

Indicators

Economics

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

€ million	Life Science	Healthcare	Electronics	Group
2022				
Net sales	10,380	7,839	4,013	22,232
Operating result (EBIT)	2,808	1,895	572	4,474
R&D costs ²	399	1,694	308	2,521
2023				
Net sales	9,281	8,053	3,659	20,993
Operating result (EBIT)	1,850	2,225	248	3,609
R&D costs ²	396	1,657	297	2,445

¹ As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our [Annual Report 2023](#) (p. 249-253).

² Not presented are research and development costs of € 94 million (2022: € 119 million) allocated to Corporate and Other.

Business ethics

Compliance training

	2020	2021	2022	2023 Merck Group ¹	2023 thereof Merck KGaA
Total number of persons trained on anti-corruption guidelines²	28,827	5,790	5,082	6,688	486
Total number of employees trained on anti-corruption guidelines	28,805	5,772	5,071	6,671	486
% of employees trained on anti-corruption	50	10	8	11	12
by employee category³					
Number of Role 2+ employees trained on anti-corruption	27,123	5,284	4,658	6,325	463
% of Role 2+ employees trained on anti-corruption	90	17	14	18	18
% of employees below Role 2 trained on anti-corruption	6	2	1	1	2
by region (%)					
Europe	51	8	7	10	2
North America	45	11	8	8	not applicable
Asia-Pacific (APAC)	44	12	9	14	not applicable
Latin America	44	8	7	13	not applicable
Middle East and Africa (MEA)	66	12	9	16	not applicable

1 The anti-corruption e-learning rolled out in 2020 was replaced by a new training course on November 1, 2023. The data for 2023 includes the completion figures for both the old and the new e-learning. A total of 2,177 employees completed the old e-learning course.

2 Includes contractors, external supervised workers (e.g. temporary workers) and contract partners working on-site who were trained on anti-corruption guidelines (2023: 13).

3 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+.

At the beginning of 2020, the old e-learning course on anti-corruption was rolled out for a broad target group. The majority of this target group already completed the e-learning in 2020. The number of employees trained is comparatively lower in 2021 and 2022, as the training was only assigned to new joiners, internal transfers or employees who did not yet complete the e-learning. In 2023, we record an increase again as we replaced the former e-learning course with a new one in November. In addition to anti-corruption, the new training also covers the topic of money laundering.

Internal audits on corruption

	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA ¹
Number of audits relating to corruption	52	56	55	53	17
% of audits relating to corruption	66	67	70	66	21

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 violations

	2020	2021	2022	2023
Number of reported violations of Social and Labor Standards Policy	108	121	136	184
Number of confirmed violations of Social and Labor Standards Policy	29	41	68	60
thereof number of incidents of discrimination	2	6	7	7 ¹

¹ As of 2023, the incidents of discrimination also include cases of harassment as a specific form of discrimination.

Reported compliance violations

	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total number of reported compliance violations					
Number of reported compliance incidents	81	79	79	106	9
Number of confirmed cases	41	42	28	32	1
Confirmed cases by category					
Bribery and corruption	6	1	2	1	0
Violation of cartel laws and fair competition rules	0	0	1	0	0
Fraudulent actions against Merck	11	6	11	3	0
Other violations of the Merck Compliance Principles for the relations with business partners	0	0	2	3	0
Other violations of Merck values, internal guidelines or legal requirements	24	35	12	25	1

Data Privacy

	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Reported violations of Data Privacy Guidelines	3	3	4	7	0
Customer Privacy¹					
Total number of substantiated complaints received from outside parties	0	0	0	0	0
Total number of complaints from regulatory bodies	0	0	0	0	0
Total number of identified leaks, thefts, or losses of customer data	0	0	0	1	0

1 These data only reflect incidents classified as significant.

Legal actions

	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total number¹ of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	4	4	3	2	1
pending	4	3	2	1	1
completed	0	1	1	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 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

