[1] (%)

As of Dec. 31	2013	2014	2015	2016
Employees with disabilities[1]	5.0	4.7	4.7	4.5

1 Only pertains to Merck KGaA (which accounted for around 20% of Merck Group employees in 2016, calculations based on the German Social Code IX - SGB IX).

Apprentices

As of Dec. 31	2013	2014[1]	2015[2]	2016[3]
Number of apprentices	516	498	506	576
% of apprentices	5.6	5.4	5.3	4.6

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 Reflects only those Merck sites in Germany (approximately 25% of the Group's total workforce in 2016).

Indicators: Environment

Spending on environmental protection, safety and health

€ million	2013	2014	2015	2016[1]
Spending	142	145	148	189

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]	2013	2014	2015	2016
Total CO_2eq[3] emissions	**790**	**784**	**736**	**729**	**715**
Thereof					
direct CO_2eq emissions	378	417	390	393	386
indirect CO_2eq emissions	412	367	346	336	329
Biogenic CO_2 emissions	**6**	**6**	**11**	**54**	**56**

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

The increase in biogenic carbon emissions was caused by the biomass power plants that were commissioned in Goa, India and Jaffrey, New Hampshire (USA) at the end of 2014.

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 2016, 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)

	2013	2014	2015	2016[2]
Total gross other indirect emissions (metric kilotons CO_2eq[1])	**64**	**319**	**349**	**426**
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	not recorded	97	95	127
Waste generated in operations (category 5)	not recorded	96	123	127
Business travel - air travel (category 6)	63	74	79	103[3]
Business travel - rail travel (category 6)	0.05	0.02	0.02	0.02
Business travel - rental car travel (category 6)	1.3	1.2	1.1	0.6
Employee commuting (category 7)	not recorded	51	51	68
Upstream leased assets (category 8)	not recorded	0[4]	0[4]	0[4]
Processing of sold products (category 10)	not recorded	0[5]	0[5]	0[5]
Downstream leased assets (category 13)	not recorded	0	0	0
Franchises (category 14)	not recorded	0	0	0

1 eq = equivalent
2 Includes Sigma-Aldrich as of 2016
3 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.
4 Already covered under Scope 1/2 emissions
5 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	2013[1]	2014	2015	2016
Total emissions of ozone-depleting substances	2.5	2.0	2.5	2.2
CFC-11eq[2]	0.1	0.1	0.1	0.1

1 Includes Sigma-Aldrich from 2013 onwards
2 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	2013	2014	2015	2016[1]
Volatile organic compounds (VOC)	0.2	0.3	0.3	0.3
Nitrogen oxide	0.2	0.2	0.3[2]	0.2
Sulfur dioxide	0.02	0.02	0.05	0.05
Dust	0.01	0.02	0.06	0.02

1 Includes Sigma-Aldrich as of 2016
2 Figure retroactively adjusted.

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

	2013[1]	2014[1]	2015[1]	2016[2]
% Truck	56	56	53	71
% Boat	37	38	41	18
% Airplane	7	6	6	11

1 The figures for 2013 through 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 (including Sigma-Aldrich).

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	2013	2014	2015	2016
Total energy consumption	**2,108**	**2,158**	**2,256**	**2,253**
Direct energy consumption	**1,286**	**1,354**	**1,451**	**1,443**
Natural gas	1,157	1,212	1,212	1,272
Liquid fossil fuels[2]	114	115	104	30
Biomass and self-generated renewable energy	15	27	135	141
Indirect energy consumption	**822**	**804**	**805**	**810**
Electricity	743	707	709	715
Steam, heat, cold	79	97	96	95
Total energy sold	**0.4**	**0.6**	**0.5**	**0.5**
Electricity	0.4	0.6	0.5	0.5
Steam, heat, cold	0	0	0	0

In TJ	2013	2014	2015	2016
Total energy consumption	**7,589**	**7,769**	**8,122**	**8,111**
Direct energy consumption	**4,630**	**4,874**	**5,224**	**5,195**
Natural gas	4,165	4,363	4,363	4,579
Liquid fossil fuels[2]	410	414	374	108
Biomass and self-generated renewable energy	54	97	486	508
Indirect energy consumption	**2,959**	**2,894**	**2,898**	**2,916**
Electricity	2,675	2,545	2,552	2,574
Steam, heat, cold	284	349	346	342
Total energy sold	**1**	**2**	**2**	**2**
Electricity	1	2	2	2
Steam, heat, cold	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. Since 2015, the increase in biomass and self-generated renewable energy consumption has been attributable to the biomass power plants that were commissioned in Goa, India, and Jaffrey (NH, USA) in 2014.

The reduction in liquid fossil fuel consumption primarily stems from a project at our Onahama site in Japan that switched energy generation from kerosene to natural gas.

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 29% of our Group-wide total. At these sites, fossil energy (coal, gas, etc.) accounts for approx. 53%, nuclear energy approx. 15% 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 1,931 GWh for 2016. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 112 GWh for 2016. This yields a total primary energy consumption of 2,043 GWh for 2016. 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 2016, Merck's energy intensity relative to net sales totaled 0.150 kWh/€ compared to 0.134 kWh/€ in 2015.

Water consumption

millions of m^3	2013	2014	2015[1]	2016
Total water consumption	**9.6**	**11.1**	**13.6**	**13.7**
Surface water (rivers, lakes)	0.8[2]	1.2[2]	1.2[2]	1.2
Groundwater	5.4	6.3	7.0[2]	7.2
Drinking water (from local suppliers)	3.4[2]	3.6[2]	5.4[2]	5.3
Rain water and other sources	0.01	0.01[2]	0.01[2]	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	2013	2014	2015[1]	2016
Water reused	16.6	16.0	23.0	22.7

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

	2013	2014	2015[1]	2016
Total wastewater volume (millions of m^3)	**8.6**	**10.1**	**11.8**	**12.1**
Chemical oxygen demand (metric tons of O_2)	756	1,319	1,933	1,535
Phosphorous (metric tons)	7	10	10	12
Nitrogen (metric tons)	77	81	330	303
Zinc (kg)	406[2]	410[2]	498[2]	451
Chromium (kg)	23	36	42	34
Copper (kg)	36	34	84	53
Nickel (kg)	110	128	128	124
Lead (kg)	42	55	54	56
Cadmium (kg)	10	10	13	11
Mercury (kg)	1	1	2	2
Arsenic (kg)	4	4	5	4

1 Includes Sigma-Aldrich as of 2015
2 Figures 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	2013	2014	2015[1]	2016
Total waste	**161**	**228**	**317**	**254**
Hazardous waste disposed[2]	37	53	55	50
Non-hazardous waste disposed[2]	31	55	35	44
Hazardous waste recycled[3]	50	49	73	75
Non-hazardous waste recycled[3]	43	71	154	85

1 Includes Sigma-Aldrich as of 2015
2 Disposed = incineration (without energy recovery) and landfill
3 Recycled = incineration (without energy recovery) and material recycling

The increase in “non-hazardous waste recycled” in 2015 can be attributed to the sharp rise in construction, excavation and demolition waste. Construction, excavation and demolition waste accounted for 49% of our waste in 2015 and 30% in 2016.

Exported/Imported hazardous waste

metric kilotons	2013	2014	2015[1]	2016
Exported[2]	7.1	9.6	5.1	4.6
Imported[3]	0.01	0.003	0.01	0.01

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.

Waste by disposal method

	2013	2014	2015[1]	2016
Total waste (metric kilotons)	**161**	**228**	**317**	**254**
Disposed waste (metric kilotons)	**67**	**108**	**90**	**94**
Landfilled waste (metric kilotons)	13	37	16	15
Incinerated waste (metric kilotons)	54	71	74	79
Recycled waste (metric kilotons)	**94**	**120**	**227**	**160**
Material recycling (metric kilotons)	69	93	195	128
Waste-to-energy (metric kilotons)	25	27	32	32
Recycling rate (%)	**58**	**53**	**72**	**63**

1 Includes Sigma-Aldrich as of 2015

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 49% of our waste in 2015 and 30% in 2016. In 2015, around 124 metric kilotons of construction, excavation and demolition waste was recycled, with roughly 53 metric kilotons recycled in 2016.

Significant spills

	2013	2014	2015[1]	2016
Total number of significant spills	0	0	0	0

1 Includes Sigma-Aldrich as of 2015

Indicators: Community

Spending on community involvement

€ million	2013	2014	2015	2016[1,2]
Total spending	46.2	50.8	100.0	43.0

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

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]

%	2013	2014	2015	2016[2,3,4]
Health	23	33	33	35
Culture and education	42	38	33	36
Environment	10	10	7	5
Disaster relief	6	4	6	2
Other	19	15	21	22

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]

%	2013	2014	2015	2016[2,3,4]
Charitable activities	20	9	3	4
Community investment	59	59	92	87
Commercial initiatives in the community	21	32	5	9

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.

Goals

Our corporate responsibility goals set the course to be followed for the next several years. This section presents these objectives and reports on the progress we've made towards achieving them.

