

# 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. Since November 18, 2015, Sigma-Aldrich has belonged to Merck KGaA, Darmstadt, Germany. Because of the integration process currently underway, we have specified for each of the following tables whether the figures presented include or exclude Sigma-Aldrich.

## Indicators: Economics

### Net sales, operating result (EBIT) and research and development costs, by business sector (€ million)<sup>1</sup>

|                         | Healthcare | Life Science | Performance Materials | Group <sup>2</sup> |
|-------------------------|------------|--------------|-----------------------|--------------------|
| 2014                    |            |              |                       |                    |
| Net sales <sup>3</sup>  | 6,620.5    | 2,682.5      | 2,059.8               | <b>11,362.8</b>    |
| Operating result (EBIT) | 1,106.4    | 289.2        | 611.5                 | <b>1,762.0</b>     |
| R&D costs               | 1,366.0    | 162.6        | 170.6                 | <b>1,703.7</b>     |
| 2015 <sup>4</sup>       |            |              |                       |                    |
| Net sales <sup>3</sup>  | 6,933.8    | 3,355.3      | 2,555.6               | <b>12,844.7</b>    |
| Operating result (EBIT) | 1,096.7    | 300.8        | 878.0                 | <b>1,843.2</b>     |
| R&D costs               | 1,310.1    | 197.5        | 197.0                 | <b>1,709.2</b>     |

1 On January 1, 2015, Merck KGaA, Darmstadt, Germany changed its segment reporting structure to report on the three segments Healthcare, Life Science and Performance Materials.

2 As a non-operating segment, Corporate and Other is not shown here (see Annual Report 2015, Segment Reporting).

3 The composition of net sales has been changed, see "Changes to accounting and measurement principles and disclosure changes" in the Notes to the Group Accounts.

4 Merck KGaA, Darmstadt, Germany including Sigma-Aldrich.

## Indicators: Compliance

### Internal audits on corruption and Human Rights Charter

|                                                                                | 2012         | 2013 | 2014 | 2015 <sup>1</sup> |
|--------------------------------------------------------------------------------|--------------|------|------|-------------------|
| Number of audits relating to corruption                                        | 40           | 30   | 36   | 49                |
| % of audits relating to corruption                                             | not recorded | 64   | 68   | 64                |
| Number of audits relating to the workplace section of the Human Rights Charter | 40           | 27   | 32   | 41                |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

### Compliance violations reported via the SpeakUp Line

|                                         | 2012 | 2013 | 2014 | 2015 <sup>1</sup> |
|-----------------------------------------|------|------|------|-------------------|
| Number of reported compliance incidents | 20   | 22   | 26   | 33                |
| Number of confirmed cases               | 5    | 9    | 11   | 8                 |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

### Compliance training

|                                                                          | 2012          | 2013          | 2014 <sup>1</sup>        | 2015 <sup>2</sup>         |
|--------------------------------------------------------------------------|---------------|---------------|--------------------------|---------------------------|
| <b>Total number of persons trained on anti-corruption guidelines</b>     | <b>22,890</b> | <b>24,168</b> | <b>7,519<sup>3</sup></b> | <b>20,404<sup>3</sup></b> |
| % of employees trained on anti-corruption                                | 59            | 63            | 14                       | 43                        |
| Number of employees Global Grade 10 or higher trained on anti-corruption | 10,164        | 12,390        | 3,071                    | 12,747                    |
| % of employees Global Grade 10 or higher trained on anti-corruption      | 60            | 69            | 17                       | 64                        |
| % of employees Global Grade 9 or lower trained on anti-corruption        | 58            | 51            | 12                       | 22                        |

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 The figures exclude Sigma-Aldrich since the integration process is still underway.

3 Includes contractors, external supervised workers (e.g. temps) and contract partners working on-site who were trained on anti-corruption guidelines (2014: 2,023, 2015: 3,026).

In order to address the special responsibility held by personnel of a certain management level, as well as by staff with HR responsibility, these employees are increasingly receiving training on anti-corruption guidelines. This includes all employees rated Global Grade (GG) 10 or higher.

To date, we have not differentiated between regions when recording compliance training; we are planning to do so in the future.

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

## Legal actions

|                                                                                                                                                                       | 2012     | 2013     | 2014     | 2015 <sup>1</sup> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|-------------------|
| <b>Total number<sup>2</sup> of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)</b> | <b>3</b> | <b>3</b> | <b>2</b> | <b>2</b>          |
| pending                                                                                                                                                               | 2        | 2        | 2        | 2                 |
| completed                                                                                                                                                             | 1        | 1        | 0        | 0                 |

1 Merck KGaA, Darmstadt, Germany including Sigma-Aldrich.

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 2012](#), page 88 and pages 168-169, no. 50
- [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

## Indicators: products

### Customer privacy

|                                                                        | 2012         | 2013 | 2014 | 2015 <sup>1</sup> |
|------------------------------------------------------------------------|--------------|------|------|-------------------|
| Total number of substantiated complaints received from outside parties | not recorded | 0    | 0    | 0                 |
| Total number of complaints from regulatory bodies                      | not recorded | 0    | 1    | 0                 |
| Total number of identified leaks, thefts, or losses of customer data   | not recorded | 0    | 0    | 0                 |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

A corporate directive regulates data protection within the company. We have received no significant complaints from customers, regulatory bodies or outside parties.

## Indicators: Employees

### Total number of employees

| As of Dec. 31                    | 2013          | 2014          | 2015<br>(Group excl.<br>Sigma-Aldrich) | 2015<br>(Group incl.<br>Sigma-Aldrich) |
|----------------------------------|---------------|---------------|----------------------------------------|----------------------------------------|
| <b>Total number of employees</b> | <b>38,154</b> | <b>39,639</b> | <b>40,718</b>                          | <b>49,613</b>                          |
| Men                              | 22,253        | 23,273        | 23,891                                 | 28,997                                 |
| Women                            | 15,901        | 16,366        | 16,827                                 | 20,616                                 |