[Annual Report 2023](#), pages 90-91 and pages 284-287, No. 27

Employees

Total number of employees

As of Dec. 31	2020	2021	2022	2023 Merck Group ¹	2023 thereof Merck KGaA ²
Total number of employees	58,127	60,348	64,243	62,908	3,924
Men	33,204	34,274	36,452	35,499	2,387
Women	24,923	26,074	27,791	27,409	1,537

1 Merck also employs people at sites of subsidiaries that are not fully consolidated. For the 2023 reporting year, we have aligned the scope of consolidation also for the employee data in the non-financial reporting with the financial reporting. As of now, the figures relate to all employees who are employed in fully consolidated subsidiaries with personnel.

2 The sharp decline in comparison with the previous year (8,485 employees) is attributable to the fact that in addition to Healthcare KGaA, which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

Number of employees by hierarchical level

As of Dec. 31	2020	2021	2022	2023 Merck Group ¹	2023 thereof Merck KGaA ²
Total employees	58,127	60,348	64,243	62,908	3,924
Senior management (Role 6+)	193	194	191	200	48
Middle management (Role 4 & 5)	3,637	3,831	4,018	4,139	600
Low management (Role 3)	10,286	10,880	11,877	11,907	1,275
Other employees (below Role 3)	44,011	45,443	48,157	46,662	2,001
% of women (total)	43	43	43	44	39
thereof number of women in senior management (Role 6+)	42	49	51	58	15
thereof number of women in middle management (Role 4 & 5)	1,284	1,413	1,550	1,622	214
thereof number of women in low management (Role 3)	4,352	4,669	5,123	5,150	475
thereof number of women in "other employees (below Role 3)"	19,245	19,943	21,067	20,579	833
% of men (total)	57	57	57	56	61
thereof number of men in senior management (Role 6+)	151	145	140	142	33
thereof number of men in middle management (Role 4 & 5)	2,353	2,418	2,468	2,517	386
thereof number of men in low management (Role 3)	5,934	6,211	6,754	6,757	800
thereof number of men in "other employees (below Role 3)"	24,766	25,500	27,090	26,083	1,168
by age group					
Up to 29 years old (%)	15	15	15	14	14
thereof number of employees in senior management (Role 6+)	0	0	0	0	0
thereof number of employees in middle management (Role 4 & 5)	6	8	12	8	2
thereof number of employees in low management (Role 3)	199	241	263	249	39
thereof number of employees in "other employees (below Role 3)"	8,365	8,880	9,651	8,484	494

1 Merck also employs people at sites of subsidiaries that are not fully consolidated. For the 2023 reporting year, we have aligned the scope of consolidation also for the employee data in the non-financial reporting with the financial reporting. As of now, the figures relate to all employees who are employed in fully consolidated subsidiaries with personnel.

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As of Dec. 31	2020	2021	2022	2023 Merck Group ¹	2023 thereof Merck KGaA ²
30 to 49 years old (%)	60	60	60	60	53
thereof number of employees in senior management (Role 6+)	68	63	58	65	19
thereof number of employees in middle management (Role 4 & 5)	2,032	2,172	2,235	2,283	367
thereof number of employees in low management (Role 3)	6,926	7,298	8,007	7,963	805
thereof number of employees in "other employees (below Role 3)"	25,948	26,624	28,124	27,697	894
50 years or older (%)	25	25	25	26	33
thereof number of employees in senior management (Role 6+)	125	131	133	135	29
thereof number of employees in middle management (Role 4 & 5)	1,599	1,651	1,771	1,848	231
thereof number of employees in low management (Role 3)	3,161	3,341	3,607	3,695	431
thereof number of employees in "other employees (below Role 3)"	9,698	9,939	10,382	10,481	613

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Average number of employees by functional area¹