Legend: New goal | Goal achieved | In progress | Goal not achieved

Products

Access to health

We seek to improve access to health for underserved populations in low- and middle-income countries.

Goal: Monitor and assess the progress and efficacy of our Access to Health programs

Measure(s):	By when:	Progress by end of 2016:	Status:
Develop quantitative and qualitative performance indicators for the 4 A's: Availability, Accessibility, Affordability, and Awareness.	End of 2016	Indicators were developed for the 2014 and 2016 CR report for each A of the "4As of Access" framework.	Goal achieved

Goal: Availability: Address unmet needs through the research, development and refinement of health solutions

Measure(s):	By when:	Progress by end of 2016:	Status:
Develop a pediatric formulation of praziquantel to treat schistosomiasis in children under the age of six	2017 (program to enter Phase III)	In 2015, both the Phase I bioavailability trials in healthy volunteers (South Africa) as well as the swill and spit taste study with school-age children (Tanzania) were completed. In 2016, we launched a Phase II study in Ivory Coast to test the efficacy and safety of two different formulations for orodispersible tablets in schistosomiasis-infected children under the age of six. Results are expected in the course of 2017.	In progress
Develop a new anti-malarial drug	2017 (program to enter Phase I)	In March 2015, we obtained the rights to an investigational promising antimalarial compound from Medicines for Malaria Venture (MMV). The compound potentially represents a novel mechanism of action and is intended to be developed for both treatment and prevention of malaria in young children. The project completed the preclinical phase in 2016 and is progressing to Phase I to start in 2017.	In progress
Develop a new diagnostic kit for measuring the presence and type of malaria parasite, and potentially measure co-infection with HIV based on our Muse Auto CD4/CD4%.	2017 (for start of clinical testing)	In 2016, the feasibility of two malaria assays was validated and the detection levels are meeting the defined TPPs in terms of specificity and sensitivity for new competitive diagnostic assays.	In progress

Goal: Affordability: Address inability to pay

Measure(s):	By when:	Progress by end of 2016:	Status:
Participate in at least one collaboration with a public partner to share our IP and knowledge of infectious and neglected diseases.	End of 2018		
Develop an IP-sharing platform with a non-commercial entity.	End of 2018		

Goal: Awareness: Empower health workers, communities and people

Measure(s):	By when:	Progress by end of 2016:	Status:
Develop an integrated initiative of our Healthcare and Life Science business sectors to raise awareness.	End of 2016	In 2016, we initiated the PPP "Water for Health" in Ghana. Our aim is to raise awareness for water quality and to improve local capacity for water testing. The project will be fully operating in 2017.	
Through dialogue identify key access challenges and opportunities for our A2H strategy.	End of 2018		

Goal: Accessibility: Strengthen supply chains and provide localized solutions

Measure(s):	By when:	Progress by end of 2016:	Status:
Engage stakeholders to address supply chain and delivery issues in developing countries.	End of 2018	We established the dialogue platform (Accessibility Platform). In 2016, two meetings took place.	
Organize one to two meetings of the Accessibility Platform.	End of 2018		
Develop a collaboration to improve point of care delivery in developing countries.	End of 2019		

Safety of chemical products

Our customers should be able to use our chemical products safely.

Goal: Use precautionary principle to establish a globally aligned hazard and risk communication system for all our relevant chemical products in the supply chain

Measure(s):	By when:	Progress by end of 2016:	Status:
Implementation of REACH: Register substances produced in quantities of 1-100 metric tons per year (phase 3 of REACH implementation) and register non-phase-in substances.	Mid-2018	In 2016, we registered 41 phase 3 substances and integrated the relevant substances from the Sigma-Aldrich portfolio into our REACH project.	
Implementation of the Global Product Strategy: Issue product safety summaries for all hazardous substances registered under REACH.	End of 2020	Another five product safety summaries were issued in 2016.	
Projects for hazard communication: Update safety data sheets for non-hazardous chemical products.	End of 2020	We have updated safety data sheets for around 30% of all non-hazardous substances (excluding the Sigma-Aldrich portfolio).	
Harmonize safety data sheets to align with a globally uniform standard.	End of 2020	In the course of integrating Sigma-Aldrich, we created a new standard and harmonized hazard communication for roughly 60% of all shared substances.	

Counterfeit products

We want to reduce the risk of product crime.

Goal: Integrate safety into relevant business processes for Healthcare and Life Science business sectors

Measure(s):	By when:	Progress by end of 2016:	Status:
Identify strategic and commercial data that require greater protection; minimize risks by modifying processes.	End of 2018	We performed risk assessments in our Biopharma business.	

Goal: Step up interdisciplinary collaboration within global security networks

Measure(s):	By when:	Progress by end of 2016:	Status:
Develop Group-wide guidelines that describe duties and processes.	End of 2016	The following guidelines were adopted in 2016: ▪ Product Crime Investigation Standard ▪ Product Security Standard (risk-based approach to authenticating the supply chain, identifying risks, and ensuring supply chain integrity and security) ▪ Product crime officers were appointed for all business sectors and subsidiaries.	

Expand organizational structures; train and certify employees who deal with product-related crime.	Ongoing	We developed and implemented a training program for our product crime officers. Our MACON network was expanded.	
Implement a Group-wide notification system for counterfeit products.	End of 2017	We rolled out a new reporting system for cases of product crime.	

Goal: Educate employees and other target groups on the strategic relevance of counterfeit medicines

Measure(s):	By when:	Progress by end of 2016:	Status:
Host conferences and seminars; best practice sharing and lessons learned through international networks.	End of 2016	We conducted five seminars at sites outside Germany and reported on product crime at internal conferences such as the Global Quality Conference or the Global Drug Safety Academy. Our product crime officers met at a conference in Darmstadt. We established anti-counterfeiting networks in high-risk countries, consisting of internal and external partners.	

Goal: Develop and implement security technology and solutions for supply chain authentication, identification, integrity, and security

Measure(s):	By when:	Progress by end of 2016:	Status:
Pilot a project to improve product safety in high-risk regions of Africa using software-based solutions.	End of 2016		
Support regional activities to counter product crime.	End of 2016	We supported 68 investigations across 24 countries in 2016. We participated in workshops and seminars with law enforcement in the United States, Mexico and Singapore and engaged German federal authorities in dialogue.	
Monitor the number of unreported cases of counterfeit medicines in select countries and step up internet searches to track down trademark infringement and counterfeit products.	End of 2016	We collaborated with internal and external partners in high-risk countries to step up efforts of networks to monitor the Internet for incidents of counterfeiting involving Merck products. We succeeded in significantly raising the detection rate for product crime incidents. Launch "Evaluating product crime in the darknet" project.	
Support regional activities in five high-risk countries.	End of 2017		
Monitor counterfeit pharmaceuticals in conventional distribution channels as well as online sales.	Ongoing		

Transport & storage safety

In the transport and storage of our products, we seek to prevent risks to people and the environment.

Goal: Ensure warehouse and transport safety for our company and our suppliers

Measure(s):	By when:	Progress by end of 2016:	Status:
Integrate all service providers into our audit process.	End of 2016	All service-provider warehouses have been integrated into our audit process. In 2016, we audited six third-party warehouses (2015: 4).	Goal achieved
Integrate all freight forwarders into our audit process.	End of 2017	In 2016, we developed a concept for integrating freight forwarders into our audit process and plan to implement the concept in 2017.	In progress
Roll out improvement programs in countries and regions that handle products with special risks where our audits identified need for improvement.	End of 2016	After a running a pilot program in India in 2015, we successfully made improvements to warehouse and transport safety. In 2016, we also audited suppliers and third-party warehouses to identify improvement opportunities and defined corrective actions.	Goal achieved
Analyze safety-related customer complaints to identify necessary improvements for transport and warehouse safety.	End of 2016	In 2015, we enhanced our packaging concept for certain chemicals. In 2016, we started taking steps to optimize our shipping packaging for customer orders in Asia and South America.	Goal achieved
Harmonize transport and warehouse safety master data through global ERP systems.	End of 2022		New goal

Animal welfare

We work to safeguard the welfare of animals used by our company, contract research organizations, suppliers, and other partners.

Goal: Ensure consistently high quality across our animal facilities

Measure(s):	By when:	Progress by end of 2016:	Status:
Inspect Life Science animal facilities in preparation for potential accreditation: Conduct a feasibility study and make a decision about accreditation.	End of 2018		New goal
Re-accredit relevant animal facilities.	Ongoing	Three animal facilities were re-accredited in 2015 and 2016.	New goal

Goal: Promote the 3Rs

Measure(s):	By when:	Progress by end of 2016:	Status:
Develop a Group-wide 3R program.	End of 2019		New goal

Goal: Ensure animal welfare in our supply chain

Measure(s):	By when:	Progress by end of 2016:	Status:
Identify animal welfare risks in our supply chain and develop a strategy for certifying suppliers.	End of 2017		

Employees

Our employees are key to our success, which makes it imperative for us to attract, develop and retain the right talent.

Diversity

Goal: In 2011, we set the strategic goal of raising the percentage of leadership roles held by women to 25%-30%.

