

Indicators

Economics

Net sales, operating result (EBIT) and research and development costs, by business sector¹

€ million	Life Science	Healthcare	Electronics	Group
2020				
Net sales	7,515	6,639	3,380	17,534
Operating result (EBIT)	1,599	1,804	240	2,985
R&D costs ²	313	1,640	274	2,288
2021				
Net sales	8,990	7,089	3,608	19,687
Operating result (EBIT)	2,479	1,823	509	4,179
R&D costs ²	351	1,712	278	2,408

1 As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our [2021 Annual Report](#) (p. 246-250).

2 Not presented: research and development costs of € 67 million (2020: € 62 million) allocated to Corporate and Other.

Business ethics

Compliance training

	2018	2019 ¹	2020 ²	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total number of persons trained on anti-corruption guidelines ³	11,404	36,109	28,827	5,790	509
Total number of employees trained on anti-corruption guidelines	11,155	35,673	28,805	5,772	508
% of employees trained on anti-corruption	22	63	50	10	6
by employee category⁴					
Number of Role 2+ employees trained on anti-corruption	9,257	26,890	27,123	5,284	495
% of Role 2+ employees trained on anti-corruption	36	96	90	17	12
% of employees below Role 2 trained on anti-corruption	7	30	6	2	0
by region (%)					
Europe	19	71	51	8	6
North America	36	59	45	11	not applicable
Asia-Pacific (APAC)	16	47	44	12	not applicable
Latin America	12	62	44	8	not applicable
Middle East and Africa (MEA)	18	80	66	12	not applicable

1 As of 2019, we changed our reporting method. Previously, our reports covered the active workforce who has been trained on a specific subject during a particular year. In 2019, we report on the active, trained workforce in the company, regardless of whether their training has already taken place prior to the reporting year. The possibility of trend forecasts for year-to-year comparisons is therefore limited.

2 In 2020, we began using our own global learning management tool and therefore now have a different reporting structure. As of 2020, we report on the active workforce that is part of the target group and has completed the training in the reporting year. The possibility of trend forecasts for year-to-year comparisons is therefore limited.

3 Includes contractors, external supervised workers (e.g. temps) and contract partners working on-site who were trained on anti-corruption guidelines (2021: 18).

4 Employees whose role level had not yet been recorded in our database by December 31 of the respective reporting year have been allocated to "employees below Role 2".

The (employee) target audience for a specific training is related to the risk level associated with employee positions and Role levels. Target audiences therefore may not include all Group employees and also may vary from training to training.

In order to address the special responsibility held by management personnel, and staff with HR responsibility, trainings on anti-corruption guidelines for these employees are in focus. This applies to all employees rated Role 2+.

Our new Anti-Corruption E-learning was rolled out in 2020. The majority of employees within the defined target group already completed the training in 2020. Therefore, the 2021 completion number is lower as the training was only assigned to new joiners, internal transfers or employees who did not complete the E-learning in 2020.

Internal audits on corruption and Human Rights Charter

	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany ¹
Number of audits relating to corruption	54	50	52	56	29
% of audits relating to corruption	69	65	66	67	35
Number of audits relating to the workplace requirements of our Human Rights Charter	46	46	42	51	27

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

In 2021, during 51 of our audits conducted in 11 countries, we reviewed workplace parameters as per our Human Rights Charter. No violations were identified.

Human rights violations¹

	2018 ²	2019 ²	2020	2021
Number of reported violations of Social and Labor Standards Policy	-	-	108	121
Number of confirmed violations of Social and Labor Standards Policy	-	-	29	41
thereof number of incidents of discrimination	-	-	2	6

1 In 2020, we modified our reporting structure for human rights violations. Previously, we reported on such violations in the "Reported compliance violations" table. Since 2020, we report on violations of our [Social and Labor Standards Policy](#), which was drafted and rolled out across the entire Group in 2019.

2 Due to our revised reporting practices, we have decided not to report the data from previous years.

Reported compliance violations

	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total number of reported compliance violations					
Number of reported compliance incidents	72	75	81	79	6
Number of confirmed cases	19	30	41	42	3
Confirmed cases by category					
Bribery and corruption	3	9	6	1	0
Violation of cartel laws and fair competition rules	1	0	0	0	0
Fraudulent actions against the Group	5	8	11	6	0
Other violations of our Compliance Principles for the relations with business partners	1	4	0	0	0
Other violations of our values, internal guidelines or legal requirements	9	9	24	35	3

Data Privacy

	2018	2019 ¹	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Reported violations of Data Privacy Guidelines	1	1	3	3	1
Customer Privacy²					
Total number of substantiated complaints received from outside parties	0	0	0	0	0
Total number of complaints from regulatory bodies	0	1	0	0	0
Total number of identified leaks, thefts, or losses of customer data	1	1	0	0	0

¹ Since 2019, our reported figures have excluded the Consumer Health business, which was divested on December 1, 2018.