	2020 ²	2021	2022	2023
Group	57,612	58,731	62,565	63,000
thereof women	24,746	25,295	27,123	27,461
Production	17,624	19,782	22,086	23,827
thereof women	6,043	6,541	7,510	8,429
Logistics/Supply Chain	4,298	4,557	4,850	4,946
thereof women	1,734	1,838	1,928	1,970
Marketing and Sales/Commercials	14,127	14,318	15,095	14,021
thereof women	6,787	6,906	7,349	7,099
Administration	11,342	11,824	11,889	11,924
thereof women	5,499	5,718	5,868	5,891
Research and Development	7,504	7,168	7,335	6,473
thereof women	3,996	3,694	3,740	3,249
Infrastructure and Other	2,717	1,083	1,309	1,810
thereof women	687	598	727	824

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 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	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total	58,127	60,348	64,243	62,908	3,924
Europe	26,587	27,217	28,244	28,304	3,924
Women	11,743	12,098	12,620	12,681	1,537
Women (%)	44	44	45	45	39
Number of employees with temporary contracts	1,105	988	882	659	73
% of employees with temporary contracts	4	4	3	2	2
North America	13,312	14,070	15,847	14,718	0
Women	5,527	5,800	6,501	6,113	not applicable
Women (%)	42	41	41	42	not applicable
Number of employees with temporary contracts	139	115	31	20	not applicable
% of employees with temporary contracts	1	1	0	0	not applicable
Asia-Pacific (APAC)	13,518	14,285	15,412	15,259	0
Women	5,425	5,874	6,351	6,357	not applicable
Women (%)	40	41	41	42	not applicable
Number of employees with temporary contracts	3,362	3,660	3,726	3,182	not applicable
% of employees with temporary contracts	25	26	24	21	not applicable
Latin America	3,387	3,529	3,490	3,458	0
Women	1,630	1,721	1,715	1,693	not applicable
Women (%)	48	49	49	49	not applicable
Number of employees with temporary contracts	67	12	8	7	not applicable
% of employees with temporary contracts	2	0	0	0	not applicable
Middle East and Africa (MEA)	1,323	1,247	1,250	1,169	0
Women	598	581	604	565	not applicable
Women (%)	45	47	48	48	not applicable
Number of employees with temporary contracts	420	59	9	9	not applicable
% of employees with temporary contracts	32	5	1	1	not applicable

Employees by business sector

As of Dec. 31	2020	2021	2022	2023
Life Science employees	23,196	25,323	28,013	27,947
thereof women	10,175	11,255	12,473	12,490
thereof women (%)	44	44	45	45
Healthcare employees	17,463	17,269	17,339	17,765
thereof women	8,788	8,717	8,805	8,997
thereof women (%)	50	50	51	51
Electronics employees	7,228	7,432	8,262	8,276
thereof women	1,666	1,704	1,870	2,000
thereof women (%)	23	23	23	24

Employees by contract type

As of Dec. 31	2020	2021	2022	2023
Total employees	58,127	60,348	64,243	62,908
Number of employees with permanent contracts	53,034	55,514	59,587	58,972
% of employees with permanent contracts	91	92	93	94
thereof women	22,500	23,640	25,418	25,388
thereof women (%)	42	43	43	43
Number of employees with temporary contracts	5,093	4,834	4,656	3,936
% of employees with temporary contracts	9	8	7	6
thereof women	2,423	2,434	2,373	2,021
thereof women (%)	48	50	51	51
full-time employees	55,220	57,091	60,127	59,074
% full-time	95	95	94	94
thereof women	22,572	23,585	24,872	24,576
thereof women (%)	41	41	41	42
part-time employees	2,907	3,257	4,116	3,834
% part-time	5	5	6	6
thereof women	2,351	2,489	2,919	2,833
thereof women (%)	81	76	71	74