## Number of employees by hierarchical level

| As of Dec. 31                                             | 2013          | 2014 <sup>1</sup> | 2015<br>(Group excl.<br>Sigma-Aldrich) | 2015<br>(Group incl.<br>Sigma-Aldrich) |
|-----------------------------------------------------------|---------------|-------------------|----------------------------------------|----------------------------------------|
| <b>Total employees</b>                                    | <b>38,154</b> | <b>39,639</b>     | <b>40,718</b>                          | <b>49,613</b>                          |
| Senior management (Global Grade above 17)                 | 63            | 63                | 75                                     | – <sup>2</sup>                         |
| Low and middle management (Global Grade 14–17)            | 1,949         | 2,108             | 2,333                                  | – <sup>2</sup>                         |
| Other employees (Global Grade below 14)                   | 36,142        | 37,468            | 38,310                                 | – <sup>2</sup>                         |
| <b>% of women (total)</b>                                 | <b>42</b>     | <b>41</b>         | <b>41</b>                              | <b>42</b>                              |
| thereof in senior management (Global Grade above 17)      | 10            | 10                | 12                                     | – <sup>2</sup>                         |
| thereof in low and middle management (Global Grade 14–17) | 498           | 562               | 633                                    | – <sup>2</sup>                         |
| thereof other employees (Global Grade below 14)           | 15,393        | 15,794            | 16,182                                 | – <sup>2</sup>                         |
| <b>% of men (total)</b>                                   | <b>58</b>     | <b>59</b>         | <b>59</b>                              | <b>58</b>                              |
| thereof in senior management (Global Grade above 17)      | 53            | 53                | 63                                     | – <sup>2</sup>                         |
| thereof in low and middle management (Global Grade 14–17) | 1,451         | 1,546             | 1,700                                  | – <sup>2</sup>                         |
| thereof other employees (Global Grade below 14)           | 20,748        | 21,673            | 22,128                                 | – <sup>2</sup>                         |
| <b>by age group</b>                                       |               |                   |                                        |                                        |
| <b>Up to 29 years old (%)</b>                             | <b>15</b>     | <b>15</b>         | <b>15</b>                              | <b>15</b>                              |
| thereof in senior management (Global Grade above 17)      | 0             | 0                 | 0                                      | – <sup>2</sup>                         |
| thereof in low and middle management (Global Grade 14–17) | 5             | 6                 | 5                                      | – <sup>2</sup>                         |
| thereof other employees (Global Grade below 14)           | 5,901         | 5,884             | 5,848                                  | – <sup>2</sup>                         |
| <b>30 to 49 years old (%)</b>                             | <b>64</b>     | <b>64</b>         | <b>64</b>                              | <b>63</b>                              |
| thereof in senior management (Global Grade above 17)      | 27            | 24                | 29                                     | – <sup>2</sup>                         |
| thereof in low and middle management (Global Grade 14–17) | 1,233         | 1,340             | 1,469                                  | – <sup>2</sup>                         |
| thereof other employees (Global Grade below 14)           | 23,302        | 24,082            | 24,680                                 | – <sup>2</sup>                         |
| <b>50 years or older (%)</b>                              | <b>20</b>     | <b>21</b>         | <b>21</b>                              | <b>22</b>                              |
| thereof in senior management (Global Grade above 17)      | 36            | 39                | 46                                     | – <sup>2</sup>                         |
| thereof in low and middle management (Global Grade 14–17) | 711           | 762               | 859                                    | – <sup>2</sup>                         |
| thereof other employees (Global Grade below 14)           | 6,939         | 7,502             | 7,782                                  | – <sup>2</sup>                         |

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 The Global Grading System has not yet been implemented for employees of Sigma-Aldrich, a company acquired in November 2015. It is not possible to provide figures for them.

## Average number of employees by functional area

| Average number of employees | 2013 <sup>1</sup>   | 2014 <sup>1</sup> | 2015<br>(Group excl.<br>Sigma-<br>Aldrich) <sup>2</sup> | 2015<br>(Group incl.<br>Sigma-<br>Aldrich) <sup>2</sup> |
|-----------------------------|---------------------|-------------------|---------------------------------------------------------|---------------------------------------------------------|
| <b>Group</b>                | <b>38,282</b>       | <b>38,930</b>     | <b>40,147</b>                                           | <b>41,511</b>                                           |
| <b>Thereof women</b>        | <b>not recorded</b> | <b>16,110</b>     | <b>16,600</b>                                           | <b>17,180</b>                                           |
| Production                  | 9,985               | 10,176            | 11,122                                                  | 11,563                                                  |
| Thereof women               | not recorded        | 3,202             | 3,494                                                   | 3,642                                                   |
| Logistics                   | 1,779               | 2,207             | 2,345                                                   | 2,581                                                   |
| Thereof women               | not recorded        | 774               | 829                                                     | 913                                                     |
| Marketing and Sales         | 12,214              | 12,113            | 12,553                                                  | 12,871                                                  |
| Thereof women               | not recorded        | 4,814             | 5,022                                                   | 5,204                                                   |
| Administration              | 5,106               | 6,342             | 6,550                                                   | 6,763                                                   |
| Thereof women               | not recorded        | 3,557             | 3,664                                                   | 3,757                                                   |
| Research and Development    | 4,433               | 4,738             | 4,954                                                   | 5,097                                                   |
| Thereof women               | not recorded        | 2,534             | 2,605                                                   | 2,674                                                   |
| Infrastructure and Other    | 4,765               | 3,354             | 2,623                                                   | 2,636                                                   |
| Thereof women               | not recorded        | 1,230             | 986                                                     | 990                                                     |

1 Average Head Count (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 is calculated by adding up all employees at the end of each of the last 13 months (Dec. 31, 2014-Dec. 31, 2015), 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<sup>1</sup>

| As of Dec. 31                                 | 2013          | 2014          | 2015<br>(Group excl.<br>Sigma-Aldrich) | 2015<br>(Group incl.<br>Sigma-Aldrich) |
|-----------------------------------------------|---------------|---------------|----------------------------------------|----------------------------------------|
| <b>Total</b>                                  | <b>38,154</b> | <b>39,639</b> | <b>40,718</b>                          | <b>49,613</b>                          |
| Employees in Europe                           | 20,013        | 20,537        | 20,950                                 | 23,429                                 |
| thereof women                                 | 8,755         | 8,893         | 9,114                                  | 10,316                                 |
| Employees in North America                    | 4,911         | 5,092         | 5,172                                  | 9,794                                  |
| thereof women                                 | 2,246         | 2,272         | 2,290                                  | 4,183                                  |
| Employees in Asia-Pacific (APAC)              | 8,862         | 9,488         | 9,839                                  | 11,096                                 |
| thereof women                                 | 2,947         | 3,176         | 3,282                                  | 3,706                                  |
| Employees in Latin America                    | 3,798         | 3,883         | 4,032                                  | 4,352                                  |
| thereof women                                 | 1,699         | 1,745         | 1,824                                  | 1,986                                  |
| Employees in the Middle East and Africa (MEA) | 570           | 639           | 725                                    | 942                                    |
| thereof women                                 | 254           | 280           | 317                                    | 425                                    |

1 As regards segment reporting by country and region, the composition of regions was adjusted and the corresponding comparative year-earlier figures are presented. The regional reporting structure now comprises five regions: Europe, North America, Asia-Pacific, Latin America as well as Middle East and Africa.