² These data only reflect incidents classified as significant.

Legal actions

	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total number ¹ of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	3	3	4	4	2
pending	3	3	4	3	2
completed	0	0	0	1	0

¹ 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 2018](#), pages 146-148 and pages 247-251, No. 26

[Annual Report 2019](#), pages 120-122 and pages 243-245, No. 26

[Annual Report 2020](#), pages 125-127 and pages 252-256, No. 27

[Annual Report 2021](#), pages 100-101 and pages 280-284, No. 27

Employees

Total number of employees

As of Dec. 31	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total number of employees	51,749	57,071	58,127	60,348	8,081
Men	29,006	32,531	33,204	34,274	5,292
Women	22,743	24,540	24,923	26,074	2,789

Number of employees by hierarchical level

As of Dec. 31	2018 ¹	2019 ²	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total employees	51,749	57,071	58,127	60,348	8,081
Senior management (Role 6+)	193	190	193	194	70
Middle management (Role 4 & 5)	3,095	3,352	3,637	3,831	824
Low management (Role 3)	9,019	9,499	10,286	10,880	2,077
Other employees (below Role 3)	39,442	44,030	44,011	45,443	5,110
% of women (total)	44	43	43	43	35
thereof in senior management (Role 6+)	36	39	42	49	18
thereof in middle management (Role 4 & 5)	1,025	1,146	1,284	1,413	257
thereof in low management (Role 3)	3,795	4,029	4,352	4,669	773
thereof other employees (below Role 3)	17,888	19,326	19,245	19,943	1,741
% of men (total)	56	57	57	57	65
thereof in senior management (Role 6+)	157	151	151	145	52
thereof in middle management (Role 4 & 5)	2,070	2,206	2,353	2,418	567
thereof in low management (Role 3)	5,224	5,470	5,934	6,211	1,304
thereof other employees (below Role 3)	21,554	24,704	24,766	25,500	3,369
by age group					
Up to 29 years old (%)	15	15	15	15	14
thereof in senior management (Role 6+)	0	0	0	0	0
thereof in middle management (Role 4 & 5)	5	8	6	8	2
thereof in low management (Role 3)	211	190	199	241	65
thereof other employees (below Role 3)	7,279	8,362	8,365	8,880	1,058
30 to 49 years old (%)	61	60	60	60	53
thereof in senior management (Role 6+)	69	69	68	63	25
thereof in middle management (Role 4 & 5)	1,829	1,933	2,032	2,172	512
thereof in low management (Role 3)	6,206	6,516	6,926	7,298	1,336
thereof other employees (below Role 3)	23,536	25,859	25,948	26,624	2,415
50 years or older (%)	24	25	25	25	33
thereof in senior management (Role 6+)	124	121	125	131	45
thereof in middle management (Role 4 & 5)	1,261	1,411	1,599	1,651	310

1 In 2018 the position assessment had not yet been carried out for employees of all Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. In the facts and figures, these employees are included under "other employees (below Role 3)".

2 In 2019, the position assessment had not yet been carried out for employees of Versum Materials as well as of Allergopharma. In the figures, employees whose positions have not been assessed have been allocated to "other employees (below Role 3)".

Number of employees by hierarchical level

As of Dec. 31	2018 ¹	2019 ²	2020	2021 thereof The Group	Merck KGaA, Darmstadt, Germany
thereof in low management (Role 3)	2,602	2,793	3,161	3,341	676
thereof other employees (below Role 3)	8,627	9,809	9,698	9,939	1,637

1 In 2018 the position assessment had not yet been carried out for employees of all Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. In the facts and figures, these employees are included under "other employees (below Role 3)".

2 In 2019, the position assessment had not yet been carried out for employees of Versum Materials as well as of Allergopharma. In the figures, employees whose positions have not been assessed have been allocated to "other employees (below Role 3)".

Average number of employees by functional area¹

Group	2018 ²	2019 ³	2020 ⁴	2021
thereof women	23,388	23,503	24,746	25,295
Production	16,240	16,455	17,624	19,782
thereof women	5,359	5,529	6,043	6,541
Logistics/Supply Chain	4,014	4,109	4,298	4,557
thereof women	1,569	1,626	1,734	1,838
Marketing and Sales/Commercials	15,479	13,970	14,127	14,318
thereof women	6,981	6,608	6,787	6,906
Administration	9,864	10,342	11,342	11,824
thereof women	5,067	5,194	5,499	5,718
Research and Development	7,245	7,561	7,504	7,168
thereof women	3,871	4,053	3,996	3,694
Infrastructure and Other	966	1,208	2,717	1,083
thereof women	541	493	687	598

1 The average employee headcount is calculated by adding up all employees at the end of each of the last 13 months, and dividing this total by 13.