New employees

As of Dec. 31	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total number of new employee hires	6,669	8,960	10,682	5,490	220
by age group					
up to 29 years old	2,889	3,679	4,314	2,156	170
30 to 49 years old	3,347	4,610	5,397	2,944	45
50 or older	433	671	971	390	5
by gender					
Women	3,016	4,101	4,569	2,493	89
Men	3,653	4,859	6,113	2,997	131
by region					
Europe	2,160	2,567	3,015	2,028	220
North America	1,789	2,855	3,971	1,181	not applicable
Asia-Pacific (APAC)	2,206	2,803	3,071	1,710	not applicable
Latin America	396	579	460	445	not applicable
Middle East and Africa (MEA)	118	156	165	126	not applicable
Rate of new employee hires¹ (%)	11	15	17	9	6
by age group²					
up to 29 years old	43	41	40	39	77
30 to 49 years old	50	51	51	54	21
50 or older	7	8	9	7	2
by gender²					
Women	45	46	43	45	40
Men	55	54	57	55	60
by region²					
Europe	32	29	28	37	100
North America	27	32	37	22	not applicable
Asia-Pacific (APAC)	33	31	29	31	not applicable
Latin America	6	6	4	8	not applicable
Middle East and Africa (MEA)	2	2	2	2	not applicable

1 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.

2 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}

	2020 ³	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total turnover rate	8.22	10.82	10.16	9.96	3.48
Turnover rate by gender					
Men	8.22	10.69	10.40	10.11	3.24
Women	8.22	11.00	9.93	9.76	3.87
Turnover rate by age group					
Up to 29 years old	11.30	16.64	15.91	14.39	5.79
30 to 49 years old	7.74	10.05	9.55	9.48	3.41
50 or older	7.52	9.22	8.05	8.49	2.62
Turnover rate by region					
Europe	5.64	6.00	5.91	5.52	3.48
North America	9.79	15.44	14.33	15.02	not applicable
Asia-Pacific (APAC)	10.60	14.66	12.84	11.90	not applicable
Latin America	11.40	12.95	13.38	13.19	not applicable
Middle East and Africa (MEA)	11.80	16.57	13.04	15.63	not applicable
Total number of leavers	4,721	6,354	6,358	6,336	152
by gender					
Men	2,697	3,575	3,673	3,639	87
Women	2,024	2,779	2,685	2,697	65
by age group					
Up to 29 years old	974	1,451	1,542	1,358	32
30 to 49 years old	2,677	3,545	3,569	3,624	82
50 or older	1,070	1,358	1,247	1,354	38
by region					
Europe	1,490	1,601	1,640	1,560	152
North America	1,281	2,078	2,182	2,305	not applicable
Asia-Pacific (APAC)	1,394	2,015	1,905	1,824	not applicable
Latin America	398	449	467	460	not applicable
Middle East and Africa (MEA)	158	211	164	187	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 2023, the average length of service for employees Group-wide was 9.7 years (2022: 9.2 years), with 15.2 years (2022: 15.4 years) for Merck KGaA employees.

Work-related accidents¹

	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Lost Time Injury Rate (LTIR = workplace accidents resulting in missed days of work per one million hours worked)	1.3	1.2	1.2	1.3	1.6
by region					
Europe	2.4	2.1	1.7	2.2	1.6
North America	0.8	1.2	1.7	1.4	not applicable
Asia-Pacific (APAC)	0.1	0.1	0.3	0.1	not applicable
Latin America	0.8	0.4	0.6	0.6	not applicable
Middle East and Africa (MEA)	0.4	0.0	1.1	0.4	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 6% 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 2023 period, one case of work-induced illness were verified.

Employees who regularly receive a performance and development evaluation¹

	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
% of employees who receive a performance and development evaluation	98	98	98	98	100
by gender					
Women	98	98	99	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 2023, a total of 61,863 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	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Number of nationalities	141	142	139	141	70
Number of nationalities in management positions (Role 4 or above)	75	79	78	77	30
% of non-Germans in management positions (Role 4 or above)	66	66	66	66	12

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)
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
2023							
Up to 29 years old	8,743	2,233	3,294	535	2,634	440	142
thereof women	4,150	995	1,521	213	1,323	224	87
30 to 49 years old	38,006	7,352	16,304	2,085	11,218	2,301	831
thereof women	16,798	3,084	7,565	857	4,562	1,203	384
50 or older	16,159	5,133	8,706	1,304	1,407	717	196
thereof women	6,461	2,034	3,595	467	472	266	94
Average age	41.5	43.5	42.9	43.0	37.4	40.8	40.5
Total employees	62,908	14,718	28,304	3,924	15,259	3,458	1,169