Supervised workers such as temps are currently not logged in our employee data system. We are investigating possibilities to record information on supervised workers throughout the company.

## Employees by business sector<sup>1</sup>

| As of Dec. 31                          | 2013          | 2014          | 2015<br>(Group excl.<br>Sigma-Aldrich) | 2015<br>(Group incl.<br>Sigma-Aldrich) |
|----------------------------------------|---------------|---------------|----------------------------------------|----------------------------------------|
| <b>Healthcare employees</b>            | <b>17,278</b> | <b>17,757</b> | <b>18,566</b>                          | <b>18,566</b>                          |
| Thereof women                          | 7,909         | 8,130         | 8,522                                  | 8,522                                  |
| Thereof women (%)                      | 46            | 46            | 46                                     | 46                                     |
| <b>Life Science employees</b>          | <b>9,837</b>  | <b>9,796</b>  | <b>9,716</b>                           | <b>18,611</b>                          |
| Thereof women                          | 4,124         | 4,134         | 4,094                                  | 7,883                                  |
| Thereof women (%)                      | 42            | 42            | 42                                     | 42                                     |
| <b>Performance Materials employees</b> | <b>4,709</b>  | <b>5,995</b>  | <b>6,228</b>                           | <b>6,228</b>                           |
| Thereof women                          | 1,210         | 1,498         | 1,531                                  | 1,531                                  |
| Thereof women (%)                      | 26            | 25            | 25                                     | 25                                     |

<sup>1</sup> On January 1, 2015, Merck KGaA, Darmstadt, Germany changed its segment reporting structure to report on the three segments Healthcare, Life Science and Performance Materials. The corresponding figures from the preceeding years have been retroactively adjusted.

## Employees by contract type

| As of Dec. 31                                | 2013          | 2014          | 2015<br>(Group excl.<br>Sigma-Aldrich) | 2015<br>(Group incl.<br>Sigma-Aldrich) |
|----------------------------------------------|---------------|---------------|----------------------------------------|----------------------------------------|
| <b>Total employees</b>                       | <b>38,154</b> | <b>39,639</b> | <b>40,718</b>                          | <b>49,613</b>                          |
| Number of employees with permanent contracts | 36,908        | 38,410        | 37,690                                 | 46,454                                 |
| Number of employees with temporary contracts | 1,246         | 1,219         | 3,028                                  | 3,159                                  |
| % of employees with permanent contracts      | 97            | 97            | 93                                     | 94                                     |
| % of employees with temporary contracts      | 3             | 3             | 7                                      | 6                                      |
| <b>full-time employees</b>                   | <b>34,911</b> | <b>37,573</b> | <b>38,627</b>                          | <b>47,292</b>                          |
| % full-time                                  | 95            | 98            | 95                                     | 95                                     |
| thereof women                                | 13,524        | 14,497        | 14,963                                 | 18,557                                 |
| thereof women (%)                            | 39            | 39            | 39                                     | 39                                     |
| <b>part-time employees</b>                   | <b>1,994</b>  | <b>2,066</b>  | <b>2,091</b>                           | <b>2,321</b>                           |
| % part-time                                  | 6             | 5             | 5                                      | 5                                      |
| thereof women                                | 1,839         | 1,869         | 1,864                                  | 2,059                                  |
| thereof women (%)                            | 92            | 90            | 89                                     | 89                                     |



## New employees

|                                                   | 2013         | 2014         | 2015 <sup>1</sup> |
|---------------------------------------------------|--------------|--------------|-------------------|
| <b>Total number of new employee hires</b>         | <b>5,007</b> | <b>6,212</b> | <b>5,710</b>      |
| <b>by age group</b>                               |              |              |                   |
| Up to 29 years old                                | 2,358        | 2,305        | 2,088             |
| 30 to 49 years old                                | 2,397        | 3,361        | 3,252             |
| 50 or older                                       | 252          | 546          | 370               |
| <b>by gender</b>                                  |              |              |                   |
| Women                                             | 2,051        | 2,513        | 2,450             |
| Men                                               | 2,945        | 3,689        | 3,260             |
| <b>by region</b>                                  |              |              |                   |
| Europe                                            | 1,757        | 2,312        | 2,119             |
| North America                                     | 526          | 826          | 730               |
| Asia-Pacific (APAC)                               | 2,060        | 2,298        | 1,913             |
| Latin America                                     | 548          | 619          | 780               |
| Middle East and Africa (MEA)                      | 116          | 157          | 168               |
| <b>Rate of new employee hires<sup>2</sup> (%)</b> | <b>13</b>    | <b>16</b>    | <b>14</b>         |
| <b>by age group<sup>3</sup></b>                   |              |              |                   |
| Up to 29 years old                                | 47           | 37           | 37                |
| 30 to 49 years old                                | 48           | 54           | 57                |
| 50 or older                                       | 5            | 9            | 6                 |
| <b>by gender<sup>3</sup></b>                      |              |              |                   |
| Women                                             | 41           | 41           | 43                |
| Men                                               | 59           | 59           | 57                |
| <b>by region<sup>3</sup></b>                      |              |              |                   |
| Europe                                            | 35           | 37           | 37                |
| North America                                     | 11           | 13           | 13                |
| Asia-Pacific (APAC)                               | 41           | 37           | 33                |
| Latin America                                     | 11           | 10           | 14                |
| Middle East and Africa (MEA)                      | 2            | 3            | 3                 |