2 The average employee headcount for fiscal 2018 incorporates the Consumer Health employees on a pro rata basis up until the end of November 2018 due to the divestment of the Consumer Health business as of December 1, 2018.

3 To calculate the average number of employees in fiscal 2019, the employee headcount of Versum Materials has been included on a pro rata basis as of October 2019 owing to the acquisition. They are allocated to the functional area "Infrastructure and Other".

4 The average employee headcount for fiscal 2020 incorporates the Allergopharma employees on a pro rata basis up until the end of March 2020 due to the divestment of the Allergopharma business as of March 31, 2020.

Number of employees by region

As of Dec. 31	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total	51,749	57,071	58,127	60,348	8,081
Europe	25,792	26,715	26,587	27,217	8,081
Women	11,464	11,909	11,743	12,098	2,789
Women (%)	44	45	44	44	35
Number of employees with temporary contracts	1,209	1,137	1,105	988	247
% of employees with temporary contracts	5	4	4	4	3
North America	10,978	12,829	13,312	14,070	0
Women	4,742	5,285	5,527	5,800	not applicable
Women (%)	43	41	42	41	not applicable
Number of employees with temporary contracts	148	158 ¹	139	115	not applicable
% of employees with temporary contracts	1	1 ¹	1	1	not applicable
Asia-Pacific (APAC)	10,486	12,728	13,518	14,285	0
Women	4,348	5,049	5,425	5,874	not applicable
Women (%)	41	40	40	41	not applicable
Number of employees with temporary contracts	2,846	3,263 ¹	3,362	3,660	not applicable
% of employees with temporary contracts	27	26 ¹	25	26	not applicable
Latin America	3,340	3,433	3,387	3,529	0
Women	1,648	1,690	1,630	1,721	not applicable
Women (%)	49	49	48	49	not applicable
Number of employees with temporary contracts	62	55	67	12	not applicable
% of employees with temporary contracts	2	2	2	0	not applicable
Middle East and Africa (MEA)	1,153	1,366	1,323	1,247	0
Women	541	607	598	581	not applicable
Women (%)	47	44	45	47	not applicable
Number of employees with temporary contracts	189	182	420	59	not applicable

¹ Employees whose contract type had not yet been recorded in our database by December 31, 2019 were divided up proportionally between the categories "employees with permanent contracts" and "employees with temporary contracts".

Number of employees by region

As of Dec. 31	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
temporary contracts					
% of employees with temporary contracts	16	13	32	5	not applicable

1 Employees whose contract type had not yet been recorded in our database by December 31, 2019 were divided up proportionally between the categories "employees with permanent contracts" and "employees with temporary contracts".

Employees by business sector

As of Dec. 31	2018	2019	2020	2021
Life Science employees	20,667	21,934	23,196	25,323
thereof women	8,837	9,487	10,175	11,255
thereof women (%)	43	43	44	44
Healthcare employees	17,456	18,136	17,463	17,269
thereof women	8,884	9,232	8,788	8,717
thereof women (%)	51	51	50	50
Electronics employees	5,278	7,329	7,228	7,432
thereof women	1,411	1,712	1,666	1,704
thereof women (%)	27	23	23	23

Employees by contract type

As of Dec. 31	2018	2019	2020	2021
Total employees	51,749	57,071	58,127	60,348
Number of employees with permanent contracts	47,295	52,276 ¹	53,034	55,514
% of employees with permanent contracts	91	92 ¹	91	92
thereof women	20,545	22,237 ¹	22,500	23,640
thereof women (%)	43	43 ¹	42	43
Number of employees with temporary contracts	4,454	4,795 ¹	5,093	4,834
% of employees with temporary contracts	9	8 ¹	9	8
thereof women	2,198	2,303 ¹	2,423	2,434
thereof women (%)	49	48 ¹	48	50
full-time employees	49,273	54,265	55,220	57,091
% full-time	95	95	95	95
thereof women	20,577	22,208	22,572	23,585
thereof women (%)	42	41	41	41
part-time employees	2,476	2,806	2,907	3,257
% part-time	5	5	5	5
thereof women	2,166	2,332	2,351	2,489
thereof women (%)	87	83	81	76

¹ Employees whose contract type had not yet been recorded in our database by December 31, 2019 were divided up proportionally between the categories "employees with permanent contracts" and "employees with temporary contracts".