Status: We achieved this objective in 2016. Group-wide, women currently make up 28.8% of management positions.

Goal: By 2021, we aim to have stabilized the percentage of female managers at 30%, and we are continuing our efforts to raise the percentage of women in leadership roles and business units in which they are still underrepresented.

Measure(s):	By when:	Progress by end of 2016:	Status:
Deploy teams at departmental level to develop goals and measures to move women into positions in various units and at various levels.	End of 2021		

Attractive Employer

Goal: Consistently fill at least two-thirds of positions ranked Global Grade 16 and up with internal candidates

Measure(s):	By when:	Progress by end of 2016:	Status:
Use the Talent Management Process to identify suitable employees with management potential and optimize the process to systematically advance them.	Ongoing	In 2016, 81% of our vacant management positions were filled internally.	
Build a talent pool that reflects our demographic structure.	Ongoing	The structure of our talent pool is a reflection of the diversity within our company.	

Goal: Position Merck as an attractive employer for university graduates

Measure(s):	By when:	Progress by end of 2016:	Status:
Participate in university fairs and organize in-house events for graduates; position Merck via employer branding channels.	Ongoing	Thanks to our efforts at fairs and internal events, we succeeded in attracting ten graduates to participate in our Functional Graduate Program by March 31, 2017.	

Good leadership

Goal: We value good leadership, an approach that enables our employees to unlock their full potential and advance in their careers.

Measure(s):	By when:	Progress by end of 2016:	Status:
Have at least 50% of managers rated Global Grade 14+ take part in a management program.	End of 2018	Nearly 50% of our top 400 have taken part in our Global Leadership Program, our latest initiative for top leaders. Similar figures apply to our other management programs (AMP, MFP).	
Implement a regularly occurring process to measure employee engagement in an effort to establish a baseline for engagement and define a target.	Ongoing	At the beginning of 2016, we revised our approach to employee surveys and conducted a company-wide survey. In doing so, we have defined the baseline against which to measure future improvements.	

Health & safety

Goal: Reduce the lost time injury rate Group-wide (to 1.5 or less).

Status: By 2016, we'd reached this objective with an LTIR of 1.3

Measure(s):	By when:	Progress by end of 2016:	Status:
Implement the OSHAS 18001 occupational health and safety management system for all Performance Materials production sites.	End of 2016	By the end of 2016, all Performance Materials production sites had been certified to the international standard OHSAS 18001. Furthermore, our Life Science sites in Buchs (Switzerland), Bangalore (India) and Irvine (UK) have been included in our Group certificate, as have our pharmaceutical operations at our sites in Goa (India), Atsugi (Japan) and Mollet (France).	
Reinforce our safety culture to prevent behavior-related accidents/Roll out our BeSafe! program at all newly acquired sites and monitor ongoing implementation via appropriate performance indicators.	End of 2020		

Environment

Environmental stewardship

We want to minimize our environmental footprint and mitigate our impact on the climate as far as possible, which is why we are working to continuously improve energy and resource efficiency while also reducing our greenhouse gas emissions.

Goal: Integrate all production sites in the Group ISO 14001 certificate for environmental management systems

Measure(s):	By when:	Progress by end of 2016:	Status:
At newly acquired production sites, introduce environmental management systems in line with the Merck Group ISO 14001 certificate and certify them accordingly.	Ongoing	Seven Sigma-Aldrich production sites had an ISO 14001-certified environmental management system and were transferred to the Merck Group certificate. Due to the size of the Sigma-Aldrich group and the integration process, the transfer of all sites to the new system must be done gradually. In 2016, the sites started a gap analysis that is still ongoing.	

Climate impact mitigation

Goal: 20% reduction in our direct and indirect greenhouse gas emissions (Scope 1 and 2) by 2020 (2006 baseline).

Status: By the end of 2016, we had lowered our greenhouse gas emissions by around 10% relative to the 2006 baseline, despite growth in our operating business.

Measure(s):	By when:	Progress by end of 2016:	Status:
Systematically examine the energy consumption at our individual production sites.	End of 2020	We continued to systematically examine possible energy savings at our production sites. In line with the EU Directive on energy efficiency, energy audits were conducted at our sites in Eppelheim and Berlin (Germany), as well as in Calais, Meyzieu and Semoy (France). In addition, we also performed energy checks at our sites in Rio de Janeiro (Brazil), Naucalpan (Mexico) and Kankakee, IL (United States).	
Identify potential energy savings and implement appropriate measures.	End of 2020	In 2016, we completed 42 Edison projects (p. 79). Around 60% of the Edison projects planned Group-wide have already been or are being rolled out. In 2017, we intend to launch 81 new projects with the potential to cut CO_2 emissions by around 34,000 metric tons.	
Reduce process-related emissions.	End of 2020	Our Life Science business sector is making a significant contribution to reducing process-related emissions. In 2014, process optimizations resulted in a two-thirds reduction in our process-related emissions per production unit at our facility in Jaffrey, NH (USA). In 2015, we initiated a project to further cut emissions that is scheduled to end in 2017. Other projects are in planning.	

Waste & recycling

Goal: By the end of 2017, set a reduction target for the quantity of waste we generate

Measure(s):	By when:	Progress by end of 2016:	Status:
Implement a waste scoring model to quantify our waste reduction efforts and set a baseline.	End of 2017	We implemented the Waste Scoring Model and expect to have a baseline established by the first quarter of 2017, from which a quantitative target will be set.	

Water management

Goal: Introduce a sustainable water management system at seven appropriate sites in water-stressed areas and reduce their water consumption by 10% by the end of 2020 (2014 baseline).

Status: By the end of 2016, we had reduced our water consumption at relevant sites by around 12% compared with 2014. Going forward, we want to ensure a 10% sustainable reduction in water consumption.

Measure(s):	By when:	Progress by end of 2016:	Status:
To achieve this goal, we need a variety of primarily local measures tailored to our individual sites. One inter-site measure is the creation of a water balance to provide a baseline.	April 2017	To help our sites in their efforts, we provided the necessary expertise in the form of documentation and an Intranet site.	

Goal: Introduce a sustainable water management system at 23 production sites with high water consumption by 2020

Status: Our sites are implementing the water management system in three stages using the CEFIC flagship self-assessment tool. We expect to complete Stage 1 (basic) by April 2017, Stage 2 (progressed) by May 2018 and Stage 3 (advanced) by May 2020.

Measure(s):	By when:	Progress by end of 2016:	Status:
Meet the basic requirements set out in the CEFIC flagship self-assessment tool (Stage 1). These include water quantity and quality evaluations at the sites, as well as an environment analysis.	April 2017	The sites will be asked to provide an initial report on their progress in April 2017.	

suppliers

Goal: Ensure our suppliers adhere to ethical, social, environmental, and compliance standards.

Measure(s):	By when:	Progress by end of 2016:	Status:
Perform a qualitative analysis of the available assessment and audit results and define potential courses of action.	End of 2017		
Create a holistic approach to managing sustainability in global supply chains.	End of 2017		

community

Health

Hand in hand with our partners, we aim to eliminate the tropical worm disease schistosomiasis worldwide.

Goal: Eliminate schistosomiasis in African school children: Since the start of our donation program, 100 million patients have been treated, primarily school-aged children.

Measure(s):	By when:	Progress by end of 2016:	Status:
Incrementally increase annual tablet donation by a factor of ten, from 25 million in 2012 to up to 250 million in 2016.	End of 2016	In 2016, we boosted our production capacity so as to produce 250 million tablets. In collaboration with WHO, we donated more than 200 million of these for distribution in 33 African countries.	
Donate up to 250 million praziquantel tablets annually to WHO for African school children.	Ongoing		
Optimize the praziquantel formulation.	End of 2019	In 2016, the study design for the bioequivalence study was approved. The study will be conducted in 2017.	
Develop a pediatric formulation of praziquantel for children under the age of six.	End of 2019	In 2016, we launched a Phase II study in Ivory Coast to test the efficacy and safety of two different formulations for orodispersible tablets in schistosomiasis-infected children under six. At the same time, we completed preparation of the Phase III study.	
Initiate new partnerships to promote behavioral change in African school children.	Ongoing		
Maintain the educational program and provide WHO with educational booklets to teach children about the disease and ways to prevent it.	Ongoing	In 2016, we expanded the educational program and donated 340,000 educational booklets to WHO for distribution in 10 African countries.	
Position the Global Schistosomiasis Alliance as the key partnering platform for advocacy, implementation, research, communications, and strategy development.	Ongoing		

Minilab

Through the GPHF Minilab™, we seek to fight counterfeit medicines in developing countries and emerging economies.

