

Indicators

Economics

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

€ million	Life Science	Healthcare	Electronics	Group
2021				
Net sales ²	8,992	7,089	3,606	19,687
Operating result (EBIT) ²	2,480	1,823	508	4,179
R&D costs ³	351	1,712	278	2,426
2022				
Net sales	10,380	7,839	4,013	22,232
Operating result (EBIT)	2,808	1,895	572	4,474
R&D costs ³	399	1,694	308	2,521

1 As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our [2022 Annual Report](#) (p. 247-251).

2 2021 figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

3 Not presented are research and development costs of € 119 million (2021: € 85 million) allocated to Corporate and Other. The 2021 figure has been adjusted due to a change in functional allocation between administration expenses, research and development costs as well as other operating expenses.

Business ethics

Compliance training

	2019 ¹	2020 ²	2021	2022 Merck Group	2022 thereof Merck KGaA
Total number of persons trained on anti-corruption guidelines ³	36,109	28,827	5,790	5,082	431
Total number of employees trained on anti-corruption guidelines	35,673	28,805	5,772	5,071	431
% of employees trained on anti-corruption	63	50	10	8	5
by employee category⁴					
Number of Role 2+ employees trained on anti-corruption	26,890	27,123	5,284	4,658	430
% of Role 2+ employees trained on anti-corruption	96	90	17	14	9
% of employees below Role 2 trained on anti-corruption	30	6	2	1	0
by region (%)					
Europe	71	51	8	7	5
North America	59	45	11	8	not applicable
Asia-Pacific (APAC)	47	44	12	9	not applicable
Latin America	62	44	8	7	not applicable
Middle East and Africa (MEA)	80	66	12	9	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 (2022: Merck Group: 11; Merck KGaA: 0).

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

	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA ¹
Number of audits relating to corruption	50	52	56	55	19
% of audits relating to corruption	65	66	67	70	24

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

Human rights violations¹

	2019 ²	2020	2021	2022
Number of reported violations of Social and Labor Standards Policy	-	108	121	136
Number of confirmed violations of Social and Labor Standards Policy	-	29	41	68
thereof number of incidents of discrimination	-	2	6	7

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 implemented 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

	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total number of reported compliance violations					
Number of reported compliance incidents	75	81	79	79	3
Number of confirmed cases	30	41	42	28	0
Confirmed cases by category					
Bribery and corruption	9	6	1	2	0
Violation of cartel laws and fair competition rules	0	0	0	1	0
Fraudulent actions against Merck	8	11	6	11	0
Other violations of the Merck Compliance Principles for the relations with business partners	4	0	0	2	0
Other violations of Merck values, internal guidelines or legal requirements	9	24	35	12	0

Data Privacy

	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Reported violations of Data Privacy Guidelines	1	3	3	4	1
Customer Privacy¹					
Total number of substantiated complaints received from outside parties	0	0	0	0	0
Total number of complaints from regulatory bodies	1	0	0	0	0
Total number of identified leaks, thefts, or losses of customer data	1	0	0	0	0

1 These data only reflect incidents classified as significant.

Legal actions

	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total number¹ of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	3	4	4	3	2
pending	3	4	3	2	1
completed	0	0	1	1	1

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 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

[Annual Report 2022](#), pages 97-98 and pages 282-285, No. 27

Employees

Total number of employees

As of Dec. 31	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total number of employees	57,071	58,127	60,348	64,243	8,485
Men	32,531	33,204	34,274	36,452	5,510
Women	24,540	24,923	26,074	27,791	2,975