New employees

As of Dec. 31	2018	2019 ¹	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total number of new employee hires	7,129	7,924	6,669	8,960	504
by age group					
up to 29 years old	2,967	3,432	2,889	3,679	263
30 to 49 years old	3,728	4,055	3,347	4,610	225
50 or older	434	437	433	671	16
by gender					
Women	3,401	3,622	3,016	4,101	215
Men	3,728	4,302	3,653	4,859	289
by region					
Europe	2,560	2,529	2,160	2,567	504
North America	1,524	1,733	1,789	2,855	not applicable
Asia-Pacific (APAC)	2,222	2,729	2,206	2,803	not applicable
Latin America	583	578	396	579	not applicable
Middle East and Africa (MEA)	240	355	118	156	not applicable
Rate of new employee hires² (%)	14	14	11	15	6
by age group³					
up to 29 years old	42	43	43	41	52
30 to 49 years old	52	51	50	51	45
50 or older	6	6	7	8	3
by gender³					
Women	48	46	45	46	43
Men	52	54	55	54	57
by region³					
Europe	36	32	32	29	100
North America	21	22	27	32	not applicable
Asia-Pacific (APAC)	31	34	33	31	not applicable
Latin America	8	7	6	6	not applicable
Middle East and Africa (MEA)	3	5	2	2	not applicable

1 These figures exclude the approximately 2,400 Versum Materials and Intermolecular employees who are not classified as new hires because they joined the Group as part of the acquisitions.

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.

Staff turnover^{1,2}

	2018	2019	2020 ³	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total turnover rate	9.09	9.07	8.22	10.82	2.37
Turnover rate by gender					
Men	9.03	8.69	8.22	10.69	2.45
Women	9.18	9.54	8.22	11.00	2.22
Turnover rate by age group					
Up to 29 years old	14.24	13.13	11.30	16.64	2.59
30 to 49 years old	8.53	8.90	7.74	10.05	1.95
50 or older	7.39	7.03	7.52	9.22	2.95
Turnover rate by region					
Europe	5.73	5.72	5.64	6.00	2.37
North America	9.90	11.02	9.79	15.44	not applicable
Asia-Pacific (APAC)	14.51	13.18	10.60	14.66	not applicable
Latin America	15.41	13.47	11.40	12.95	not applicable
Middle East and Africa (MEA)	9.77	12.14	11.80	16.57	not applicable
Total number of leavers	4,613	4,863	4,721	6,354	201
by gender					
Men	2,578	2,621	2,697	3,575	139
Women	2,035	2,242	2,024	2,779	62
by age group					
Up to 29 years old	1,061	1,042	974	1,451	30
30 to 49 years old	2,649	2,898	2,677	3,545	86
50 or older	903	923	1,070	1,358	85
by region					
Europe	1,457	1,500	1,490	1,601	201
North America	1,064	1,264	1,281	2,078	not applicable
Asia-Pacific (APAC)	1,468	1,484	1,394	2,015	not applicable
Latin America	522	459	398	449	not applicable
Middle East and Africa (MEA)	102	156	158	211	not applicable

1 The table contains unadjusted turnover rates. The rate excludes employees who pause 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 The employee turnover rate is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount multiplied by 100.

3 The figures do not reflect the approximately 500 Allergopharma employees, who were not included in the employee turnover rate due to the divestment of the business.

In 2021, the average length of service for employees Group-wide was 9.5 years (2020: 9.6 years), with 15.7 years (2020: 16.2 years) for employees of Merck KGaA, Darmstadt, Germany.

Work-related accidents¹

	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Lost Time Injury Rate (LTIR = workplace accidents resulting in missed days of work per one million hours worked)	1.2	1.6	1.3	1.2	2.5
by region					
Europe	1.8	2.6	2.4	2.1	2.5
North America	1.1	1.0	0.8 ²	1.2	not applicable
Asia-Pacific (APAC)	0.3	0.2	0.1	0.1	not applicable
Latin America	1.5	1.7	0.8 ²	0.4	not applicable
Middle East and Africa (MEA)	0.7	0.0	0.4	0.0	not applicable
Number of deaths	0	0	0	0	0
by region					
Europe	0	0	0	0	0
North America	0	0	0	0	not applicable
Asia-Pacific (APAC)	0	0	0	0	not applicable
Latin America	0	0	0	0	not applicable
Middle East and Africa (MEA)	0	0	0	0	not applicable
by gender					
Women	0	0	0	0	0
Men	0	0	0	0	0

1 Including supervised temporary staff

2 Figure retroactively adjusted

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.

We aim to sustainably lower our LTIR to 1.0 by 2025.

The LTIR is the key occupational safety indicator for the Group as a whole. 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 Merck KGaA, Darmstadt, Germany (about 13% of the employees of the Group), we only report work-related illnesses if these have been certified as an occupational illness by the employers' liability insurance association. In 2021 period, 4 cases of work-induced illness were verified.