1 These figures exclude the 8,975 Sigma-Aldrich employees, who are not classified as new hires because they joined Merck KGaA, Darmstadt, Germany 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<sup>1</sup>

|                                           | 2013 <sup>2</sup> | 2014 <sup>2</sup> | 2015 <sup>3</sup> |
|-------------------------------------------|-------------------|-------------------|-------------------|
| <b>Total turnover rate</b>                | <b>14.61</b>      | <b>11.01</b>      | <b>10.38</b>      |
| <b>Turnover rate by gender</b>            |                   |                   |                   |
| Men                                       | 13.98             | 10.75             | 10.13             |
| Women                                     | 15.00             | 11.38             | 10.73             |
| <b>Turnover rate by age group</b>         |                   |                   |                   |
| Up to 29 years old                        | 21.55             | 18.71             | 17.49             |
| 30 to 49 years old                        | 13.44             | 9.72              | 9.69              |
| 50 or older                               | 13.01             | 9.49              | 8.08              |
| <b>Turnover rate by region</b>            |                   |                   |                   |
| Europe                                    | 14.61             | 7.05              | 6.22              |
| North America                             | 10.51             | 12.45             | 12.72             |
| Asia-Pacific (APAC) <sup>4</sup>          | not recorded      | 17.55             | 15.95             |
| Latin America <sup>4</sup>                | not recorded      | 13.67             | 15.29             |
| Middle East and Africa (MEA) <sup>4</sup> | not recorded      | 13.62             | 12.00             |
| <b>Total number of leavers</b>            | <b>5,573</b>      | <b>4,364</b>      | <b>4,168</b>      |
| <b>by gender</b>                          |                   |                   |                   |
| Men                                       | 3,110             | 2,502             | 2,386             |
| Women                                     | 2,385             | 1,862             | 1,782             |
| <b>by age group</b>                       |                   |                   |                   |
| Up to 29 years old                        | 1,273             | 1,102             | 943               |
| 30 to 49 years old                        | 3,300             | 2,474             | 2,505             |
| 50 or older                               | 1,000             | 788               | 720               |
| <b>by region</b>                          |                   |                   |                   |
| Europe                                    | 2,367             | 1,447             | 1,290             |
| North America                             | 516               | 634               | 638               |
| Asia-Pacific (APAC) <sup>4</sup>          | not recorded      | 1,665             | 1,540             |
| Latin America <sup>4</sup>                | not recorded      | 531               | 618               |
| Middle East and Africa (MEA) <sup>4</sup> | not recorded      | 87                | 82                |

- 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 is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount of the past 12 months multiplied by 100. These figures exclude Sigma-Aldrich since it is still undergoing the integration process. In consequence of the modified calculation method for turnover rate, it is only possible to make a limited statement concerning interannual trends.
- 4 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 <sup>1</sup> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------|
| % of full-time employees (standard contract, excluding exempts) with contractually stipulated working hours of maximally 48 hours/week <sup>2</sup> | 99   | 99   | 100               |
| % of full-time employees (standard contract) with at least 15 vacation days/year <sup>3</sup>                                                       | 98   | 95   | 97                |
| % of female employees with access to maternity leave programs <sup>4</sup>                                                                          | 100  | 100  | 100               |
| % of employees with the right to collective bargaining <sup>5</sup>                                                                                 | 97   | 97   | 98                |
| % of employees working at companies where collective agreements apply                                                                               | 68   | 66   | 71                |
| % of sites that rule out complicity in child labor as described in ILO Convention 138                                                               | 100  | 100  | 100               |
| Age of youngest employees, excluding apprentices                                                                                                    | 16   | 17   | 17                |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

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 <sup>1</sup> |
|------------------------------------------------------------------------------|------|------|-------------------|
| % of sites that guarantee a salary above the local minimum wage <sup>2</sup> | 100  | 100  | 100               |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

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 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.

## Work-related accidents<sup>1</sup>

|                                                                                                                    | 2013       | 2014       | 2015 <sup>2</sup> |
|--------------------------------------------------------------------------------------------------------------------|------------|------------|-------------------|
| <b>Lost Time Injury Rate (LTIR=workplace accidents resulting in missed days of work per one million man-hours)</b> | <b>2.2</b> | <b>1.8</b> | <b>1.5</b>        |
| <b>by region</b>                                                                                                   |            |            |                   |
| Europe                                                                                                             | 3.7        | 2.9        | 2.7               |
| North America                                                                                                      | 0.9        | 1.0        | 0.8               |
| Asia-Pacific (APAC)                                                                                                | 0.3        | 0.5        | 0.2               |
| Latin America                                                                                                      | 2.1        | 1.3        | 0.5               |
| Middle East and Africa (MEA)                                                                                       | 1.8        | 0.9        | 0.0               |
| <b>Number of deaths</b>                                                                                            | <b>0</b>   | <b>2</b>   | <b>2</b>          |
| <b>by region</b>                                                                                                   |            |            |                   |
| Europe                                                                                                             | 0          | 0          | 1                 |
| North America                                                                                                      | 0          | 0          | 1                 |
| Asia-Pacific (APAC)                                                                                                | 0          | 1          | 0                 |
| Latin America                                                                                                      | 0          | 1          | 0                 |
| Middle East and Africa (MEA)                                                                                       | 0          | 0          | 0                 |
| <b>by gender</b>                                                                                                   |            |            |                   |
| Women                                                                                                              | 0          | 1          | 1                 |
| Men                                                                                                                | 0          | 1          | 1                 |

1 Including contractors.

2 The figures exclude Sigma-Aldrich since the integration process is still underway.

Despite our efforts at accident prevention, we've had four fatal workplace accidents over the last two years. In 2015, one employee died in a car accident in the USA, and in Germany one employee suffered a fatal accident involving a fork lift. In 2014, an employee died in Venezuela in a traffic accident, and in Pakistan an employee suffered a fatal incident doing maintenance work on a scissor lift.

Merck KGaA, Darmstadt, Germany employees have been included in the calculation of the indicators as well as supervised employees of external companies.

Using the LTIR, we record work-related accidents of Merck KGaA, Darmstadt, Germany employees 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 (cumulative trauma). Work-related accidents are considered relevant if they occur on the premises, on business trips, during transport, in the course 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 figure, which we achieved for the first time in 2015.

For our German sites Darmstadt and Gernsheim (about 19% of the employees of the company) we report work-related illnesses if these have been diagnosed and verified by a physician. In the reporting period, no cases of work-induced illness were recorded. We do not keep track of the number of work-related illnesses throughout the entire company.

We have defined the LTIR as a key indicator for us. 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.

### Spending on advanced training for employees (€)

|                                                    | 2013 | 2014 | 2015 <sup>1</sup> |
|----------------------------------------------------|------|------|-------------------|
| Average continuing education spending per employee | 679  | 718  | 775               |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

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 to track all training hours globally.