Number of employees by hierarchical level

As of Dec. 31	2019 ¹	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total employees	57,071	58,127	60,348	64,243	8,485
Senior management (Role 6+)	190	193	194	191	66
Middle management (Role 4 & 5)	3,352	3,637	3,831	4,018	886
Low management (Role 3)	9,499	10,286	10,880	11,877	2,277
Other employees (below Role 3)	44,030	44,011	45,443	48,157	5,256
% of women (total)	43	43	43	43	35
thereof in senior management (Role 6+)	39	42	49	51	18
thereof in middle management (Role 4 & 5)	1,146	1,284	1,413	1,550	281
thereof in low management (Role 3)	4,029	4,352	4,669	5,123	879
thereof other employees (below Role 3)	19,326	19,245	19,943	21,067	1,797
% of men (total)	57	57	57	57	65
thereof in senior management (Role 6+)	151	151	145	140	48
thereof in middle management (Role 4 & 5)	2,206	2,353	2,418	2,468	605
thereof in low management (Role 3)	5,470	5,934	6,211	6,754	1,398
thereof other employees (below Role 3)	24,704	24,766	25,500	27,090	3,459
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)	8	6	8	12	5
thereof in low management (Role 3)	190	199	241	263	61
thereof other employees (below Role 3)	8,362	8,365	8,880	9,651	1,115
30 to 49 years old (%)	60	60	60	60	54
thereof in senior management (Role 6+)	69	68	63	58	24
thereof in middle management (Role 4 & 5)	1,933	2,032	2,172	2,235	525
thereof in low management (Role 3)	6,516	6,926	7,298	8,007	1,495
thereof other employees (below Role 3)	25,859	25,948	26,624	28,124	2,505
50 years or older (%)	25	25	25	25	32
thereof in senior management (Role 6+)	121	125	131	133	42
thereof in middle management (Role 4 & 5)	1,411	1,599	1,651	1,771	356
thereof in low management (Role 3)	2,793	3,161	3,341	3,607	721
thereof other employees (below Role 3)	9,809	9,698	9,939	10,382	1,636

1 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

	2019 ²	2020 ³	2021	2022
Group	53,645	57,612	58,731	62,565
thereof women	23,503	24,746	25,295	27,123
Production	16,455	17,624	19,782	22,086
thereof women	5,529	6,043	6,541	7,510
Logistics/Supply Chain	4,109	4,298	4,557	4,850
thereof women	1,626	1,734	1,838	1,928
Marketing and Sales/Commercials	13,970	14,127	14,318	15,095
thereof women	6,608	6,787	6,906	7,349
Administration	10,342	11,342	11,824	11,889
thereof women	5,194	5,499	5,718	5,868
Research and Development	7,561	7,504	7,168	7,335
thereof women	4,053	3,996	3,694	3,740
Infrastructure and Other	1,208	2,717	1,083	1,309
thereof women	493	687	598	727

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 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".

3 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	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total	57,071	58,127	60,348	64,243	8,485
Europe	26,715	26,587	27,217	28,244	8,485
Women	11,909	11,743	12,098	12,620	2,975
Women (%)	45	44	44	45	35
Number of employees with temporary contracts	1,137	1,105	988	882	219
% of employees with temporary contracts	4	4	4	3	3
North America	12,829	13,312	14,070	15,847	0
Women	5,285	5,527	5,800	6,501	not applicable
Women (%)	41	42	41	41	not applicable
Number of employees with temporary contracts	158 ¹	139	115	31	not applicable
% of employees with temporary contracts	1 ¹	1	1	0	not applicable
Asia-Pacific (APAC)	12,728	13,518	14,285	15,412	0
Women	5,049	5,425	5,874	6,351	not applicable
Women (%)	40	40	41	41	not applicable
Number of employees with temporary contracts	3,263 ¹	3,362	3,660	3,726	not applicable
% of employees with temporary contracts	26 ¹	25	26	24	not applicable
Latin America	3,433	3,387	3,529	3,490	0
Women	1,690	1,630	1,721	1,715	not applicable
Women (%)	49	48	49	49	not applicable
Number of employees with temporary contracts	55	67	12	8	not applicable
% of employees with temporary contracts	2	2	0	0	not applicable
Middle East and Africa (MEA)	1,366	1,323	1,247	1,250	0
Women	607	598	581	604	not applicable
Women (%)	44	45	47	48	not applicable
Number of employees with temporary contracts	182	420	59	9	not applicable
% of employees with temporary contracts	13	32	5	1	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	2019	2020	2021	2022
Life Science employees	21,934	23,196	25,323	28,013
thereof women	9,487	10,175	11,255	12,473
thereof women (%)	43	44	44	45
Healthcare employees	18,136	17,463	17,269	17,339
thereof women	9,232	8,788	8,717	8,805
thereof women (%)	51	50	50	51
Electronics employees	7,329	7,228	7,432	8,262
thereof women	1,712	1,666	1,704	1,870
thereof women (%)	23	23	23	23

