



FORLIANCE
GROWING CLIMATE ACTION



CORPORATE CARBON FOOTPRINT 2025

RAMPA GmbH & Co. KG

September 2026

SUMMARY

The subject of this report is the Corporate Carbon Footprint of RAMPA GmbH & Co. KG.

Object of consideration and methodology

The assessment covers the year 2025. The complete RAMPA GmbH & Co. KG was defined as the object of this assessment. To create a holistic assessment of all emissions, all relevant emissions of scopes 1, 2 and 3 were recorded. Beyond direct emissions, the company's upstream and downstream value chain was, therefore, also considered.

The methodological basis for the analysis performed is the “Greenhouse Gas Protocol Corporate Accounting and Reporting Standard” (GHG Protocol).

Results 2025

The total greenhouse gas emissions (hereinafter “GHG emissions”) caused by RAMPA GmbH & Co. KG in 2025 amount to 769.36 t CO₂e (market-based approach).

Of this, 8.46% is attributable to emission sources that the company either owns or directly controls (scope 1), 0.10% to e-mobility in scope 2, and 91.44% to all other emission sources that arise as a result of the company's activities but are owned or controlled by a third party (scope 3, e.g. business travel, employee commuting).

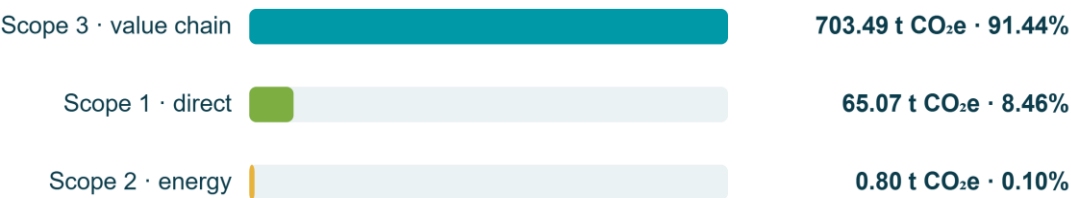


Figure 1: CO₂e emissions by scope (2025)

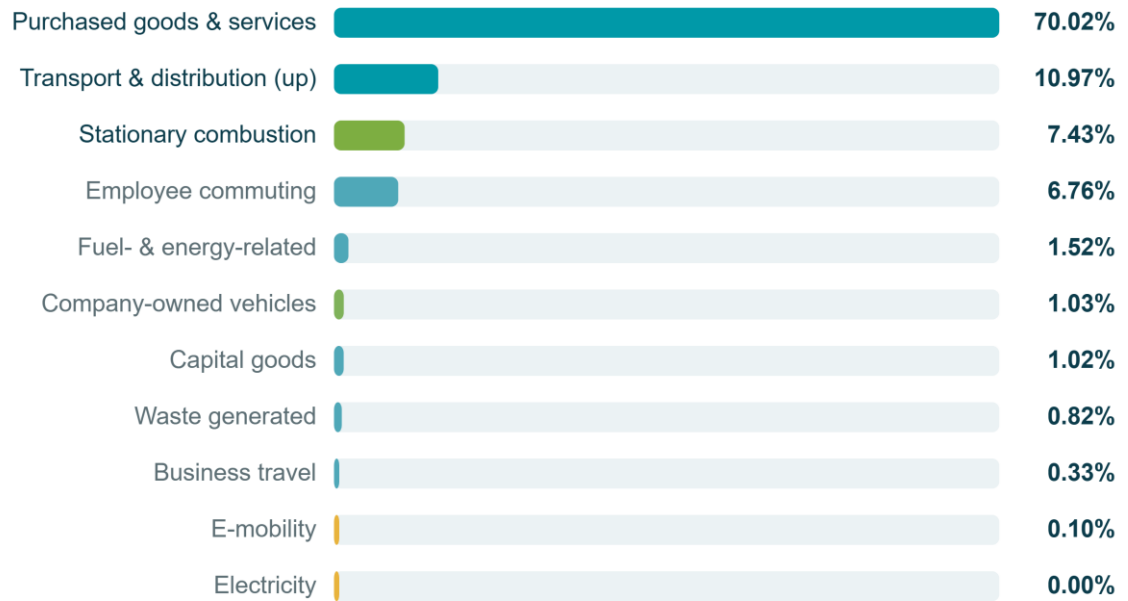


Figure 2: Share of the categories in total CO₂e emissions (2025)

Emission hotspots

The emission hotspots can be seen in Figure 2. The three identified emission hotspots account for 88.42% of total emissions.