### Employees who regularly receive a performance and development evaluation

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

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. The figures exclude Sigma-Aldrich since the integration process is still underway.

4 The fluctuations in participant numbers by employee category can be explained by the process of the acquisition of AZ Electronic Materials.

Regular feedback and employee performance evaluations are essential to a systematic development process. 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 our position grading system. Apart from evaluating employee performance, this helps us to identify individual development opportunities. The Performance and Talent Management Process is coordinated via the HR Suite IT system.

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 2015, around 36,017 employees worldwide were involved in the process.

## Apprentices

| As of Dec. 31         | 2013 | 2014 <sup>1</sup> | 2015 <sup>2</sup> |
|-----------------------|------|-------------------|-------------------|
| Number of apprentices | 516  | 498               | 506               |
| % of apprentices      | 5.6  | 5.4               | 5.3               |

1 Only pertains to the Darmstadt, Gernsheim and Grafing sites in Germany (which accounted for roughly 24% of our employees in 2014).

2 Only pertains to all sites of Merck KGaA, Darmstadt, Germany located in Germany (roughly 19% of our total employee headcount in 2015)

## Internationality of employees

| As of Dec. 31                                                              | 2013 | 2014 <sup>1</sup> | 2015 <sup>2</sup> |
|----------------------------------------------------------------------------|------|-------------------|-------------------|
| Number of nationalities                                                    | 114  | 122               | 122               |
| Number of nationalities in management positions (Global Grade 14 or above) | 64   | 67                | 64                |
| % of non-Germans in management positions (Global Grade 14 or above)        | 60   | 60                | 61                |

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 The figures do not include data from Sigma-Aldrich since the integration process is still underway.

## 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) |
|--------------------------------------|---------------|---------------|----------------------------|---------------|---------------------|---------------|------------------------------|
| 2014                                 |               |               |                            |               |                     |               |                              |
| Up to 29 years old                   | 5,890         | 512           | 2,427                      | 1,513         | 2,256               | 538           | 157                          |
| thereof women                        | 2,458         | 221           | 1,105                      | 579           | 778                 | 295           | 59                           |
| 30 to 49 years old                   | 25,446        | 2,804         | 12,979                     | 6,359         | 6,444               | 2,818         | 401                          |
| thereof women                        | 10,854        | 1,302         | 5,862                      | 2,486         | 2,224               | 1,283         | 183                          |
| 50 or older                          | 8,303         | 1,776         | 5,131                      | 3,319         | 788                 | 527           | 81                           |
| thereof women                        | 3,054         | 749           | 1,926                      | 1,133         | 174                 | 167           | 38                           |
| <b>Average age</b>                   | <b>40.6</b>   | <b>44.5</b>   | <b>42.0</b>                | <b>42.7</b>   | <b>36.1</b>         | <b>39.2</b>   | <b>37.2</b>                  |
| <b>Total employees</b>               | <b>39,639</b> | <b>5,092</b>  | <b>20,537</b>              | <b>11,191</b> | <b>9,488</b>        | <b>3,883</b>  | <b>639</b>                   |
| 2015 (Group excluding Sigma-Aldrich) |               |               |                            |               |                     |               |                              |
| Up to 29 years old                   | 5,853         | 529           | 2,497                      | 1,544         | 2,121               | 539           | 167                          |
| thereof women                        | 2,479         | 224           | 1,147                      | 602           | 749                 | 297           | 62                           |
| 30 to 49 years old                   | 26,178        | 2,790         | 13,149                     | 6,421         | 6,841               | 2,929         | 469                          |
| thereof women                        | 11,150        | 1,287         | 5,963                      | 2,501         | 2,338               | 1,349         | 213                          |
| 50 or older                          | 8,687         | 1,853         | 5,304                      | 3,357         | 877                 | 564           | 89                           |
| thereof women                        | 3,198         | 779           | 2,004                      | 1,159         | 195                 | 178           | 42                           |
| <b>Average age</b>                   | <b>41.1</b>   | <b>45.2</b>   | <b>42.4</b>                | <b>42.9</b>   | <b>36.9</b>         | <b>39.8</b>   | <b>37.8</b>                  |
| <b>Total employees</b>               | <b>40,718</b> | <b>5,172</b>  | <b>20,950</b>              | <b>11,322</b> | <b>9,839</b>        | <b>4,032</b>  | <b>725</b>                   |
| 2015 (Group including Sigma-Aldrich) |               |               |                            |               |                     |               |                              |
| 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                           |
| <b>Average age</b>                   | <b>41.2</b>   | <b>44.2</b>   | <b>42.4</b>                | <b>43.0</b>   | <b>36.7</b>         | <b>39.5</b>   | <b>39.5</b>                  |
| <b>Total employees</b>               | <b>49,613</b> | <b>9,794</b>  | <b>23,429</b>              | <b>11,938</b> | <b>11,096</b>       | <b>4,352</b>  | <b>942</b>                   |

## Insurance and pension systems for employees

In addition to having statutory accident insurance, more than 95% of our employees are covered by locally arranged company accident insurance.

We offer a company pension in numerous countries along with various programs for supplemental company pensions and survivor's benefits. Around two-thirds of our employees are enrolled in such a program.

In addition to this, in numerous countries we also offer supplementary health insurance for employees and family members, an option utilized by roughly two-thirds of our employees.

### Long-term pension obligations and post-employment benefits

| € million                                              | 2013  | 2014  | 2015 <sup>1</sup> |
|--------------------------------------------------------|-------|-------|-------------------|
| Present value of all pension obligations as of Dec. 31 | 2,737 | 3,813 | 4,153             |
| Pension expenses                                       | 147   | 157   | 210               |

1 Merck KGaA, Darmstadt, Germany including Sigma-Aldrich.

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for our employees. Generally these systems are based on the years of service and salaries of the employees. Pension obligations of the company include both defined benefit and defined contribution plans and comprise both obligations from current pensions and accrued benefits for pensions payable in the future. Defined benefit plans are funded and unfunded. Provisions also contain other postemployment benefits, such as accrued future health care costs for retirees in the United States (see our Annual Report 2015, Note on Provisions for pensions and other post-employment benefits).