Goal: Provide and further develop the portable compact GPHF Minilab™

Measure(s):	By when:	Progress by end of 2016:	Status:
Develop new test methods for five active ingredients and expand manuals to describe the new testing methods.	End of 2016	In 2016, the GPHF developed test methods for five new active ingredients, meaning that a total of 85 test protocols are now available. The manuals have been updated accordingly.	✓
Conduct two training seminars on the use of the GPHF Minilab™; sell at least 40 Minilabs.	End of 2016	In 2015 and 2016, the GPHF conducted six Minilab training seminars in Tanzania, Angola, Kenya, Zambia, Rwanda, and Mozambique with well over 100 participants. The GPHF sold a total of 109 Minilabs.	✓
Develop new test methods for five active ingredients and expand manuals to describe the new testing methods.	End of 2017		New goal
Conduct three training seminars on the use of the GPHF Minilab™; sell at least 35 Minilabs.	End of 2017		New goal

Recognition and rankings

The following overview presents a selection of major ratings and rankings for 2015 and 2016. Information on additional ratings and accolades received by individual businesses or sites can be found in the respective chapter of our 2016 Corporate Responsibility Report, or on our company's website.

Access to Medicine Index

In 2016, Merck moved up to fourth place in the Access to Medicine Index (2014: sixth place). This index assesses 20 pharmaceutical companies with respect to their efforts to improve access to medicine in developing countries. It is published every two years by the Access to Medicine Foundation, an international non-profit organization.

www.accesstomedicineindex.org

Carbon Disclosure Project

In 2016, we scored an A- in the CDP Index, thus achieving "Sector Leader Health Care, Pharma & Biotech" status for climate change reporting in Germany, Austria and Switzerland. As such, Merck is one of the top companies in this sector in the above-mentioned three countries and, ranking fourth, has moved up two places over the previous year. In 2015, we received a C for our performance and a score of 98 out of 100 points for our reporting.

www.cdp.net

Ethibel Sustainability Index (ESI) Excellence Europe and Ethibel EXCELLENCE Investment Register

In 2015, Merck was added to the Ethibel Sustainability Index (ESI) Excellence Europe, which selects the 200 top-rated European companies based on their corporate responsibility performance. We are also included in the Ethibel EXCELLENCE Investment Register.

forumethibel.org

Euronext Vigeo Eurozone 120 Index

Since 2015, Merck has been included in the Euronext Vigeo Eurozone 120 Index, which comprises the 120 highest-ranking European companies in terms of their environmental, social and governance efforts.

www.vigeo-eiris.com

FTSE4Good Index

Since 2008, Merck has been included in FTSE4Good, an internationally leading sustainability index that annually measures the performance of companies demonstrating strong environmental, social and ethical practices.

www.ftse.com

Good Company Ranking

In 2016, Kirchhoff Consult, a management consultancy, published its fifth Good Company Ranking. Among the 30 DAX-listed companies, we took tenth place.

oekom research Sustainability Rating

In 2016, the sustainability ratings agency oekom research AG gave Merck a B- on a scale of D- to A+ (top grade). Merck thus once more achieved Prime Status.

www.oekom-research.com

STOXX® Global ESG Leaders Index

In 2016, Merck was once again included in the STOXX Global ESG Leaders sustainability index, which assesses companies based on key environmental, social and governance criteria.

www.stoxx.com

Vigeo Eiris Human Rights Study

Vigeo Eiris, a sustainability rating and research agency, analyzed how 3,189 companies meet their social responsibility to respect human rights. Merck ranks among the top 30 companies and achieved a total of 69 out of 100 points (“advanced”).

www.vigeo-eiris.com

Sustainable Development Goals

In 2015, the United Nations adopted the Sustainable Development Goals (SDGs), which are aimed at all countries and organizations across the globe. We too play an active role in achieving these goals.

Our efforts

Under our Corporate Responsibility (CR) strategy (p. 9), we are already working to solve key challenges through efforts in the spheres of health, environment, and culture and education. We especially support SDG 3 (Good Health & Well-Being), SDG 4 (Quality Education) and SDG 7 (Affordable & Clean Energy). To achieve these goals, we join strategic partnerships (SDG 17) that allow us to work hand in hand with other companies, non-governmental organizations and governments.

SDG 3: Good health and well-being

"Ensure healthy lives and promote well-being for all at all ages."

Across the globe, approximately 400 million people lack access to effective and affordable medical care, a situation we intend to rectify through our Access to Health strategy (p. 34). Recognizing that we can't solve these challenges alone, we have joined forces with strong partners to work towards a solution.

Examples of our activities:

- Global awareness campaigns (p. 175)
- Eliminating schistosomiasis (p. 97)
- Efficient supply chains for better access to health (p. 39)
- SDG 17: Partnerships to improve healthcare (p. 16)

SDG 4: Quality education

"Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

The sciences in particular play a key role in the development of pioneering solutions. A well-educated and well-trained workforce is also essential to our future as a science and technology company, which is why we are working to ignite a passion for science in the next generation. To this end, we conduct a number of education projects (p. 100) across our sites worldwide, going to great lengths to provide underprivileged students with access to education.

Examples of our activities:

- Global scholarship programs (p. 183)
- Support for education at our Darmstadt site and at our facilities worldwide (p. 100)
- SDG 17: Partner in "Afrika kommt!" (p. 75), a GIZ managerial program

SDG 5: Gender equality

"Achieve gender equality and empower all women and girls."

- Promoting women's health and economic participation in developing countries (p. 42)
- Attractive working conditions for parents (p. 64)

SDG 6: Clean water and sanitation

"Ensure availability and sustainable management of water and sanitation for all."

- Protecting water as a resource (p. 84)
- Clean water at schools in China (p. 97)

SDG 7: Affordable and clean energy

"Ensure access to affordable, reliable, sustainable and modern energy for all."

Our materials create ultra-efficient solar cells that can be used in innovative applications. Moreover, our products help customers save energy. For instance, state-of-the-art liquid crystals and OLED technology from our Performance Materials business sector make displays more energy-efficient. You can find more information under Sustainable products (p. 29).

Examples of our activities:

- Liquid crystals in windows save energy (p. 180)
- Energy-efficient products (p. 29)
- Materials for innovative photovoltaic technology (p. 29)

SDG 8: Decent work and economic growth

"Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all."

- Respect for human rights and compliance with ILO core labor standards (p. 14)
- Social standards in our supply chain (p. 89)

SDG 11: Sustainable cities and communities

"Make cities and human settlements inclusive, safe, resilient and sustainable."

- Partnership to provide integrated waste disposal and water treatment systems in cities in China

SDG 12: Responsible consumption and production

"Ensure sustainable consumption and production patterns."

- Design for Sustainability (p. 30)
- Preventing and recycling waste (p. 82)

SDG 13: Climate action

"Take urgent action to combat climate change and its impacts."

- Edison, our climate impact mitigation program (p. 79)

SDG 17: Partnerships for the goals

"Strengthen the means of implementation and revitalize the global partnership for sustainable development."

- Partnerships to improve healthcare (p. 16)
- Partner in "Afrika kommt!" (p. 75), a GIZ managerial program

GRI content index

The CR Report 2016 is based on the G4 guidelines of the Global Reporting Initiative and meets the criteria for the application level "Comprehensive". The following GRI Index provides an overview of general standard disclosures, the GRI indicators (specific Standard Disclosures) identified as relevant, and where the corresponding contents are described.

Read more

GRI Content Index

Company and Report Profile

DMA* and Indicators		Comment	Link	External Assurance
Strategy and Analysis				
G4-1	Statement from the most senior decision-maker of the organization		Letter from the CEO (p. 3)	
G4-2	Key impacts, risks, and opportunities		Strategy (p. 5) Goals (p. 132)	
Organizational Profile				
G4-3	Name of the organization		Company profile (p. 6)	
G4-4	Primary brands, products, and services		Company profile (p. 6) Products & Industries	
G4-5	Location of the organization's headquarters		Company profile (p. 6)	
G4-6	Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report		Company profile (p. 6) List of shareholdings	✓
G4-7	Nature of ownership and legal form		Company profile (p. 6)	
G4-8	Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries)		Company profile (p. 6) Macroeconomic and Sector-Specific Environment	
G4-9	Scale of the reporting organization		Company profile (p. 6) Indicators Employees (p. 110) Indicators Environment (p. 123) Consolidated Income Statement Consolidated Statement of Changes in Net Equity Consolidated Balance Sheet	✓
G4-10	Total number of employees by employment contract and gender	Supervised workers such as temps are currently not logged in our employee data system. We are investigating possibilities to record information on supervised workers at the Group level.	Attractive employer (p. 64) Indicators: Employees (p. 110)	✓
G4-11	Percentage of total employees covered by collective bargaining agreements		Employee Engagement (p. 72) Indicators: Employees (p. 110)	✓
G4-12	Organization's supply chain		Supply chain standards (p. 90)	
G4-13	Significant changes during the reporting period regarding size, structure, ownership, or its supply chain		Company profile (p. 6) Supply chain standards (p. 90) Fundamental Information about the Group	