Employees who regularly receive a performance and development evaluation

	2018 ¹	2019	2020	2021 The Group ²	2021 thereof Merck KGaA, Darmstadt, Germany ²
% of employees who receive a performance and development evaluation	98	98	98	98	100
by gender					
Women	99	98	98	98	100
Men	98	98	98	98	100
by employee category					
Senior management (Role 6+)	100	100	100	100	100
Middle management (Role 4 & 5)	100	100	100	100	100
Low management (Role 3)	100	100	100	100	100
Other employees (below Role 3)	98	98	98	98	100

1 In 2018 the position assessment had not yet been carried out for employees of all Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma. In the facts and figures, these employees are included under "other employees (below Role 3)".

2 Employees whose role level had not yet been recorded in our database by December 31, 2021 are included under "other employees (below Role 3)".

Regular feedback and employee performance evaluations are essential to fairly ranking individual performance and to helping all employees follow their own career path at our company. Our globally uniform Performance and Talent Management Process requires annual feedback meetings and performance assessments. Apart from evaluating employee performance, this helps us to identify individual development opportunities.

In Germany, all permanent employees have been participating in the Performance and Talent Management Process since 2013. In 2021, a total of 59,209 employees worldwide were involved in the process. The Performance and Talent Management Process is coordinated via our online platform HR4You.

Internationality of employees

As of Dec. 31	2018 ¹	2019 ²	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Number of nationalities	136	139	141	142	89
Number of nationalities in management positions (Role 4 or above)	70	73	75	79	39
% of non-Germans in management positions (Role 4 or above)	64	64	66	66	13

1 In 2018 the position assessment had not yet been carried out for employees of all Sigma-Aldrich legal entities in Germany, or for employees of Allergopharma.

2 In 2019, the position assessment had not yet been carried out for employees of Versum Materials as well as of Allergopharma.

Employee age by region

As of Dec. 31

Number of employees	Worldwide	North America	Europe (including Germany)	Merck KGaA, Darmstadt, Germany	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2020							
Up to 29 years old	8,570	1,906	3,193	1,161	2,800	472	199
thereof women	4,018	825	1,525	420	1,307	260	101
30 to 49 years old	34,974	6,615	15,416	4,458	9,669	2,323	951
thereof women	15,268	2,841	7,076	1,505	3,776	1,161	414
50 or older	14,583	4,791	7,978	2,959	1,049	592	173
thereof women	5,637	1,861	3,142	839	342	209	83
Average age	41.7	44.4	43.1	43.4	37.0	40.7	39.1
Total employees	58,127	13,312	26,587	8,578	13,518	3,387	1,323
2021							
Up to 29 years old	9,129	2,219	3,341	1,125	2,912	482	175
thereof women	4,359	961	1,598	415	1,437	265	98
30 to 49 years old	36,157	6,939	15,653	4,288	10,260	2,404	901
thereof women	15,888	2,958	7,224	1,550	4,081	1,225	400
50 or older	15,062	4,912	8,223	2,668	1,113	643	171
thereof women	5,827	1,881	3,276	824	356	231	83
Average age	41.6	43.9	43.1	43.1	37.1	40.8	39.7
Total employees	60,348	14,070	27,217	8,081	14,285	3,529	1,247

Age of youngest employee

As of Dec. 31

	2018	2019	2020	2021
Age of youngest employee, excluding apprentices	17	18	18	18

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

As of Dec. 31	2018	2019 ¹	2020 ¹	2021 thereof	
				The Group	Merck KGaA, Darmstadt, Germany
% of employees with healthcare benefits ²	67	68	63	64	0
% of employees with Group accident insurance ³	39	36	41	41	3
% of employees with life insurance ⁴	58	58	56	59	0
% of employees with disability insurance (short-term and long-term) ⁵	37	39	39	39	0

- 1 The figures exclude Versum Materials and Intermolecular since the integration process was still underway at this point of time. For more information, see [report profile](#).
- 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. Employees of Merck KGaA, Darmstadt, Germany are covered by statutory insurance as stipulated by the regulations in force in Germany.

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

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

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

Long-term pension obligations and post-employment benefits

€ million	2018	2019	2020	2021
Present value of all defined benefit obligations as of Dec. 31	4,719	5,644	6,352	5,995
Pension expenses	319	357	408	461

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for the employees. Generally, these systems are based on the years of service and salaries of the employees. Pension obligations include both defined benefit and defined contribution plans and comprise both obligations from current pensions and accrued benefits for pensions payable in the future. Further information can be found in the note on Provisions for employee benefits (p. 288-294, No. 33) of our [Annual Report 2021](#).