### Flexible working hours

| As of Dec. 31                                            | 2013 | 2014 | 2015 <sup>1</sup> |
|----------------------------------------------------------|------|------|-------------------|
| % of employees with the option of working flexible hours | 75   | 74   | 80                |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.



## Indicators: Environment

### Spending on environmental protection, safety and health (€ million)

|          | 2012 | 2013 | 2014             | 2015 <sup>1</sup> |
|----------|------|------|------------------|-------------------|
| Spending | 146  | 142  | 145 <sup>2</sup> | 148               |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

2 Figure retroactively adjusted.

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.

### Total greenhouse gas emissions (metric kilotons) (Scope 1 and 2 of the GHG Protocol)<sup>1</sup>

|                                                     | 2006 <sup>2</sup> | 2012       | 2013       | 2014       | 2015 <sup>3</sup> |
|-----------------------------------------------------|-------------------|------------|------------|------------|-------------------|
| <b>Total CO<sub>2</sub>eq<sup>4</sup> emissions</b> | <b>561</b>        | <b>543</b> | <b>559</b> | <b>517</b> | <b>518</b>        |
| Thereof                                             |                   |            |            |            |                   |
| direct CO <sub>2</sub> eq emissions                 | 316               | 318        | 348        | 321        | 327               |
| indirect CO <sub>2</sub> eq emissions               | 245               | 225        | 211        | 196        | 191               |
| <b>Biogenic CO<sub>2</sub> emissions</b>            | <b>6</b>          | <b>5</b>   | <b>6</b>   | <b>11</b>  | <b>54</b>         |

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. AZ Group in 2014) or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 Baseline for our emission targets is 2006.

3 This figure does not include data from Sigma-Aldrich since the integration process is still underway. The direct and indirect CO<sub>2</sub>eq emissions (Scope 1 and 2) of the former Sigma-Aldrich sites add up to approximately 215 metric kilotons in 2015.

4 eq = equivalent

The increase in biogenic carbon emissions was caused by the biomass powerplants 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<sub>2</sub>eq emissions:

- Direct CO<sub>2</sub> emissions: CO<sub>2</sub>, HFCs, PFCs; CH<sub>4</sub>/N<sub>2</sub>O negligible; SF<sub>6</sub>/NF<sub>3</sub> not available.
- Indirect CO<sub>2</sub> emissions: CO<sub>2</sub>.

In 2015, we emitted 0,040 kg of CO<sub>2</sub>eq per euro of net sales.

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

|                                                                                            | 2012         | 2013         | 2014           | 2015 <sup>2</sup> |
|--------------------------------------------------------------------------------------------|--------------|--------------|----------------|-------------------|
| <b>Total gross other indirect emissions (metric kilotons CO<sub>2</sub>eq<sup>1</sup>)</b> | <b>49</b>    | <b>64</b>    | <b>319</b>     | <b>349</b>        |
| Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)              | not recorded | not recorded | 97             | 95                |
| Waste generated in operations (category 5)                                                 | not recorded | not recorded | 96             | 123               |
| Business travel - air travel (category 6)                                                  | 48           | 63           | 74             | 79                |
| Business travel - rail travel (category 6)                                                 | 0.1          | 0.05         | 0.02           | 0.02              |
| Business travel - rental car travel (category 6)                                           | 0.8          | 1.3          | 1.2            | 1.1               |
| Employee commuting (category 7)                                                            | not recorded | not recorded | 51             | 51                |
| Upstream leased assets (category 8)                                                        | not recorded | not recorded | 0 <sup>3</sup> | 0 <sup>3</sup>    |
| Processing of sold products (category 10)                                                  | not recorded | not recorded | 0 <sup>4</sup> | 0 <sup>4</sup>    |
| Downstream leased assets (category 13)                                                     | not recorded | not recorded | 0              | 0                 |
| Franchises (category 14)                                                                   | not recorded | not recorded | 0              | 0                 |

1 eq = equivalent

2 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

3 Already covered under Scope 1/2 emissions.

4 We produce 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 the company is assessed in the [Scope 3 document](#).

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

## Emissions of ozone-depleting substances (metric tons)

|                                               | 2012 | 2013 | 2014 | 2015 <sup>1</sup> |
|-----------------------------------------------|------|------|------|-------------------|
| Total emissions of ozone-depleting substances | 1.9  | 1.5  | 0.9  | 1.4               |
| CFC-11eq <sup>2</sup>                         | 0.10 | 0.08 | 0.05 | 0.08              |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

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)

|                                  | 2012 | 2013 | 2014 | 2015 <sup>1</sup> |
|----------------------------------|------|------|------|-------------------|
| Volatile organic compounds (VOC) | 0.2  | 0.2  | 0.3  | 0.3               |
| Nitrogen oxide                   | 0.2  | 0.2  | 0.2  | 0.2               |
| Sulfur dioxide                   | 0.02 | 0.02 | 0.02 | 0.05              |
| Dust                             | 0.03 | 0.01 | 0.02 | 0.06              |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

The increase in dust and sulfur dioxide emissions was caused by the biomass power plant that was commissioned in Goa, India at the end of 2014.

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<sup>1</sup>

|            | 2012 | 2013 | 2014 | 2015 |
|------------|------|------|------|------|
| % Truck    | 58   | 56   | 56   | 53   |
| % Boat     | 36   | 37   | 38   | 41   |
| % Airplane | 6    | 7    | 6    | 6    |

1 Pertains to goods shipped by our Darmstadt, Gernsheim and Hohenbrunn sites in Germany (excluding Sigma-Aldrich). These figures pertain to the total weight of the transported products. Indicated here is the primary means of transport.

In shipping finished goods from our production sites to the local warehouses of our subsidiaries, we have been working to reduce the use of air shipping in favor of sea shipping. This change aims to both reduce costs as well as lower transport-related CO<sub>2</sub> emissions.