Employees by contract type

As of Dec. 31	2019	2020	2021	2022
Total employees	57,071	58,127	60,348	64,243
Number of employees with permanent contracts	52,276 ¹	53,034	55,514	59,587
% of employees with permanent contracts	92 ¹	91	92	93
thereof women	22,237 ¹	22,500	23,640	25,418
thereof women (%)	43 ¹	42	43	43
Number of employees with temporary contracts	4,795 ¹	5,093	4,834	4,656
% of employees with temporary contracts	8 ¹	9	8	7
thereof women	2,303 ¹	2,423	2,434	2,373
thereof women (%)	48 ¹	48	50	51
full-time employees	54,265	55,220	57,091	60,127
% full-time	95	95	95	94
thereof women	22,208	22,572	23,585	24,872
thereof women (%)	41	41	41	41
part-time employees	2,806	2,907	3,257	4,116
% part-time	5	5	5	6
thereof women	2,332	2,351	2,489	2,919
thereof women (%)	83	81	76	71

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	2019 ¹	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total number of new employee hires	7,924	6,669	8,960	10,682	647
by age group					
up to 29 years old	3,432	2,889	3,679	4,314	318
30 to 49 years old	4,055	3,347	4,610	5,397	302
50 or older	437	433	671	971	27
by gender					
Women	3,622	3,016	4,101	4,569	252
Men	4,302	3,653	4,859	6,113	395
by region					
Europe	2,529	2,160	2,567	3,015	647
North America	1,733	1,789	2,855	3,971	not applicable
Asia-Pacific (APAC)	2,729	2,206	2,803	3,071	not applicable
Latin America	578	396	579	460	not applicable
Middle East and Africa (MEA)	355	118	156	165	not applicable
Rate of new employee hires² (%)	14	11	15	17	8
by age group³					
up to 29 years old	43	43	41	40	49
30 to 49 years old	51	50	51	51	47
50 or older	6	7	8	9	4
by gender³					
Women	46	45	46	43	39
Men	54	55	54	57	61
by region³					
Europe	32	32	29	28	100
North America	22	27	32	37	not applicable
Asia-Pacific (APAC)	34	33	31	29	not applicable
Latin America	7	6	6	4	not applicable
Middle East and Africa (MEA)	5	2	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 our company 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}

	2019	2020 ³	2021	2022 Merck Group	2022 thereof Merck KGaA
Total turnover rate	9.07	8.22	10.82	10.16	2.58
Turnover rate by gender					
Men	8.69	8.22	10.69	10.40	2.66
Women	9.54	8.22	11.00	9.93	2.44
Turnover rate by age group					
Up to 29 years old	13.13	11.30	16.64	15.91	2.99
30 to 49 years old	8.90	7.74	10.05	9.55	2.26
50 or older	7.03	7.52	9.22	8.05	2.94
Turnover rate by region					
Europe	5.72	5.64	6.00	5.91	2.58
North America	11.02	9.79	15.44	14.33	not applicable
Asia-Pacific (APAC)	13.18	10.60	14.66	12.84	not applicable
Latin America	13.47	11.40	12.95	13.38	not applicable
Middle East and Africa (MEA)	12.14	11.80	16.57	13.04	not applicable
Total number of leavers	4,863	4,721	6,354	6,358	215
by gender					
Men	2,621	2,697	3,575	3,673	144
Women	2,242	2,024	2,779	2,685	71
by age group					
Up to 29 years old	1,042	974	1,451	1,542	35
30 to 49 years old	2,898	2,677	3,545	3,569	100
50 or older	923	1,070	1,358	1,247	80
by region					
Europe	1,500	1,490	1,601	1,640	215
North America	1,264	1,281	2,078	2,182	not applicable
Asia-Pacific (APAC)	1,484	1,394	2,015	1,905	not applicable
Latin America	459	398	449	467	not applicable
Middle East and Africa (MEA)	156	158	211	164	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 2022, the average length of service for employees Group-wide was 9.2 years (2021: 9.5 years), with 15.4 years (2021: 15.7 years) for Merck KGaA employees.