Flexible working hours in Germany

As of Dec. 31	2018	2019	2020	2021
% of employees utilizing the "mywork" program working model	42	43	48	51

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

Parental leave¹

As of Dec. 31	2018	2019	2020	2021
Number of employees with a right to parental leave	308	375	351	414
thereof women (recorded via maternity leave in the respective year)	188	239	225	255
thereof men (recorded via special paternity leave in the respective year)	120	136	126	159
Number of employees who took parental leave ²	500	542	538	617
thereof women	240	248	265	278
thereof men	260	294	273	339
Number of employees on parental leave who worked part time during their leave	128	164	104	198
thereof women	109	140	73	172
thereof men	19	24	31	26
Number of employees who returned from parental leave ²	312	536	529	597
thereof women	65	243	252	273
thereof men	247	293	277	324
Return to work rate (%)	62.4	98.9	98.3	96.8
thereof women	27.1	98.0	95.1	98.2
thereof men	95.0	99.7	101.5	95.6
Number of employees still working for Merck KGaA, Darmstadt, Germany one year after their return from parental leave	268	496	490	⁻³
thereof women	26	218	220	⁻³
thereof men	242	278	270	⁻³
Retention rate (%)	93.1	92.5	92.6	⁻³
thereof women	63.4	89.7	87.3	⁻³
thereof men	97.9	94.9	97.5	⁻³

1 Figures pertain only to Merck KGaA, Darmstadt, Germany (which accounted for around 13% in 2021). 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 yet 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. It also explains why the "Number of employees who returned from parental leave" might exceed the "Number of employees who took parental leave".

3 Figure will be available on December 31, 2022.

Employees with disabilities¹ (%)

	2018	2019	2020	2021
Employees with disabilities	4.3	4.4	4.7	4.8

¹ Only pertains to Merck KGaA, Darmstadt, Germany (which accounted for around 13% of the Group employees in 2021, calculations based on the German Social Code IX - SGB IX).

Apprentices in Germany

As of Dec. 31	2018	2019	2020	2021
Number of apprentices	604	589	607	602
% of apprentices	4.5	4.3	4.6	4.1

Environment

Total greenhouse gas emissions (Scope 1 and 2 of the GHG Protocol)^{1,2}

metric kilotons	2018	2019	2020 ³	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total CO₂eq⁴ emissions	636	621	2,028	1,843	153
Thereof					
direct CO ₂ eq emissions (Scope 1)	332	341	1,706	1,522	115
indirect CO ₂ eq emissions ⁵ (Scope 2)	304	280	322	321	38
Biogenic CO₂ emissions	13	13	13	15	0

1 In line with the Greenhouse Gas Protocol, for all previous years greenhouse gas emissions were calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 Baseline for our emission targets is 2020.

3 Includes Versum Materials as of 2020.

4 eq = equivalent

5 The figures presented here have been calculated in accordance with the market-based method.

Our response to the [CDP Climate change](#) contains a detailed description of our calculation methods.

We have included the following gases in our calculation of direct and indirect CO₂eq emissions:

Direct CO₂ emissions: CO₂, HFCs, PFCs, CH₄, N₂O, NF₃, SF₆.

Indirect CO₂ emissions: CO₂.

In 2021, we emitted 0.09 kg of CO₂eq per euro of net sales.

Other relevant indirect greenhouse gas emissions (Scope 3 of the GHG Protocol)¹

in metric kilotons of CO ₂ eq ²	2018	2019	2020	2021
Total gross other indirect emissions	348	339	5,030	5,716
Purchased goods & services (category 1) ³	n/a	n/a	3,040	3,572
Capital goods (Category 2) ³	n/a	n/a	293	291
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	131	127	102	143
Upstream transportation & distribution (category 4) ⁴	n/a	n/a	264	264 ⁵
Waste generated in operations (category 5)	47	50	85	79
Business travel (category 6) ^{6,7}	104	87	32	26
Employee commuting (category 7)	66	75	90	94
Upstream leased assets (category 8) ⁸	0	0	0	0
Downstream transportation & distribution (category 9) ⁴	n/a	n/a	8	8 ⁵
Processing of sold products (category 10) ⁹	0	0	0	0
Use of sold products (category 11) ⁴	n/a	n/a	1,091	1,213
End-of-life treatment of sold products (category 12) ⁴	n/a	n/a	23	23 ⁵
Downstream leased assets (category 13)	0	0	2	2
Franchises (category 14) ¹⁰	0	0	0	0
Investments (category 15)	n/a	n/a	0	1

1 In line with the Greenhouse Gas Protocol, for all previous years greenhouse gas emissions were calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 eq = equivalent

3 The reported figures contain 95-97% of our total spend. The difference stems from smaller sites that are not integrated in our Group-wide purchase volume data. 2020 data are slightly over-reported (approx. 3%) as the currency conversion factor (USD to EUR) from 2021 was used. Non-categorized spends are distributed pro rate to category 1 and 2.

4 Compared to other Scope 3 categories, the screening of the emissions in this category contains more uncertainties. Their impact cannot be estimated more precisely at this time. We are working on improving the accuracy of these data.