G4-14	Whether and how the precautionary approach or principle is addressed by the organization	Transport and warehouse safety (p. 50) Safety and health (p. 70) Environmental stewardship (p. 77) Climate protection (p. 79) Plant and process safety (p. 86)	
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses	Governance (p. 8) Compliance (p. 11) Human rights (p. 14)	
G4-16	Memberships of associations	Stakeholder dialogue (p. 16) Environmental stewardship (p. 77)	
Identified Material Aspects and Boundaries			
G4-17	Entities included in the organization's consolidated financial statements	Report profile (p. 103) Company profile (p. 6)	✔
G4-18	Definition of report content	Report profile (p. 103) Materiality Analysis (p. 19)	✔
G4-19	Material Aspects identified in the process for defining report content	Materiality Analysis (p. 19)	✔
G4-20	Material aspects within the organization	Materiality Analysis (p. 19)	✔
G4-21	Material aspects outside the organization	Materiality Analysis (p. 19)	✔
G4-22	Effect of any restatements of information provided in previous reports, and the reasons for such restatements	Report profile (p. 103)	✔
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	Report profile (p. 103) Materiality Analysis (p. 19)	✔
Stakeholder Engagement			
G4-24	Stakeholder groups engaged by the organization	Stakeholder dialogue (p. 16) Materiality Analysis (p. 19)	✔
G4-25	Basis for identification and selection of stakeholders with whom to engage	Stakeholder dialogue (p. 16) Materiality Analysis (p. 19)	✔
G4-26	Organization’s approach to stakeholder engagement	Stakeholder dialogue (p. 16) Materiality Analysis (p. 19)	✔
G4-27	Key topics and concerns raised through stakeholder engagement	Stakeholder dialogue (p. 16) Materiality Analysis (p. 19)	✔
Report Profile			
G4-28	Reporting period	Report profile (p. 103)	
G4-29	Date of most recent previous report	Report profile (p. 103)	
G4-30	Reporting cycle	Report profile (p. 103)	
G4-31	Contact point for questions	Report profile (p. 103)	
G4-32	GRI Index	GRI Content Index (p. 149)	
G4-33	External Assurance	Report profile (p. 103) GRI Content Index (p. 149)	

Governance

G4-34	Governance structure of the organization	Strategy (p. 5) Management Statement on Corporate Governance	
G4-35	Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees	Strategy (p. 5) Procedures of the corporate bodies	
G4-36	Responsibility for economic, environmental and social topics	Strategy (p. 5)	
G4-37	Processes for consultation between stakeholders and the highest governance body	Stakeholder dialogue (p. 16) Materiality Analysis (p. 19) Employee Engagement (p. 72)	
G4-38	Composition of the highest governance body and its committees	Management Statement on Corporate Governance The Executive Board	
G4-39	Indicate whether the Chair of the highest governance body is also an executive officer	Statement on Corporate Governance Management	
G4-40	Nomination and selection processes for the highest governance body and its committees	Diversity and equal opportunity (p. 67) The Executive Board Objectives of the Supervisory Board Empowering women	
G4-41	Processes for the highest governance body to ensure conflicts of interest are avoided and managed	Compliance (p. 11) Information on corporate governance practices	
G4-42	Highest governance body's and senior executive's roles in the development, approval, and updating of the organization's CR strategies, policies, and goals	Strategy (p. 5) Values and compliance Report of the Supervisory Board	
G4-43	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics	Strategy (p. 5) The Executive Board Statement on Corporate Governance	
G4-44	Evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics	Board of Partners The Supervisory Board Articles of Association Statement on Corporate Governance	
G4-45	Highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities	Strategy (p. 5) Report on Risks and Opportunities Statement on Corporate Governance Compliance (p. 11)	✔
G4-46	Highest governance body's role on reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics	Strategy (p. 5) Report on Risks and Opportunities Report of the Supervisory Board	✔

G4-47	Frequency of highest governance body's review of economic, environmental and social impacts risks, and opportunities		Strategy (p. 5) Report on Risks and Opportunities Report of the Supervisory Board	✓
G4-48	Highest committee or position that formally reviews and approves the organization's sustainability report		Report profile (p. 103)	✓
G4-49	Process for communicating critical concerns to the highest governance body		Compliance (p. 11) Values and compliance	
G4-50	Nature and total number of critical concerns that were communicated to the highest governance body		Compliance (p. 11) Values and compliance	
G4-51	Remuneration policies for the highest governance body and senior executives		Compensation report	✓
G4-52	Process for determining remuneration		Compensation report	✓
G4-53	How stakeholders' views are sought and taken into account regarding remuneration		Attractive employer (p. 64) Compensation report	
G4-54	Ratio of annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees in the same country	Competitive salaries and additional benefits not only increase our attractiveness as an employer; they also motivate our people and build loyalty to the company. The compensation we offer is based on market analyses in the relevant field and the value of the respective position, as well as the employee's skill set and performance. Our Global Rewards Policy defines the framework for compensation and benefits across the entire Group. As far as possible, we strive to offer all our employees comparable compensation structures. Furthermore, we monitor compliance with minimum standards. We do not consider the information required under G4-54 and G4-55 to be relevant to assessing the fairness of our compensation structures.		

G4-55	Ratio of percentage increase in annual total compensation for the organization's highest-paid individual to the median percentage increase in annual total compensation for all employees in the same country	Competitive salaries and additional benefits not only increase our attractiveness as an employer; they also motivate our people and build loyalty to the company. The compensation we offer is based on market analyses in the relevant field and the value of the respective position, as well as the employee's skill set and performance. Our Global Rewards Policy defines the framework for compensation and benefits across the entire Group. As far as possible, we strive to offer all our employees comparable compensation structures. Furthermore, we monitor compliance with minimum standards. We do not consider the information required under G4-54 and G4-55 to be relevant to assessing the fairness of our compensation structures.	
Ethics and Integrity			
G4-56	Organization's values, principles, standards and norms of behavior		Governance (p. 8) Human rights (p. 14) Compliance (p. 11) Diversity and equal opportunity (p. 67) Good leadership (p. 74)
G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity		Compliance (p. 11) Diversity and equal opportunity (p. 67)
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity		Compliance (p. 11) Diversity and equal opportunity (p. 67) Supply chain standards (p. 90)

* Disclosure on Management Approach.
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GRI content index

Economic Performance Indicators

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Economic Performance				
G4-DMA	Management Approach		Economic performance Pension schemes Report on Risks and Opportunities Employee Engagement (p. 72)	
G4-EC1	Direct economic value generated and distributed		Consolidated Income Statement Consolidated Cash Flow Statement Information by business sector /country and region Personnel expenses Indicators: Community (p. 130)	✔
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	We report in detail on various aspects of climate change as part of our participation in the CDP (formerly known as the Carbon Disclosure Project).	Climate protection (p. 79) Water management (p. 84) Global Compact CoP (p. 169) CDP Report on Risks and Opportunities	
G4-EC3	Coverage of the organization's defined benefit plan obligations		Indicators Employees (p. 110) Pension schemes	✔
G4-EC4	Financial assistance received from government		Accounting: Property, plant and equipment Property, plant and equipment Research and development costs	✔
Aspect: Market Presence				
G4-DMA	Management Approach		Good leadership (p. 74) Diversity and equal opportunity (p. 67) Employee Engagement (p. 72)	

G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	This indicator is not relevant to us, which is why we do not collect data on the ratio of the standard entry level wage compared to local minimum wage. As a company in the pharmaceutical and chemical industries, we employ highly qualified individuals. Our Global Rewards Policy applies to all our subsidiaries worldwide and guarantees a systematic compensation structure. Base pay is oriented to the median base pay, and short-term variable compensation is based on the third quartile of the relevant reference market. The overall compensation package thus exceeds the market median. Even those employees in the lowest pay brackets are paid the local minimum wage at the very least.	Indicators: Employees (p. 110) Human Rights Charter	
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	We encourage both local hiring and international appointments across all levels of the company. The percentage of local managers is not recorded as it is not relevant to our strategic personnel planning.	Diversity and equal opportunity (p. 67)	
Aspect: Procurement Practices				
G4-DMA	Management Approach		Supply chain standards (p. 90)	✔
G4-EC9	Proportion of spending on local suppliers at significant locations of operation		Supply chain standards (p. 90)	

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GRI content index

Environmental Performance Indicators

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Materials				
G4-DMA	Management Approach	In all our endeavors, we attempt to efficiently utilize materials and recycle as much as possible. Where feasible, we use recycled materials (in packaging, for instance). Overall, material consumption is not a major concern for us. There are few opportunities to use recycled material in our production processes because our business model puts us at the start of the value chain. We therefore do not collect such data at the Group-level. Individual data and measures are reported under the respective chapters.	Packaging (p. 32) Reuse and recycling (p. 33) Resource efficiency (p. 82)	
G4-EN1	Materials used by weight or volume	See G4-DMA	Sustainable product design (p. 29) Packaging (p. 32) Resource efficiency (p. 82) Design for Sustainability Green Chemistry	
G4-EN2	Percentage of materials used that are recycled input materials	See G4-DMA	Packaging (p. 32) Reuse and recycling (p. 33) Resource efficiency (p. 82)	
Aspect: Energy				
G4-DMA	Management Approach		Climate protection (p. 79) Environmental stewardship (p. 77) Sustainable product design (p. 29)	✓
G4-EN3	Energy consumption within the organization		Climate protection (p. 79) Indicators: Environment (p. 123)	✓
G4-EN4	Energy consumption outside of the organization		Climate protection (p. 79) Indicators: Environment (p. 123)	✓
G4-EN5	Energy intensity		Indicators: Environment (p. 123)	✓
G4-EN6	Reduction of energy consumption		Climate protection (p. 79) Indicators: Environment (p. 123)	✓
G4-EN7	Reductions in energy requirements of products and services		Sustainable product design (p. 29) Resource efficiency (p. 82) Product examples Performance Materials	