Work-related accidents¹

	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Lost Time Injury Rate (LTIR = workplace accidents resulting in missed days of work per one million hours worked)	1.6	1.3	1.2	1.2	2.0
by region					
Europe	2.6	2.4	2.1	1.7	2.0
North America	1.0	0.8	1.2	1.7	not applicable
Asia-Pacific (APAC)	0.2	0.1	0.1	0.3	not applicable
Latin America	1.7	0.8	0.4	0.6	not applicable
Middle East and Africa (MEA)	0.0	0.4	0.0	1.1	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

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 Merck 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 (about 13% of the employees of the Merck Group), we only report work-related illnesses if these have been certified as an occupational illness by the employers' liability insurance association. In 2022 period, two cases of work-induced illness were verified.

Employees who regularly receive a performance and development evaluation¹

	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
% of employees who receive a performance and development evaluation	98	98	98	98	100
by gender					
Women	98	98	98	99	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 Employees whose role level had not yet been recorded in our database by December 31 of the reporting year 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 Merck. Our globally uniform Performance 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 Management Process since 2013. In 2022, a total of 63,043 employees worldwide were involved in the process. The Performance Management Process is coordinated via our online platform HR4You.

Internationality of employees

As of Dec. 31	2019 ¹	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Number of nationalities	139	141	142	139	83
Number of nationalities in management positions (Role 4 or above)	73	75	79	78	34
% of non-Germans in management positions (Role 4 or above)	64	66	66	66	13

¹ 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	Merck KGaA	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
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
2022							
Up to 29 years old	9,926	2,753	3,530	1,181	2,999	476	168
thereof women	4,637	1,178	1,655	441	1,441	264	99
30 to 49 years old	38,423	7,811	16,216	4,549	11,174	2,333	890
thereof women	16,909	3,278	7,528	1,664	4,498	1,196	409
50 or older	15,894	5,283	8,498	2,755	1,239	681	192
thereof women	6,245	2,045	3,437	870	412	255	96
Average age	41.6	43.3	43.1	43.1	37.3	41.1	40.3
Total employees	64,243	15,847	28,244	8,485	15,412	3,490	1,250

Age of youngest employee

As of Dec. 31

	2019	2020	2021	2022
Age of youngest employee, excluding apprentices	18	18	18	18

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

As of Dec. 31	2019 ¹	2020 ¹	2021	2022 Merck Group	2022 thereof Merck KGaA
% of employees with healthcare benefits ²	68	63	64	62	0
% of employees with Group accident insurance ³	36	41	41	37	6
% of employees with life insurance ⁴	58	56	59	59	0
% of employees with disability insurance (short-term and long-term) ⁵	39	39	39	43	0

1 The figures exclude Versum Materials and Intermolecular since the integration process was still underway at this point of time.

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 where possible covered by either statutory or voluntary accident insurance and health benefits. Employees of Merck KGaA are covered by statutory insurance as stipulated by the regulations in force in Germany.

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

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

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

Long-term pension obligations and post-employment benefits

€ million	2019	2020	2021	2022
Present value of all defined benefit obligations as of Dec. 31	5,644	6,352	5,995	4,287
Pension expenses	357	408	461	460

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. 289-295, No. 33) of our Annual Report 2022.

Flexible working hours in Germany

As of Dec. 31	2019	2020	2021	2022
% of employees utilizing the "mywork@Merck" working model	43	48	51	55

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

Parental leave¹

As of Dec. 31	2019	2020	2021	2022
Number of employees with a right to parental leave	375	351	414	423
thereof women (recorded via maternity leave in the respective year)	239	225	255	287
thereof men (recorded via special paternity leave in the respective year)	136	126	159	136
Number of employees who took parental leave ²	542	538	617	564
thereof women	248	265	278	237
thereof men	294	273	339	327
Number of employees on parental leave who worked part time during their leave	164	104	198	164
thereof women	140	73	172	137
thereof men	24	31	26	27
Number of employees who returned from parental leave ²	536	529	597	581
thereof women	243	252	273	235
thereof men	293	277	324	346
Return to work rate (%)	98.9	98.3	96.8	103.01
thereof women	98.0	95.1	98.2	99.2
thereof men	99.7	101.5	95.6	105.81
Number of employees still working for Merck one year after their return from parental leave	496	490	556	_ ³
thereof women	218	220	250	_ ³
thereof men	278	270	306	_ ³
Retention rate (%)	92.5	92.6	93.1	_ ³
thereof women	89.7	87.3	91.6	_ ³
thereof men	94.9	97.5	94.4	_ ³

1 Figures pertain only to Merck KGaA (which accounted for around 13% in 2022). 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, 2023.