5 Due to high efforts for data preparation, we reference 2020 data for 2021.

6 Since 2021, we have applied a new calculation approach for 2021 and 2020. The figure for 2020 was therefore adjusted retrospectively.

7 Air travel, hotel stays, rental car travels, rail travel (German Railway)

8 Already covered under Scope 1 and 2 emissions

9 Our company produces a huge variety of intermediate products for various purposes. Due to their many applications and our customer structure, the associated greenhouse gas emissions cannot be tracked in a reasonable fashion.

10 This category is not relevant for us as we do not operate franchises, i.e. businesses operating under a license to sell or distribute another company's goods or services. Out-licensing in the pharmaceutical sector is not regarded as franchising.

Details on the calculation (methodology, assumptions, uncertainties) of the Scope 3 categories can be found in the [Scope 3 document](#).

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

Emissions of ozone-depleting substances

metric tons	2018	2019	2020	2021
Total emissions of ozone-depleting substances	1.5	1.0	2.2	1.5
CFC-11eq ¹	0.1	0.1	0.1	0.1

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

Substances included: R-12, R-22, R-123, R-141b, R-401a, R-402a, R408a, R-409a, R-502, R-503.

Source for the emission factors: Montreal Protocol.

Other air emissions

metric kilotons	2018	2019	2020	2021
Volatile organic compounds (VOC)	0.3	0.3	0.3	0.3
Nitrogen oxide	0.3	0.3	0.2	0.3
Sulfur dioxide	0.010	0.010	0.004	0.004
Dust	0.010	0.010	0.010	0.020

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

	2018	2019	2020	2021
% truck	74	70	70	71
% boat	14	19	22	21
% airplane	12	11	8	8

The figures contain the volumes of the biggest global distribution centers of our Life Science, Healthcare and Electronics business sectors. These figures pertain to the total weight of transported products and indicate the primary means of transport.

In shipping finished goods from our production sites to the local warehouses of our subsidiaries, we have been working to reduce the use of air shipping in favor of sea freight. This change aims to both reduce costs as well as lower transport-related CO₂ emissions.

Energy consumption¹

In GWh	2018	2019	2020	2021 The Group	2021 thereof Merck KGaA, Darmstadt, Germany
Total energy consumption	2,158	2,178	2,374	2,454	628
Direct energy consumption	1,261	1,288	1,266	1,318	564
Natural gas	1,194	1,222	1,179	1,232	556
Liquid fossil fuels ²	33	33	52	48	8
Biomass and self-generated renewable energy	34	33	35	38	0
Indirect energy consumption	897	890	1,108	1,136	64
Electricity	749	745	945	958	64
Steam, heat, cold	148	145	163	178	0
Total energy sold	0.0	0.1	0.2	0.1	0.0
Electricity	0.0	0.1	0.2	0.1	0.0
Steam, heat, cold	0.0	0.0	0.0	0.0	0.0
In TJ					
Total energy consumption	7,770	7,839	8,546	8,834	2,261
Direct energy consumption	4,541	4,637	4,558	4,745	2,030
Natural gas	4,298	4,399	4,244	4,435	2,002
Liquid fossil fuels ²	119	119	187	173	29
Biomass and self-generated renewable energy	124	119	126	137	0
Indirect energy consumption	3,229	3,202	3,989	4,090	230
Electricity	2,696	2,682	3,402	3,449	230
Steam, heat, cold	533	520	587	641	0
Total energy sold	0.0	0.5	0.7	0.4	0.0
Electricity	0.0	0.5	0.7	0.4	0.0
Steam, heat, cold	0.0	0.0	0.0	0.0	0.0

1 In line with the Greenhouse Gas Protocol, for all previous years energy consumption has been calculated based on the current corporate structure as of Dec. 31 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, biodiesel, gasoline and kerosene

At 15 sites we use photovoltaics to produce power.

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 25% of our Group-wide total. Here, fossil energy (coal, gas, etc.) accounts for approx. 39%, nuclear energy approx. 12% and renewable energies approx. 49% of the energy mix. Renewable energies account for a higher share of electricity generation at production sites in Switzerland, with nuclear energy taking the lead in France. Based on an estimated global energy efficiency of 37% for the conversion and distribution of generated electricity, this results in a primary energy consumption of 2,589 GWh for 2021. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 209 GWh for 2021. This yields a total primary energy consumption of 2,798 GWh for 2021. (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 2021, our energy intensity relative to net sales totaled 0.12 kWh/€.

Water withdrawal

millions of m ³	2018	2019	2020	2021 The Group	2021 Water stress areas
Total water withdrawal	14.7	14.0	14.0¹	13.5	0.160
Surface water (rivers, lakes)	2.1	1.9	1.8 ¹	1.9	0.004
Groundwater	7.2	6.8	6.7	6.3	0.004
Drinking water (from local suppliers)	5.3	5.2	5.4 ¹	5.2	0.150
Rain water and other sources	0.05	0.05	0.06 ¹	0.06	0.003

1 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.