Aspect: Water			
G4-DMA	Management Approach	Water management (p. 84)	✓
G4-EN08	Total water withdrawal by source	Water management (p. 84) Indicators: Environment (p. 123)	✓
G4-EN09	Water sources significantly affected by withdrawal of water	Water management (p. 84)	✓
G4-EN10	Percentage of total volume of water recycled and reused	Water management (p. 84) Indicators: Environment (p. 123)	
Aspect: Emissions			
G4-DMA	Management Approach	Climate protection (p. 79)	✓
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	Climate protection (p. 79) Indicators: Environment (p. 123)	✓
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	Climate protection (p. 79) Indicators: Environment (p. 123)	✓
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope3)	Climate protection (p. 79) Indicators: Environment (p. 123) Carbon Disclosure Project	✓
G4-EN18	Greenhouse gas (GHG) emis-sions intensity	Indicators: Environment (p. 123)	✓
G4-EN19	Reduction of greenhouse gas (GHG) emissions	Climate protection (p. 79) Indicators: Environment (p. 123) Carbon Disclosure Project	
G4-EN20	Emissions of ozone-depleting substances (ODS)	Indicators: Environment (p. 123)	✓
G4-EN21	NO_X, SO_X, and other significant air emissions	Indicators: Environment (p. 123)	✓
Aspect: Effluents and Waste			
G4-DMA	Management Approach	Plant and process safety (p. 86) Waste and recycling (p. 82)	✓
G4-EN22	Total water discharge by quality and destination	Water management (p. 84) Indicators: Environment (p. 123)	✓
G4-EN23	Total weight of waste by type and disposal method	Waste and recycling (p. 82) Indicators: Environment (p. 123)	✓
G4-EN24	Total number and volume of significant spills	Plant and process safety (p. 86) Indicators: Environment (p. 123)	✓
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel convention annex I, II, III, and VIII, and percentage of transported waste shipped internationally	Indicators: Environment (p. 123)	✓

G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff		Water management (p. 84)	
Aspect: Products and Services				
G4-DMA	Management Approach		Sustainable product design (p. 29) Packaging (p. 32) Reuse and recycling (p. 33)	
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	Owing to the multitude of products we supply and the minimal comparability of our various initiatives, we do not collect quantitative data at the Group level. The individual measures taken by our various businesses are reported in the respective chapters.	Sustainable product design (p. 29) Packaging (p. 32) Reuse and recycling (p. 33)	
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category	Owing to the multitude of products we supply and the minimal comparability of our various initiatives, we do not collect quantitative data at the Group level. The individual measures taken by our various businesses are reported in the respective chapters.	Packaging (p. 32)	
Aspect: Compliance				
G4-DMA	Management Approach		Environmental stewardship (p. 77)	
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations		Environmental stewardship (p. 77)	
Aspect: Transport				
G4-DMA	Management Approach		Transport and warehouse safety (p. 50)	
G4-EN30	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce	We do not consider relevant any data queried under this indicator that goes beyond the data already reported.	Climate protection (p. 79) Transport and warehouse safety (p. 50) Indicators Environment (p. 123)	✔
Aspect: Overall				
G4-DMA	Management Approach		Environment (p. 76)	
G4-EN31	Total environmental protection expenditures and investments by type		Climate protection (p. 79) Indicators: Environment (p. 123)	✔

Aspect: Supplier Environmental Assessment				
G4-DMA	Management Approach		Supply chain standards (p. 90)	✔
G4-EN32	Percentage of new suppliers that were screened using environmental criteria		Supply chain standards (p. 90) Mica supply chain (p. 93)	
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken		Supply chain standards (p. 90) Mica supply chain (p. 93)	
Aspect: Environmental Grievance Mechanisms				
G4-DMA	Management Approach		Supply chain standards (p. 90) Compliance (p. 11)	
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	We track all complaints via our central reporting system and categorize them based on their content. In the future we will implement appropriate sub-categories to adequately reflect the specific subject matter of the complaints.	Compliance (p. 11)	

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GRI Content Index

Social Performance Indicators

Labor Practices and Decent Work

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Employment				
G4-DMA	Management Approach		Attractive employer (p. 64) Diversity and equal opportunity (p. 67) Health and safety (p. 70)	✓
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender, and region		Indicators: Employees (p. 110)	✓
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	At Merck KGaA in Darmstadt, Germany (20% of the company's total workforce), part-time employees receive the same job benefits as full-time workers. Employees with temporary contracts, however, are not entitled to all company benefits, such as a company pension.	Attractive employer (p. 64) Indicators: Employees (p. 110)	✓
G4-LA3	Return to work and retention rates after parental leave, by gender		Attractive employer (p. 64) Indicators: Employees (p. 110)	✓
Aspect: Labor/Management relations				
G4-DMA	Management Approach		Attractive employer (p. 64) Health and safety (p. 70) Indicators: Employees (p. 110)	
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	The regulations on periods of notice vary worldwide. We apply the rules that are in force locally. There is not need for us to track periods of notice at Group level.		
Aspect: Occupational Health and Safety				
G4-DMA	Management Approach		Health and safety (p. 70)	✓
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	Occupational health and safety committees are required by law in Germany, which is why all employees of Merck KGaA sites (Darmstadt and Gernsheim, Germany) are represented by such a committee, one per site. These employees account for around 19% of our total workforce. The majority of facilities outside of Germany also have health and safety committees to represent their employees. Each individual site is responsible for arranging and maintaining such committees.	Health and safety (p. 70)	

G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region and gender	We have identified the lost time injury rate (LTIR) as a key performance indicator for our company.	Health and safety (p. 70) Indicators: Employees (p. 110)	✔
G4-LA7	Workers with high incidence of high risk or diseases related to their occupation		Health and safety (p. 70) Indicators: Employees (p. 110)	
G4-LA8	Health and safety topics covered in formal agreements with trade unions	Health and safety issues are governed Group-wide by our EHS Policy. The organizational implementation of the policy is the responsibility of our individual sites and is subject to local laws and regulations. The facilities of Merck KGaA (Darmstadt and Gernsheim - approx. 19% of our total workforce) are subject to bylaws on occupational health and safety.		
Aspect: Training and Education				
G4-DMA	Management Approach		Good leadership (p. 74) Diversity and equal opportunity (p. 67) Attractive employer (p. 64)	✔
G4-LA9	Average hours of training per year per employee by gender and by employee category		Indicators: Employees (p. 110) Compliance (p. 11) Drug safety (p. 46) Chemical product safety (p. 44) Counterfeit products (p. 48) Animal welfare (p. 58) Attractive employer (p. 64) Diversity and equal opportunity (p. 67) Health and safety (p. 70) Good leadership (p. 74) Water management (p. 84) Plant and process safety (p. 86)	✔
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings		Diversity and equal opportunity (p. 67) Attractive employer (p. 64)	
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employment category		Attractive employer (p. 64) Indicators: Employees (p. 110)	✔

Aspect: Diversity and Equal Opportunity				
G4-DMA	Management Approach		Diversity and equal opportunity (p. 67) Objectives of the Supervisory Board	✔
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	Since there is no globally uniform definition of the term "minority", we do not record this sort of data. Moreover, many countries in which we operate have strict data privacy regulations governing the recording of personal employee data.	Diversity and equal opportunity (p. 67) Indicators: Employees (p. 110) The Executive Board The Supervisory Board Objectives of the Supervisory Board	✔
Aspect: Equal remuneration for women and men				
G4-DMA	Management Approach		Attractive employer (p. 64) Compensation report	
G4-LA13	Ratio of basic salary and remuneration of women to men, by significant locations of operation	The salaries we offer are predicated on the respective job description and are based on our Global Job Catalog, which has fixed salary bands that are identical for men and women. Variable salary components that fall under performance-based compensation are paid on the basis of whether mutually agreed targets have been achieved. A performance management system governs this process.	Attractive employer (p. 64)	
Aspect: Supplier Assessment for Labor Practices				
G4-DMA	Management Approach		Supply chain standards (p. 90)	
G4-LA14	Percentage of new suppliers that were screened labor practices criteria		Supply chain standards (p. 90) Mica supply chain (p. 93)	
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken		Supply chain standards (p. 90) Mica supply chain (p. 93)	
Aspect: Labor Practices Grievance Mechanisms				
G4-DMA	Management Approach		Supply chain standards (p. 90) Compliance (p. 11)	
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	We track all complaints via our central reporting system and categorize them based on their content. In the future we will implement appropriate subcategories to adequately reflect the specific subject matter of the complaints.	Supply chain standards (p. 90) Compliance (p. 11)	