Employees with disabilities¹ (%)

	2019	2020	2021	2022
Employees with disabilities	4.4	4.7	4.8	4.9

1 Only pertains to Merck KGaA (which accounted for around 13% of Merck Group employees in 2022, calculations based on the German Social Code IX - SGB IX).

Apprentices in Germany

As of Dec. 31	2019	2020	2021	2022
Number of apprentices	589	607	602	595
% of apprentices	4.3	4.6	4.1	4.0

Environment

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

metric kilotons	2019	2020 ³	2021	2022 Merck Group	2022 thereof Merck KGaA
Total CO₂eq⁴ emissions	621	2,028	1,843	1,667	148
Thereof					
direct CO ₂ eq emissions (Scope 1)	341	1,706	1,522	1,425	108
indirect CO ₂ eq emissions ⁵ (Scope 2)	280	322	321	242	40
Biogenic CO₂ emissions	13	13	15	13	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 2022, we emitted 0.07 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	2019	2020	2021	2022
Total gross other indirect emissions	339	5,030	5,716	6,616
Purchased goods & services (category 1) ³	n/a	3,040	3,572	4,200
Capital goods (Category 2) ³	n/a	293	291	388
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	127	102	143	121
Upstream transportation & distribution (category 4) ⁴	n/a	264	264 ⁵	319 ⁶
Waste generated in operations (category 5)	50	85	79	85
Business travel (category 6)	87	32	26	78
Employee commuting (category 7)	75	90	94	99
Upstream leased assets (category 8) ⁷	0	0	0	0
Downstream transportation & distribution (category 9) ⁴	n/a	8	8 ⁵	6 ⁶
Processing of sold products (category 10) ⁸	0	0	0	0
Use of sold products (category 11) ⁴	n/a	1,091	1,213	1,290 ⁹
End-of-life treatment of sold products (category 12) ⁴	n/a	23	23 ⁵	26 ⁹
Downstream leased assets (category 13)	0	2	2	2
Franchises (category 14) ¹⁰	0	0	0	0
Investments (category 15)	n/a	0	1	2

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 2022, we have applied a new calculation approach – a mix of primary data, distance-based data and a small share of spend-based data. The previous years' figures have not been recalculated retrospectively.

7 Already covered under Scope 1 and 2 emissions

8 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.

9 Due to high efforts for data preparation, we partly use 2020 data for 2022.

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	2019	2020	2021	2022
Total emissions of ozone-depleting substances	1.0	2.2	1.5	1.1
CFC-11eq ¹	0.1	0.1	0.1	0.1

¹ CFC-11eq is a unit of measure used to compare the potential of various substances to deplete the ozone. Reference 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	2019	2020	2021	2022
Volatile organic compounds (VOC)	0.3	0.3	0.3	0.3
Nitrogen oxide	0.3	0.2	0.3	0.2
Sulfur dioxide	0.010	0.004	0.004	0.005
Dust	0.010	0.010	0.020	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

	2019	2020	2021	2022
% truck	70	70	71	73
% boat	19	22	21	19
% airplane	11	8	8	8
% rail	0	0	0	0.03

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.

In 2023, we used rail transportation for the first time.

Energy consumption¹

In GWh	2019	2020	2021	2022 Merck Group	2022 thereof Merck KGaA
Total energy consumption	2,178	2,374	2,454	2,432	586
Direct energy consumption	1,288	1,266	1,318	1,294	521
Natural gas	1,222	1,179	1,232	1,188	492
Liquid fossil fuels ²	33	52	48	70	29
Biomass and self-generated renewable energy	33	35	38	36	0
Indirect energy consumption	890	1,108	1,136	1,138	65
Electricity	745	945	958	984	65
Steam, heat, cold	145	163	178	154	0
Total energy sold	0.1	0.2	0.1	0.01	0.0
Electricity	0.1	0.2	0.1	0.01	0.0
Steam, heat, cold	0.0	0.0	0.0	0.0	0.0
In TJ					
Total energy consumption	7,839	8,546	8,834	8,755	2,110
Direct energy consumption	4,637	4,558	4,745	4,658	1,876
Natural gas	4,399	4,244	4,435	4,277	1,771
Liquid fossil fuels ²	119	187	173	252	104
Biomass and self-generated renewable energy	119	126	137	130	0
Indirect energy consumption	3,202	3,989	4,090	4,097	234
Electricity	2,682	3,402	3,449	3,542	234
Steam, heat, cold	520	587	641	554	0
Total energy sold	0.5	0.7	0.4	0.04	0.0
Electricity	0.5	0.7	0.4	0.04	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

We use photovoltaics to produce power at multiple sites.