## Energy consumption<sup>1</sup>

| in GWh                                      | 2012         | 2013         | 2014         | 2015 <sup>2</sup> |
|---------------------------------------------|--------------|--------------|--------------|-------------------|
| <b>Total energy consumption</b>             | <b>1,528</b> | <b>1,549</b> | <b>1,602</b> | <b>1,720</b>      |
| <b>Direct energy consumption</b>            | <b>924</b>   | <b>991</b>   | <b>1,056</b> | <b>1,171</b>      |
| Natural gas                                 | 813          | 871          | 919          | 933               |
| Liquid fossil fuels <sup>3</sup>            | 98           | 105          | 110          | 103               |
| Biomass and self-generated renewable energy | 13           | 15           | 27           | 135               |
| <b>Indirect energy consumption</b>          | <b>604</b>   | <b>558</b>   | <b>546</b>   | <b>549</b>        |
| Electricity                                 | 491          | 493          | 460          | 466               |
| Steam, heat, cold                           | 113          | 65           | 86           | 83                |
| <b>Total energy sold</b>                    | <b>0.5</b>   | <b>0.4</b>   | <b>0.6</b>   | <b>0.5</b>        |
| Electricity                                 | 0.5          | 0.4          | 0.6          | 0.5               |
| Steam, heat, cold                           | 0            | 0            | 0            | 0                 |

  

| in TJ                                       | 2012         | 2013         | 2014         | 2015         |
|---------------------------------------------|--------------|--------------|--------------|--------------|
| <b>Total energy consumption</b>             | <b>5,501</b> | <b>5,577</b> | <b>5,767</b> | <b>6,193</b> |
| <b>Direct energy consumption</b>            | <b>3,327</b> | <b>3,568</b> | <b>3,801</b> | <b>4,216</b> |
| Natural gas                                 | 2,927        | 3,136        | 3,308        | 3,359        |
| Liquid fossil fuels <sup>3</sup>            | 353          | 378          | 396          | 371          |
| Biomass and self-generated renewable energy | 47           | 54           | 97           | 486          |
| <b>Indirect energy consumption</b>          | <b>2,174</b> | <b>2,009</b> | <b>1,966</b> | <b>1,977</b> |
| Electricity                                 | 1,768        | 1,775        | 1,656        | 1,678        |
| Steam, heat, cold                           | 407          | 234          | 310          | 299          |
| <b>Total energy sold</b>                    | <b>2</b>     | <b>1</b>     | <b>2</b>     | <b>2</b>     |
| Electricity                                 | 2            | 1            | 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 The figures exclude Sigma-Aldrich since the integration process is still underway.

3 Light and heavy fuel oil, liquified petroleum gas (LPG), diesel and gasoline.

At our sites in Billerica, Massachusetts (USA), Bedford, Massachusetts (USA), Molsheim (France), Tel Aviv (Israel), Rome (Italy), Ciudad de Guatemala (Guatemala), and Shanghai (China), we use photovoltaics to produce power. The increase in biomass and self-generated renewable energy consumption is attributable to the biomass power plants that were commissioned in Goa, India, and Jaffrey, New Hampshire (USA) in 2014.

We currently only record 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 37% of our Group-wide total. At these sites, fossil energy (coal, gas, etc.) accounts for approx. 55%, nuclear energy approx. 17% and renewable energies approx. 28% 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 1,260 GWh for 2015. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 98 GWh for 2015. This yields a total primary energy consumption of 1,358 GWh for 2015. The calculation is based on factors stated in the "Handbuch für betriebliches Energiemanagement - Systematisch Energiekosten senken" ("Manual for energy management in practice - Systematically reducing energy costs") published by DENA, 12/2012.

In 2015, our energy intensity relative to net sales totaled 0,134 kWh/€.

### Water consumption (millions of m<sup>3</sup>)

|                                       | 2012        | 2013       | 2014        | 2015 <sup>1</sup> |
|---------------------------------------|-------------|------------|-------------|-------------------|
| <b>Total water consumption</b>        | <b>16.3</b> | <b>9.6</b> | <b>11.1</b> | <b>11.6</b>       |
| Surface water (rivers, lakes)         | 7.0         | 0.0        | 0.3         | 0.3               |
| Groundwater                           | 5.3         | 5.4        | 6.3         | 6.7               |
| Drinking water (from local suppliers) | 4.0         | 4.2        | 4.5         | 4.6               |
| Rain water and other sources          | 0.01        | 0.01       | 0.03        | 0.03              |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

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

### Water reused (millions of m<sup>3</sup>)

|              | 2012 | 2013 | 2014 | 2015 <sup>1</sup> |
|--------------|------|------|------|-------------------|
| Water reused | 17.8 | 16.6 | 16.0 | 23.0              |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

The increase in reused water in 2015 is attributable to the recirculating cooling system that went on line 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.

## Wastewater volume and quality

|                                                            | 2012       | 2013       | 2014                    | 2015 <sup>1</sup> |
|------------------------------------------------------------|------------|------------|-------------------------|-------------------|
| <b>Total wastewater volume (millions of m<sup>3</sup>)</b> | <b>8.5</b> | <b>8.6</b> | <b>10.1<sup>2</sup></b> | <b>10.0</b>       |
| Chemical oxygen demand (metric tons of O <sub>2</sub> )    | 929        | 756        | 1,319 <sup>2</sup>      | 1,384             |
| Phosphorous (metric tons)                                  | 7          | 7          | 11                      | 11                |
| Nitrogen (metric tons)                                     | 76         | 77         | 81                      | 108               |
| Zinc (kg)                                                  | 267        | 293        | 288                     | 280               |
| Chromium (kg)                                              | 21         | 23         | 36 <sup>2</sup>         | 41                |
| Copper (kg)                                                | 37         | 36         | 34                      | 62                |
| Nickel (kg)                                                | 101        | 110        | 128                     | 126               |
| Lead (kg)                                                  | 35         | 42         | 55                      | 53                |
| Cadmium (kg)                                               | 10         | 10         | 10                      | 13                |
| Mercury (kg)                                               | 1          | 1          | 1                       | 1                 |
| Arsenic (kg)                                               | 3          | 4          | 4                       | 4                 |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

2 Figures retroactively adjusted.

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

Wastewater from the neighboring municipality of Biebesheim is also treated at the wastewater treatment plant at our Gernsheim site in Germany. 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)

|                                           | 2012       | 2013       | 2014                   | 2015 <sup>1</sup> |
|-------------------------------------------|------------|------------|------------------------|-------------------|
| <b>Total waste</b>                        | <b>189</b> | <b>161</b> | <b>228<sup>2</sup></b> | <b>295</b>        |
| Hazardous waste disposed <sup>3</sup>     | 62         | 37         | 53                     | 55                |
| Non-hazardous waste disposed <sup>3</sup> | 36         | 31         | 55                     | 31                |
| Hazardous waste recycled                  | 48         | 50         | 49 <sup>2</sup>        | 59                |
| Non-hazardous waste recycled              | 43         | 43         | 71                     | 150               |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

2 Figures retroactively adjusted.

3 Disposed = incineration and landfill.

The amount of "non-hazardous waste disposed" decreased in 2015 because there was less landfill needing disposal.