Human Rights

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Investment				
G4-DMA	Management Approach		Human rights (p. 14) Compliance (p. 11)	
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Our Responsible Sourcing Principles and our Global Policy Business Partner Risk Management identify human rights issues as the foundation for significant investments.	Human rights (p. 14) Compliance (p. 11) Supply chain standards (p. 90) Mica supply chain (p. 93) Merck Responsible Sourcing Principles	
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained		Human rights (p. 14)	
Aspect: Non-discrimination				
G4-DMA	Management Approach		Diversity and equal opportunity (p. 67)	
G4-HR3	Total number of incidents of discrimination and corrective actions taken		Diversity and equal opportunity (p. 67)	
Aspect: Freedom of association and collective bargaining				
G4-DMA	Management Approach		Supply chain standards (p. 90) Human rights (p. 14) Compliance (p. 11) Human Rights Charter	
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights		Supply chain standards (p. 90) Mica supply chain (p. 93)	
Aspect: Child Labor				
G4-DMA	Management Approach		Supply chain standards (p. 90) Human rights (p. 14) Compliance (p. 11) Human Rights Charter	
G4-HR5	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor		Supply chain standards (p. 90) Mica supply chain (p. 93) Indicators: Employees (p. 110)	

Aspect: Forced and Compulsory Labor				
G4-DMA	Management Approach		Supply chain standards (p. 90) Human rights (p. 14) Compliance (p. 11) Human Rights Charter	
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor		Supply chain standards (p. 90) Mica supply chain (p. 93)	
Aspect: Assessment				
G4-DMA	Management Approach		Human rights (p. 14) Compliance (p. 11)	
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments		Human rights (p. 14) Compliance (p. 11) Indicators: Compliance (p. 107)	✓
Aspect: Supplier Human Rights Assessment				
G4-DMA	Management Approach		Supply chain standards (p. 90) Human rights (p. 14) Compliance (p. 11)	✓
G4-HR10	Percentage of new suppliers that were screened using human rights criteria		Supply chain standards (p. 90) Mica supply chain (p. 93) Human rights (p. 14) Compliance (p. 11)	
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken		Supply chain standards (p. 90) Mica supply chain (p. 93) Human rights (p. 14) Compliance (p. 11)	
Aspect: Human Rights Grievance Mechanisms				
G4-DMA	Management Approach		Supply chain standards (p. 90) Human rights (p. 14) Compliance (p. 11)	
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	We track all complaints via our central reporting system and categorize them based on their content. In the future we will implement appropriate sub-categories to adequately reflect the specific subject matter of the complaints.	Supply chain standards (p. 90)	

Society

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Anti-Corruption				
G4-DMA	Management Approach		Compliance (p. 11) Values and compliance	
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified		Compliance (p. 11) Values and compliance Indicators: Compliance (p. 107)	✓
G4-SO4	Communication and training in anti-corruption policies and procedures		Governance (p. 8) Compliance (p. 11) Indicators: Compliance (p. 107)	✓
G4-SO5	Confirmed incidents of corruption and actions taken	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Compliance (p. 11) Report on Risks and Opportunities	✓
Aspect: Public policy				
G4-DMA	Management Approach		Stakeholder dialogue (p. 16) Code of conduct	
G4-SO6	Total value of political contributions by country and recipient/ beneficiary		Stakeholder dialogue (p. 16) Code of conduct Disclosure on donations to PACs (EMD Serono)	
Aspect: Anti-competitive behavior				
G4-DMA	Management Approach		Compliance (p. 11) Values and compliance Report on Risks and Opportunities	
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes		Indicators: Compliance (p. 107)	✓
Aspect: Compliance				
G4-DMA	Management Approach		Compliance (p. 11) Report on Risks and Opportunities	
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Indicators: Compliance (p. 107) Report on Risks and Opportunities	
Aspect: Supplier Assessment for Impacts on Society				
G4-DMA	Management Approach		Supply chain standards (p. 90) Compliance (p. 11)	✓
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society		Supply chain standards (p. 90)	
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken		Supply chain standards (p. 90) Mica supply chain (p. 93)	

Aspect: Grievance mechanisms for Impacts on Society				
G4-DMA	Management Approach		Supply chain standards (p. 90) Compliance (p. 11)	
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	We track all complaints via our central reporting system and categorize them based on their content. In the future we will implement appropriate sub-categories to adequately reflect the specific subject matter of the complaints.	Supply chain standards (p. 90) Compliance (p. 11)	

Product Responsibility

DMA* and Indicators		Comment	Link	External Assurance
Aspect: Customer health and safety				
G4-DMA	Management Approach		Drug safety (p. 46) Chemical product safety (p. 44) Sustainable product design (p. 29) Report on Risks and Opportunities	
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement		Drug safety (p. 46) Chemical product safety (p. 44) Sustainable product design (p. 29)	
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Report on Risks and Opportunities	
Aspect: Product and service labelling				
G4-DMA	Management Approach		Drug safety (p. 46) Chemical product safety (p. 44) Responsible marketing (p. 52) Interactions with health systems (p. 61)	
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	Within our businesses, product labels are both important and mandatory. All pharmaceuticals and chemicals are subject to reporting and notification requirements that we fulfill. The individual requirements are reported in the respective chapters.	Drug safety (p. 46) Chemical product safety (p. 44)	
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes		Drug safety (p. 46) Chemical product safety (p. 44) Report on Risks and Opportunities	

G4-PR5	Results of surveys measuring customer satisfaction	Within the scope of our B2B activities, we maintain close contact with our customers and endeavor to find out their needs and their opinion of us as business partners. Individual customer survey results, which are used for strategy development, are completely confidential	Stakeholder dialogue (p. 16)	
Aspect: Marketing communications				
G4-DMA	Management Approach		Responsible marketing (p. 52) Report on Risks and Opportunities	
G4-PR6	Sale of banned or disputed products		Responsible marketing (p. 52)	
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes	With regard to marketing activities, we do not report on the number of regulation violations or breaches of voluntary rules of conduct. As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.	Responsible marketing (p. 52) Report on Risks and Opportunities	
Aspect: Customer privacy				
G4-DMA	Management Approach		Clinical trials (p. 55) Compliance (p. 11)	
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data		Clinical trials (p. 55) Indicators: Products (p. 109)	✓
Aspect: Compliance				
G4-DMA	Management Approach		Compliance (p. 11) Report on Risks and Opportunities	
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities. We do not report the monetary value of fines.	Report on Risks and Opportunities Indicators: Compliance (p. 107)	✓

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Global compact

2016 Communication on progress in implementing the ten principles of the UN Global Compact

We have been a UN Global Compact participant since 2005. As a signatory of the initiative, we commit ourselves to ten principles based on key UN conventions regarding human rights, labor standards, environmental protection, and anti-corruption. At the same time, the UN Global Compact encourages its signatories to actively engage in propagating the principles within their own sphere of influence.

The following table presents the key measures we took in 2015 and 2016 to support and implement the principles of the Global Compact.

UN GLOBAL COMPACT
WE SUPPORT

Link: www.unglobalcompact.org

UNGC principles:	Key measures in 2015 and 2016:	Relevant GRI indicators:	Reference:
Human rights			
Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights	■ Performed human rights self-assessments across our sites ■ Conducted supplier assessments and audits under the Together for Sustainability (TfS) initiative ■ Donated 300 million praziquantel tablets to the World Health Organization for the treatment of the worm disease schistosomiasis	G4-HR2, G4-HR7, G4-HR8, G4-HR9, G4-HR12, G4-SO1, G4-SO2	Human rights (p. 14) Standards in the supply chain (p. 90) Health (p. 97)
Principle 2: Businesses should make sure that they are not complicit in human rights abuses	■ Performed human rights self-assessments across our sites ■ Conducted CR audits of suppliers and collected supplier self-assessments ■ Conducted supplier assessments and audits under the Together for Sustainability (TfS) initiative	G4-HR1, G4-HR10–11	Human rights (p. 14) Standards in the supply chain (p. 90)

Labor standards

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the rights to collective bargaining	▪ Conducted internal audits on workplace aspects of our Human Rights Charter ▪ Performed human rights self-assessments at our sites ▪ Conducted CR audits of suppliers and collected supplier self-assessments ▪ Conducted supplier assessments and audits under the Together for Sustainability (TfS) initiative	G4-11, G4-HR4, G4-LA4	Human rights (p. 14) Compliance (p. 11) Employee engagement (p. 72) Standards in the supply chain (p. 90)
Principle 4: Businesses should support the elimination of all forms of forced and compulsory labor	▪ Performed human rights self-assessments at our sites ▪ Conducted internal audits on workplace aspects of our Human Rights Charter ▪ Conducted CR audits of suppliers and collected supplier self-assessments ▪ Conducted supplier assessments and audits under the Together for Sustainability (TfS) initiative	G4-HR6	Human rights (p. 14) Compliance (p. 11) Standards in the supply chain (p. 90)
Principle 5: Businesses should support the effective abolition of child labor	▪ Performed human rights self-assessments at our sites ▪ Conducted internal audits into workplace aspects of our Human Rights Charter ▪ Conducted CR audits of suppliers and collected supplier self-assessments ▪ Conducted supplier assessments and audits under the Together for Sustainability (TfS) initiative ▪ Attended the Mica Summit on the mica supply chain in Delhi, India	G4-HR5	Human rights (p. 14) Compliance (p. 11) Standards in the supply chain (p. 90) Mica supply chain (p. 93)
Principle 6: Businesses should support the elimination of discrimination in respect of employment and occupation	▪ Conducted internal audits on workplace aspects of our Human Rights Charter ▪ Reached our goal to increase percentage of leadership roles occupied by women; set new goal for 2021 ▪ Expanded internal diversity programs ▪ Provided global SpeakUp Line for employees to report discrimination anonymously	G4-10, G4-EC5–6, G4-LA1, G4-LA3, G4-LA9, G4-LA11–13, G4-HR3	Human rights (p. 14) Compliance (p. 11) Diversity and inclusion (p. 67)