Age of youngest employee

As of Dec. 31	2020	2021	2022	2023
Age of youngest employee, excluding apprentices	18	18	18	17

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

As of Dec. 31	2020 ¹	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
% of employees with healthcare benefits ²	63	64	62	73	0
% of employees with Group accident insurance ³	41	41	37	48	13
% of employees with life insurance ⁴	56	59	59	64	0
% of employees with disability insurance (short-term and long-term) ⁵	39	39	43	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	2020	2021	2022	2023
Present value of all defined benefit obligations as of Dec. 31	6,352	5,995	4,287	4,787
Pension expenses	408	461	460	365

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. 291-297, No. 33) of our [Annual Report 2023](#).

Flexible working hours in Germany

As of Dec. 31	2020	2021	2022	2023
% of employees utilizing the “mywork@Merck” working model	48	51	55	58

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	2020	2021	2022	2023 ²
Number of employees with a right to parental leave	351	414	423	127
thereof women (recorded via maternity leave in the respective year)	225	255	287	87
thereof men (recorded via special paternity leave in the respective year)	126	159	136	40
Number of employees who took parental leave ³	538	617	564	189
thereof women	265	278	237	95
thereof men	273	339	327	94
Number of employees on parental leave who worked part time during their leave	104	198	164	69
thereof women	73	172	137	49
thereof men	31	26	27	20
Number of employees who returned from parental leave ³	529	597	581	182
thereof women	252	273	235	96
thereof men	277	324	346	86
Return to work rate (%)	98.3	96.8	103.0	96.3
thereof women	95.1	98.2	99.2	101.1
thereof men	101.5	95.6	105.8	91.5
Number of employees still working for Merck one year after their return from parental leave	490	556	548	- ⁴
thereof women	220	250	328	- ⁴
thereof men	270	306	220	- ⁴
Retention rate (%)	92.6	93.1	94.3	- ⁴
thereof women	87.3	91.6	139.5	- ⁴
thereof men	97.5	94.4	63.5	- ⁴

1 Figures pertain only to Merck KGaA (which accounted for around 6% in 2023). 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 The sharp decline in comparison with the previous years is attributable to the fact that in addition to Healthcare KGaA, which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

3 Since parental leave can be taken for a period ranging from one month to three years, it is possible for employees to be recorded across a period of up to four calendar years. This explains why the number of employees on parental leave exceeds the number of employees who have a right to it. It also explains why the "Number of employees who returned from parental leave" might exceed the "Number of employees who took parental leave".

4 Figure will be available on December 31, 2024.

Employees with disabilities¹ (%)

	2020	2021	2022	2023
Employees with disabilities	4.7	4.8	4.9	4.8

1 Only pertains to the joint operation of Merck (which accounted for around 19% of Merck Group employees in 2023, calculations based on the German Social Code IX - SGB IX).

Apprentices in Germany

As of Dec. 31	2020	2021	2022	2023
Number of apprentices	607	602	595	619
% of apprentices	4.6	4.1	4.0	4.6

Environment

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

metric kilotons	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total CO₂eq³ emissions⁴	2,152	1,951	1,760	1,463	22
Thereof					
direct CO ₂ eq emissions (Scope 1) ⁵	1,827	1,626	1,518	1,236	15
indirect CO ₂ eq emissions (Scope 2) ⁶	325	325	242	227	7
Biogenic CO₂ emissions⁷	14	15	14	14	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 eq = equivalent

4 In 2023, we adjusted our Scope 1 and Scope 2 calculations to reflect minor data corrections.

5 In 2023, we adapted the Scope 1 calculations to the modified global warming potentials of the IPCC 6th assessment report (previously IPCC 5th assessment report) and restated previous years accordingly.