The increase in "non-hazardous waste recycled" can be attributed to the sharp rise in landfill, construction waste, and demolition waste. Landfill, construction waste, and demolition waste accounted for 47% of total waste in 2014, and 53% of total waste in 2015.

## Exported/Imported hazardous waste (metric kilotons)

|                       | 2012         | 2013 | 2014             | 2015 <sup>1</sup> |
|-----------------------|--------------|------|------------------|-------------------|
| Exported <sup>2</sup> | not recorded | 7.1  | 9.6 <sup>3</sup> | 4.3               |
| Imported <sup>4</sup> | not recorded | 0.01 | 0.003            | 0.01              |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

2 Disposal within the EU.

3 Figure retroactively adjusted.

4 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

|                                         | 2012       | 2013       | 2014                   | 2015 <sup>1</sup> |
|-----------------------------------------|------------|------------|------------------------|-------------------|
| <b>Total waste (metric kilotons)</b>    | <b>189</b> | <b>161</b> | <b>228<sup>2</sup></b> | <b>295</b>        |
| <b>Disposed waste (metric kilotons)</b> | <b>98</b>  | <b>67</b>  | <b>108</b>             | <b>86</b>         |
| Landfilled waste (metric kilotons)      | 19         | 13         | 37                     | 12                |
| Incinerated waste (metric kilotons)     | 79         | 54         | 71                     | 74                |
| <b>Recycled waste (metric kilotons)</b> | <b>91</b>  | <b>94</b>  | <b>120<sup>2</sup></b> | <b>209</b>        |
| Material recycling (metric kilotons)    | 67         | 69         | 93 <sup>2</sup>        | 181               |
| Waste-to-energy (metric kilotons)       | 24         | 25         | 27                     | 28                |
| <b>Recycling rate (%)</b>               | <b>48</b>  | <b>58</b>  | <b>53</b>              | <b>71</b>         |

1 The figures exclude Sigma-Aldrich since the integration process is still underway.

2 Figures retroactively adjusted.

Our waste output rose to 295,000 metric tons in 2015. Waste from construction and renovation projects accounted for the majority of the waste (2014: 47%; 2015: 53%), stemming in particular from the remodeling of our Global headquarters in Darmstadt. In 2014, roughly 50 metric kilotons of this waste was recycled, with approximately 124 metric kilotons recycled in 2015.

## Significant spills

|                                    | 2012 | 2013 | 2014 | 2015 <sup>1</sup> |
|------------------------------------|------|------|------|-------------------|
| Total number of significant spills | 0    | 0    | 0    | 0                 |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

## Indicators: Community

### Spending on community involvement (€ million)

|                | 2012 | 2013 | 2014 | 2015 <sup>1</sup> |
|----------------|------|------|------|-------------------|
| Total spending | 11.8 | 46.2 | 50.8 | 100.0             |

1 The figure does not include data from Sigma-Aldrich since the integration process is still underway.

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.

The increase in our community involvement spending is attributable to the expansion of our Praziquantel Donation Program as well as the expansion of the Erbitux® China Patient Assistance Program. In the Praziquantel Donation Program, we are partnering with the World Health Organization to combat the worm disease schistosomiasis in African school children. Through the Erbitux® China Patient Assistance Program, roughly 90% of the costs for Erbitux® treatment can be covered for colorectal cancer patients with a good prognosis.

### Spending on community involvement, by region (%)<sup>1</sup>

|                              | 2012 | 2013 | 2014 | 2015 <sup>2</sup> |
|------------------------------|------|------|------|-------------------|
| Europe                       | 20   | 36   | 37   | 8                 |
| North America                | 13   | 1    | < 2  | 1                 |
| Asia-Pacific (APAC)          | 59   | 61   | 60   | 91                |
| Latin America                | 8    | < 1  | < 2  | < 1               |
| Middle East and Africa (MEA) | < 1  | < 1  | < 1  | < 1               |

1 Excluding spending for the Global Pharma Health Fund, the Praziquantel Donation Program and the Deutsche Philharmonie Merck sponsored by Merck KGaA, Darmstadt, Germany. As regards segment reporting by country and region, the composition of regions was adjusted and the corresponding comparative year-earlier figures are presented. The regional reporting structure now comprises five regions: Europe, North America, Asia-Pacific, Latin America as well as Middle East and Africa.

2 The figures exclude Sigma-Aldrich since the integration process is still underway.

In 2015, the significant increase in spending on the Erbitux® China Patient Assistance Program led to a relative decrease in spending in other regions.

### Focus of local community involvement (%)<sup>1</sup>

|                                                          | 2012 | 2013 | 2014 | 2015 <sup>2</sup> |
|----------------------------------------------------------|------|------|------|-------------------|
| Disaster relief                                          | 3    | 6    | 4    | 6                 |
| Education                                                | 16   | 23   | 23   | 25                |
| Environment                                              | 9    | 10   | 10   | 7                 |
| Health                                                   | 30   | 23   | 33   | 33                |
| Support for culture and sports activities near our sites | 28   | 19   | 15   | 8                 |
| Other                                                    | 14   | 19   | 15   | 21                |

1 Based on number of projects, excluding the Global Pharma Health Fund, the Praziquantel Donation Program and Deutsche Philharmonie Merck sponsored by Merck KGaA, Darmstadt, Germany.

2 The figures exclude data from Sigma-Aldrich since the integration process is still underway.



## Motivations for our community involvement (%)<sup>1</sup>

|                                         | 2012 | 2013 | 2014 | 2015 <sup>2</sup> |
|-----------------------------------------|------|------|------|-------------------|
| Charitable activities                   | 32   | 20   | 9    | 3                 |
| Community investment                    | 52   | 59   | 59   | 92                |
| Commercial initiatives in the community | 16   | 21   | 32   | 5                 |

1 Based on total spending, excluding spending for the Global Pharma Health Fund, the Praziquantel Donation Program and the Deutsche Philharmonie Merck sponsored by Merck KGaA, Darmstadt, Germany.

2 The figures exclude Sigma-Aldrich since the integration process is still underway.

In 2015, the significant increase in spending on the Erbitux® China Patient Assistance Program, which falls under "Community investment", led to a relative decrease in spending in other areas.

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

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