The volume of seawater and produced water withdrawn is not significant and is therefore not reported separately.

Water reused

millions of m ³	2018	2019	2020	2021
Water reused	24.4	23.3	22.0	23.5

The recirculating cooling system at our Darmstadt, Germany facility accounts for the majority 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

	2018	2019	2020	2021 The Group	2021 Water stress areas
Total wastewater volume (millions of m ³)	13.5	13.2	13.4	13.3	0.118
Wastewater discharged directly	9.6	9.3	9.2	9.5	0.001
Wastewater discharged to third parties	3.9	3.8	4.1	3.8	0.103

The volume of seawater and groundwater discharged is not significant and is therefore not reported separately.

Discrepancies between total wastewater volume and the sum of directly discharged wastewater and wastewater sent to third parties arise from other disposal methods, which, however, only result in minor amounts of wastewater. Direct discharges correspond to the “freshwater” classification of the GRI. Indirect discharges correspond to their “other water” classification.

Wastewater quality¹

	2018	2019	2020	2021
Chemical oxygen demand (metric tons of O ₂)	1,509	1,568	1,482 ²	1,426
Phosphorous (metric tons)	10	12	15	11
Nitrogen (metric tons)	260	481	291	392
Nickel (kg)	30	32	30	37
Lead (kg)	30	34	37	15
Cadmium (kg)	6	6	6	3
Mercury (kg)	0	0	0	1

1 In alignment with [ICCA reporting](#) requirements specified by Cefic, we track heavy metal emissions from lead, cadmium, nickel, and mercury.

2 Figure retroactively adjusted.

The wastewater treatment plant at our site in Gernsheim, Germany also treats wastewater from a neighboring municipality. The communal wastewater from this municipality is included 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.

These figures reflect the wastewater as it is when it leaves our facilities. Some of the substances in the water are then later removed by third-party purification plants before the water is ultimately discharged into the ecosystem.

Hazardous and non-hazardous waste

metric kilotons	2018	2019	2020	2021
Total waste	245	244	229¹	214
Hazardous waste disposed ²	44	44	38	34
Non-hazardous waste disposed ²	54	41	34	33
Hazardous waste recycled ³	75	78	90 ¹	84
Non-hazardous waste recycled ³	72	81	67 ¹	63

1 Figure retroactively adjusted.

2 Disposed = incineration (without energy recovery) and landfill

3 Recycled = incineration (with energy recovery) and material recycling

Exported/Imported hazardous waste

metric kilotons	2018	2019	2020	2021
Exported ¹	4.5	4.3	4.0	4.6
Imported	0.000	0.000	0.000	0.000

1 Disposal primarily within the EU and the United States.

In 2021, approx. 4% of hazardous waste was shipped internationally.

Waste by disposal method

	2018	2019	2020	2021
Total waste (metric kilotons)	245	244	229¹	214
Disposed waste	98	85	72	66
Landfilled waste	35	26	17	18
Incinerated waste	63	59	55	48
Recycled waste	147	159	157¹	148
Material recycling	127	132	133 ¹	124
Waste-to-energy	20	27	24	24
Recycling rate (%)	60	65	69	69

1 Figure retroactively adjusted.

As in previous years, the total waste generated continues to be heavily influenced by the waste from construction and remodeling activities. Construction, excavation and demolition waste accounted for 20% of our waste in 2021. Around 32 metric kilotons of construction, excavation and demolition waste was recycled.

Significant spills

	2018	2019	2020	2021
Total number of significant spills	0	0	0	0

Community

Spending on community engagement

€ million	2018	2019	2020	2021
Total spending	35.7	46.2	53.6	43.3

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 main reasons for the decline in total spending in 2021 were lower Covid-19-related donations as well as a drop in demand for praziquantel tablets in the affected countries due to Covid-19.

Community engagement spending by region¹

	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2020					
€ million	15.1	5.8	4.2	2.6	25.9
%	28	11	8	5	48
2021					
€ million	10.8	5.0	7.2	0.6	19.7
%	25	12	17	1	45

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 engagement¹

%	2018	2019	2020	2021
Global Health	34	33	36	33
Broad Minds: Education and culture	42	38	43	45
Sustainable Solutions: Environment	2	3	1	2
Disaster relief	2	2	1	2
Other	20	24	19	18

¹ Based on number of projects

Motivations for our community engagement¹

%	2018	2019	2020	2021
Charitable activities	7	6	23	21
Community investment	88	91	72	76
Commercial initiatives in the community	5	3	5	3

1 Based on total spending on all projects

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.