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

7 We adapted the calculations to the complete Greenhouse Gas Protocol requirements.

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 2023, 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

metric kilotons of CO ₂ equivalents	2020	2021	2022	2023
Total gross other indirect emissions	5,103	5,799	6,680	4,594
Purchased goods & services (category 1) ²	3,040	3,572	4,200	2,517 ³
Capital goods (Category 2) ²	293	291	388	340 ³
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	102	143	121	115
Upstream transportation & distribution (category 4)	264	264 ⁴	319	236 ⁵
Waste generated in operations (category 5)	85	79	57 ⁶	32 ⁶
Business travel (category 6)	32	26	78	86
Employee commuting (category 7)	90	94	99	76 ⁷
Upstream leased assets (category 8) ⁸	-	-	-	-
Downstream transportation & distribution (category 9)	8	8 ⁴	6	10 ⁵
Processing of sold products (category 10) ⁹	-	-	-	-
Use of sold products (category 11) ¹⁰	1,164	1,296	1,382 ¹¹	1,137
End-of-life treatment of sold products (category 12)	23	23 ⁴	26 ¹¹	42
Downstream leased assets (category 13)	2	2	2	2
Franchises (category 14) ¹²	-	-	-	-
Investments (category 15)	0	1	2	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 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.

3 We updated environmentally extended input-output analysis (EEIO) factors, and we adjusted our emission calculation approach for service categories using primary supplier data.

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

5 In 2023, we introduced a new and improved calculation methodology based on primary data from suppliers/logistics service providers and an energy-based bottom-up calculation approach.

6 We adjusted our calculation methodology to remove non-GHG relevant waste streams.

7 We adjusted our calculation methodology to take into account the results of an internal employee survey on home office use.

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 In 2023, we adapted the Category 11 calculations to the modified global warming potentials of the IPCC 6th assessment report (previously IPCC 5th assessment report) and restated previous years accordingly.

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

12 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	2020	2021	2022	2023
Total emissions of ozone-depleting substances	2.2	1.5	1.3 ¹	1.0
CFC-11eq ²	0.1	0.1	0.1	0.1

1 Data were retroactively adjusted.

2 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-414b, R-502, R-503.

Source for the emission factors: Montreal Protocol.

Other air emissions

metric kilotons	2020	2021	2022	2023
Volatile organic compounds (VOC)	0.3	0.3	0.3	0.3
Nitrogen oxide	0.2	0.3	0.2	0.2
Sulfur dioxide	0.004	0.004	0.005	0.004
Dust	0.010	0.020	0.020	0.010

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

	2020	2021	2022	2023
% truck	70	71	73	74
% boat	22	21	19	19
% airplane	8	8	8	7
% rail	0	0	0.03	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.

Energy consumption¹

GWh	2020	2021	2022	2023 Merck Group	2023 thereof Merck KGaA
Total energy consumption	2,382	2,463	2,432	2,337	78
Direct energy consumption	1,269	1,321	1,294	1,245	68
Natural gas	1,182	1,235	1,188	1,164	59
Liquid fossil fuels ²	52	48	70	43	9
Biomass and self-generated renewable energy	35	38	36	38	0
Indirect energy consumption	1,113	1,142	1,138	1,092	10
Electricity	950	964	984	982	10
Steam, heat, cold	163	178	154	110	0
Total energy sold	0.2	0.1	0.0	0.00	0.0
Electricity	0.2	0.1	0.0	0.00	0.0
Steam, heat, cold	0.0	0.0	0.0	0.0	0.0
In TJ					
Total energy consumption	8,575	8,867	8,755	8,413	280
Direct energy consumption	4,568	4,756	4,658	4,482	244
Natural gas	4,255	4,446	4,277	4,190	212
Liquid fossil fuels ²	187	173	252	155	32
Biomass and self-generated renewable energy	126	137	130	137	0
Indirect energy consumption	4,007	4,111	4,097	3,931	36
Electricity	3,420	3,470	3,542	3,535	36
Steam, heat, cold	587	641	554	396	0
Total energy sold	0.7	0.4	0.0	0.00	0.0
Electricity	0.7	0.4	0.0	0.00	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 23% of our Group-wide total. Here, fossil energy (coal, gas, etc.) accounts for approximately 45%, nuclear energy approximately 6% and renewable energies approximately 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 2,654 GWh for 2023. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 129 GWh for 2023. This yields a total primary energy consumption of 2,783 GWh for 2023. (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 2023, our energy intensity relative to net sales totaled 0.11 kWh/€.