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 24% of our Group-wide total. Here, fossil energy (coal, gas, etc.) accounts for approx. 42%, nuclear energy approx. 13% and renewable energies approx. 45% 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 2,659 GWh for 2022. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 181 GWh for 2022. This yields a total primary energy consumption of 2,840 GWh for 2022. (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 2022, our energy intensity relative to net sales totaled 0.11 kWh/€.

Water withdrawal

millions of m ³	2019	2020	2021	2022 Merck Group	2022 Water stress areas
Total water withdrawal	14.0	14.0	13.5	13.2	0.17
Surface water (rivers, lakes)	1.9	1.8	1.9	1.8	0.004
Groundwater	6.8	6.7	6.3	6.3	0.003
Drinking water (from local suppliers)	5.2	5.4	5.2	5.0	0.16
Rain water and other sources	0.05	0.06	0.06	0.06	0.004

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	2019	2020	2021	2022
Water reused	23.3	22.0	23.5	20.7

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

	2019	2020	2021	2022 Merck Group	2022 Water stress areas
Total wastewater volume (millions of m³)	13.2	13.4	13.3	12.4	0.130
Wastewater discharged directly	9.3	9.2	9.5	8.6	0.000
Wastewater discharged to third parties	3.8	4.1	3.8	3.8	0.110

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

	2019	2020	2021	2022
Chemical oxygen demand (metric tons of O ₂)	1,568	1,482	1,426	1,013
Phosphorous (metric tons)	12	15	11	10
Nitrogen (metric tons)	481	291	392	363
Nickel (kg)	32	30	37	46
Lead (kg)	34	37	15	16
Cadmium (kg)	6	6	3	5
Mercury (kg)	0	0	1	0

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

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	2019	2020	2021	2022
Total waste	244	229	214	371
Hazardous waste disposed ¹	44	38	34	36
Non-hazardous waste disposed ¹	41	34	33	31
Hazardous waste recycled ²	78	90	84	84
Non-hazardous waste recycled ²	81	67	63	220

1 Disposed = incineration (without energy recovery) and landfill

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

Exported/Imported hazardous waste

metric kilotons	2019	2020	2021	2022
Exported ¹	4.3	4.0	4.6	3.7
Imported	0.000	0.000	0.000	0.000

1 Disposal primarily within the EU and the United States.

In 2022, approx. 3% of hazardous waste was shipped internationally.

Waste by disposal method

	2019	2020	2021	2022
Total waste (metric kilotons)	244	229	214	371
Disposed waste	85	72	66	67
Landfilled waste	26	17	18	20
Incinerated waste	59	55	48	47
Recycled waste	159	157	148	304
Material recycling	132	133	124	274
Waste-to-energy	27	24	24	30
Recycling rate (%)	65	69	69	82

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 53% of our waste in 2022. Around 181 metric kilotons of construction, excavation and demolition waste was recycled.

Significant spills

	2019	2020	2021	2022
Total number of significant spills	0	0	0	2

Community

Spending on community engagement

€ million	2019	2020	2021	2022
Total spending	46.2	53.6	43.3	48.1

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)
2021					
€ million	10.8	5.0	7.2	0.6	19.7
%	25	12	17	1	45
2022					
€ million	13.1	5.3	5.9	1.3	22.5
%	27	11	12	3	47

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

%	2019	2020	2021	2022
Health	33	36	33	33
Education and culture	38	43	45	32
Environment	3	1	2	5
Disaster relief	2	1	2	8
Other	24	19	18	22

¹ Based on number of projects

Motivations for our community engagement¹

%	2019	2020	2021	2022
Charitable activities	6	23	21	12
Community investment	91	72	76	86
Commercial initiatives in the community	3	5	3	2

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.