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges	- Obtained ISO 14001 Group certificate for environmental management - Annually reduced CO_2 emissions (reduction target by 2020: 20% versus 2006 baseline) - Implemented more than 400 climate impact mitigation projects since 2012 - New goal: Introduce sustainable water management system at high-use sites by 2020 - Implemented measures to ensure product safety (such as REACH, GHS and our Global Product Strategy) - Develop and implement Merck Waste Score	G4-EC2, G4-EN1, G4-EN3, G4-EN8, G4-EN15–17, G4-EN20–21, G4-EN27, G4-EN31	Environmental stewardship (p. 77) Climate impact mitigation (p. 79) Resource efficiency (p. 82) Water management (p. 84) Waste and recycling (p. 82) Sustainable product design (p. 29) Drug safety (p. 46) Chemical product safety (p. 44) Transport and warehouse safety (p. 50)
Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility	- Performed ISO 50001 audits (energy management) of 13 sites - Reduced average CO_2 emissions of our business car fleet by 12% compared to 2013 (goal for 2020: 30% reduction); reduced maximum CO_2 emissions for new company vehicles - Offered employees sustainable mobility options such as rental bicycles - Conducted internal and external EHS audits - Performed energy checks at our sites - Labeled products - Took back packaging	G4-EN1–34	Climate impact mitigation (p. 79) Plant and process safety (p. 86) Transport and warehouse safety (p. 50) Water management (p. 84) Waste and recycling (p. 82) Drug safety (p. 46) Chemical product safety (p. 44) Recovery and reuse (p. 33)
Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies	- Performed product life cycle analyses - Developed sustainable products	G4-EN6–7, G4-EN19, G4-EN27, G4-EN31	Sustainable products (p. 29) Performance Materials

Anti-corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery	- Consolidated our antitrust and anti-competition principles into a single Group-wide guideline - Performed internal corruption audits - Reviewed compliance standards of our business partners - Strategically reorganized our Group function Compliance - Trained employees on anti-corruption - Provided global SpeakUp Line for employees to report corruption anonymously - Published first EFPIA transparency report	G4-56–58, G4-SO3–SO6	Compliance (p. 11)

Assurance Report

Independent Assurance Report[1]

To the Executive Board of Merck KGaA, Darmstadt

We have performed an independent limited assurance engagement on disclosures on the stakeholder dialogue and the materiality analysis, selected qualitative and quantitative disclosures on the sustainability performance including the accompanying explanatory notes in the chapter "Facts & figures – Indicators" and selected disclosures on management approaches in the "Corporate Responsibility Report 2016" (further "Report") of Merck KGaA, Darmstadt (further "Merck") for the fiscal year 2016 published at http://reports.merckgroup.com/2016/cr-report.

The selected disclosures on management approaches included in the scope of the assurance engagement apply to the aspects Procurement Practices, Energy, Water, Emissions, Effluents and Waste, Employment, Occupational Health and Safety, Training and Education, Diversity and Equal Opportunity, Supplier Environmental Assessment, Supplier Human Rights Assessment, as well as Supplier Assessment for Impacts on Society each described in the subchapters "Our principles".

The selected qualitative and quantitative disclosures on the sustainability performance and the management approaches included in the scope of the assurance engagement are marked with the symbol ✔ in the GRI G4 Content Index, published at http://reports.merckgroup.com/2016/cr-report/facts-figures/gri-content-index.

It was not part of our engagement to review product or service related information, references to external information sources, expert opinions and future-related statements in the Report.

Management's Responsibility for the Report

The legal representatives of Merck are responsible for the accurate preparation of the Report in accordance with the Reporting Criteria. Merck applies the principles and standard disclosures of the G4 Sustainability Reporting Guidelines of the Global Reporting Initiative, the Corporate Accounting and Reporting Standard (Scope 1 und 2), and the Corporate Value Chain (Scope 3) Standard of World Resources Institute/World Business Council for Sustainable Development, as described in the section of the Report "Report profile", as Reporting Criteria.

This responsibility of the legal representatives includes the selection and application of appropriate methods to prepare the Report and the use of assumptions and estimates for individual qualitative and quantitative sustainability disclosures which are reasonable under the circumstances. Furthermore, this responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Report in a way that is free of – intended or unintended – material misstatements.

Independence and quality assurance on the part of the auditing firm

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA-Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The quality assurance system of the KPMG AG Wirtschaftsprüfungsgesellschaft is based on the International Standard on Quality Control 1 "Quality Control for Audit, Assurance and Related Service Practices" (ISQC 1) and, in addition on national statutory requirements and professional standards, especially the Professional Code for Certified Accountants as well as the joint statement of WPK (Chamber of Public Accountants) and IDW (Institute of Public Auditors in Germany): Requirements for quality assurance in the auditing practice (VO 1/2006).

Practitioner's Responsibility

Our responsibility is to express a conclusion based on our work performed and the evidence obtained on the information disclosed in the above-mentioned assurance scope.

Nature and extent of the assurance engagement

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and the International Standard on Assurance Engagements (ISAE) 3410: "Assurance Engagements on Greenhouse Gas Statements" of the International Auditing and Assurance Standards Board (IAASB). These standards require that we comply with our professional duties and plan and perform the assurance engagement to obtain a limited level of assurance to preclude that the above mentioned qualitative and quantitative sustainability disclosures are not prepared, in all material respects, in accordance with the aforementioned Reporting Criteria. In a limited assurance engagement the evidence gathering procedures are more limited than in a reasonable assurance engagement and therefore less assurance is obtained than in a reasonable assurance engagement. The choice of the audit procedures is subject to the auditor's own judgement. This includes the assessment of the risk of material misstatement in the Report under consideration of the Reporting Criteria.

Within the scope of our engagement, we performed amongst others the following procedures when conducting the limited assurance:

- Inquiries of personnel on Group level responsible for the materiality analysis, in order to gain an understanding of the processes for determining material sustainability topics and respective reporting boundaries of Merck.
- A risk analysis, including a media search, to identify relevant sustainability aspects for Merck in the reporting period.
- Evaluation of the design and implementation of the systems and processes for the collection, processing and control of the indicators, including the consolidation of the data, at corporate and site level.
- Interviews with relevant staff on corporate level responsible for providing and consolidating the data, as well as carrying out internal control procedures on the data including the explanatory notes.
- Visits to the sites Darmstadt (Germany) and Gernsheim (Germany) as well as Sante Meyzieu (France) and Martillac (France) to assess local data collection, validation and reporting processes and the reliability of the reported data.
- Evaluating internal and external documentation, to determine whether qualitative and quantitative information is supported by sufficient evidence and presented in an accurate and balanced manner.
- An analytical review of the data and trend explanations submitted by all sites for consolidation at group level.
- Use of the insights and relevant work performed for the group and statutory audit of the (consolidated) financial statements for the year ended December 31, 2016 of Merck KGaA with regard to audit procedures on those information and indicators that were derived from those consolidated financial statements.
- An evaluation of the overall presentation of the information, including the explanatory notes, within the scope of our engagement.

Conclusion

Based on the procedures performed and evidence received to obtain limited assurance, nothing has come to our attention that causes us to believe that the disclosures for the business year 2016 included in the scope of this engagement, published in the report and marked with the symbol ✓ in the GRI G4 Content Index are, in all material respects, not prepared in accordance with the Reporting Criteria.

Purpose of the assurance report

This assurance report is issued based on an assurance engagement agreed upon with Merck. The assurance engagement to obtain limited assurance is issued on behalf of Merck and the assurance report is solely for information purposes of Merck on the results of the assurance engagement.

Limited liability

This assurance report must not be used as basis for (financial) decision-making by third parties of any kind. We have responsibility only towards Merck. We do not assume any responsibility for third parties.

Frankfurt am Main, 12. April 2017

KPMG AG
Wirtschaftsprüfungsgesellschaft
[Original German version signed by:]

Fischer
Wirtschaftsprüferin
[German Public Auditor]

Glöckner
Wirtschaftsprüfer
[German Public Auditor]

[1] Our engagement applied to the German version of the Corporate Responsibility Report 2016. This text is a translation of the Independent Assurance Report issued in German language, whereas the German text is authoritative.