Water withdrawal

millions of m ³	2020	2021	2022	2023 Merck Group	2023 Water stress areas
Total water withdrawal	14.0	13.5	13.2	12.1	0.16
Surface water (rivers, lakes)	1.8	1.9	1.8	1.4	0.002
Groundwater	6.7	6.3	6.3	5.8	0.002
Drinking water (from local suppliers)	5.4	5.2	5.0	4.8	0.16
Rain water and other sources	0.06	0.06	0.06	0.06	0.002

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	2020	2021	2022	2023
Water reused	22.0	23.5	20.7	20.5

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

	2020	2021	2022	2023 Merck Group
Total wastewater volume (millions of m³)	13.4	13.3	12.4	11.1
Wastewater discharged directly	9.2	9.5	8.6	7.6
Wastewater discharged to third parties	4.1	3.8	3.8	3.4

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

	2020	2021	2022	2023
Chemical oxygen demand (metric tons of O ₂)	1,482	1,426	1,013	1,039
Phosphorous (metric tons)	15	11	10	9
Nitrogen (metric tons)	291	392	363	184
Nickel (kg)	30	32 ²	38 ²	104
Lead (kg)	37	15	16	21
Cadmium (kg)	6	3	5	4
Mercury (kg)	0	1	0	0

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

² Data were 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	2020	2021	2022	2023
Total waste	229	214	371	291
Hazardous waste disposed ¹	38	34	36	35
Non-hazardous waste disposed ¹	34	33	31	18
Hazardous waste recycled ²	90	84	84	81
Non-hazardous waste recycled ²	67	63	220	157

1 Disposed = incineration (without energy recovery) and landfill

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

Exported/Imported hazardous waste

metric kilotons	2020	2021	2022	2023
Exported ¹	4.0	4.6	3.7	3.3
Imported	0.000	0.000	0.000	0.000

1 Disposal primarily within the EU and the United States.

In 2023, approx. 3% of hazardous waste was shipped internationally.

Waste by disposal method

	2020	2021	2022	2023
Total waste (metric kilotons)	229	214	371	291
Disposed waste	72	66	67	53
Landfilled waste	17	18	20	9
Incinerated waste	55	48	47	44
Recycled waste	157	148	304	238
Material recycling	133	124	274	214
Waste-to-energy	24	24	30	24
Recycling rate (%)	69	69	82	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 43% of our waste in 2023. Around 118 metric kilotons of construction, excavation and demolition waste was recycled.

Significant spills

	2020	2021	2022	2023
Total number of significant spills	0	0	2	0

Community

Spending on community engagement

€ million	2020	2021	2022	2023
Total spending	53.6	43.3	48.1	47.2

When calculating the value of our medicine donations, we take into account the Guidelines for Medical Donations issued by the World Health Organization; 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)
2022					
€ million	13.1	5.3	5.9	1.3	22.5
%	27	11	12	3	47
2023					
€ million	8.5	4.7	3.4	5.0	25.6
%	18	10	7	11	54

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

%	2020	2021	2022	2023
Health	36	33	33	30
Education and culture	43	45	32	30
Environment	1	2	5	8
Disaster relief	1	2	8	4
Other	19	18	22	28

¹ Based on number of projects

Motivations for our community engagement¹

%	2020	2021	2022	2023
Charitable activities	23	21	12	13
Community investment	72	76	86	82
Commercial initiatives in the community	5	3	2	5

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.