1. Purchased goods and services (538.70 t CO₂e; 70.02%)
2. Transportation and distribution (upstream) (84.42 t CO₂e; 10.97%)
3. Stationary combustion (57.17 t CO₂e; 7.43%)

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Glossary

CCF	Corporate Carbon Footprint
CDP	Carbon Disclosure Project
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalents
DESNZ	Department for Energy Security & Net Zero
DNK	German Sustainability Code
EKP	Customer number of Deutsche Post AG / DHL
GHG	Greenhouse Gas
GLEC	Global Logistics Emissions Council
GRI	Global Reporting Initiative
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
SFC	Smart Freight Centre
SGS	Testing and certification company (SGS S.A.)
UBA	German Environment Agency
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute
WTW	Well-to-Wheel (entire energy chain from raw material to wheel)

1 INTRODUCTION

About RAMPA GmbH & Co. KG

RAMPA GmbH & Co. KG is a German manufacturer of fastening solutions based in Büchen. Its product portfolio comprises threaded inserts, drive-in nuts, screws, connector systems and matching tools. These are used across industries in the processing of wood, plastic, metal and concrete. As a manufacturer, RAMPA produces exclusively in Germany. Customers also benefit from individual application advice and broad stock availability (RAMPA 2026).

Subject of the report

The subject of this report is the Corporate Carbon Footprint (CCF) of RAMPA GmbH & Co. KG. A CCF is a core component of any profound climate strategy, as the CCF represents the central metric in terms of status quo, reduction targets, reduction measures, emission scenarios, and efficiency metrics.

The goal of the assessment is to determine the volume of GHG emissions caused by the company to subsequently develop a strategy for their long-term reduction. The insights gained are intended to help understand the company's impact on the global climate and to demonstrate a responsible role in the commitment to sustainability towards employees, partners and other interest groups (stakeholders).

The assessment covers the year 2025. The complete RAMPA GmbH & Co. KG was defined as the object of consideration. In terms of a holistic approach, all relevant emissions of scopes 1, 2 and 3 are to be recorded. In addition to the direct emissions, the company's upstream and downstream value chain should also be considered. This has now happened for the sixth year in a row, which allows conclusions to be drawn about the development of emissions.

The methodological basis for the analysis performed is the "Greenhouse Gas Protocol Corporate Accounting and Reporting Standard" (GHG Protocol), the most renowned international accounting standard for corporate GHG emissions.

2 METHODOLOGY

With the aim of achieving a high degree of comparability, transparency and traceability of the results obtained, the carbon footprint was calculated according to the methodological specifications of the GHG Protocol standard.

2.1 Greenhouse Gas Protocol

The GHG Protocol, developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), is the most widely used international standard for the accounting and reporting of corporate CO₂ emissions. The GHG Protocol Standard is internationally considered a *best-practice* standard and is also recommended in the context of national and international ESG reporting. Both the Global Reporting Initiative (GRI) and the German Sustainability Code (DNK) explicitly mention the GHG Protocol as an accounting standard.

The addition of the “Corporate Value Chain (Scope 3) Accounting and Reporting Standard” to the “Greenhouse Gas Protocol Corporate Accounting and Reporting Standard” provides practical guidelines for the accounting and reporting of emission sources in scopes 1-3.

2.2 Greenhouse Gas Emissions and *Global Warming Potential*

This Corporate Carbon Footprint covers the greenhouse gases recognized by the UNFCCC and in the Kyoto Protocol: carbon dioxide, methane, nitrous oxide, perfluorocarbons, hydrofluorocarbons, sulfur hexafluoride and nitrogen trifluoride. Since these differ considerably in their respective global warming potential (*Global Warming Potential*, GWP), they are converted into CO₂ equivalents (CO₂e) for the sake of better comparability. Table 1 shows the greenhouse gases with their respective global warming potential in CO₂e over a period of 100 years. The aim of considering all greenhouse gases is to present the company's influence on anthropogenic climate change in a meaningful way.

Greenhouse gas	GWP
Carbon dioxide (CO ₂)	1
Methane (CH ₄)	29.8
Nitrous oxide (N ₂ O)	273
Perfluorocarbons (PFCs)	7,380 - 12,400
Hydrofluorocarbons (HFCs)	4.84 - 14,600
Nitrogen trifluoride (NF ₃)	17,400
Sulfur hexafluoride (SF ₆)	25,200

Table 1: Greenhouse gases according to UNFCCC/Kyoto Protocol

2.3 Accounting principles

In principle, a carbon footprint consists of two central components. One part is generally described as activity data or consumption data. This includes, for example, data such as kilometers traveled per means of transport, electricity or heating fuel consumption, or the quantities of goods consumed.

On the other side are emission factors. Emission factors make it possible to convert activity data into reliable emission values. Since the emissions caused are generally not measured directly (primary data), secondary data (activity/consumption data) must be multiplied by emission factors. Emission factors represent the quantity of GHG emissions caused in relation to a specific unit (e.g. per kilometer, per kWh, per kg). Combined in this way, the GHG emissions caused can be accounted for.

Activity data point x emission factor = quantity of GHG emissions caused

Example: 10,000 kilometers by car x 0.163 kg CO₂e/passenger kilometer = 1,630 kg CO₂e

If direct measurements of the emissions caused are available, these are to be preferred. Ideally, all market participants would report their directly measured emissions and make this information available (publicly). This would make it possible to present highly precise and complete Corporate Carbon Footprints.

3 PROCESS

3.1 Preparation of the assessment

The accounting process is based on the experience gained from the previous GHG inventories for the years 2020, 2021, 2022, 2023 and 2024, as well as on the corresponding consultations.

3.2 Organizational boundaries

The organizational boundaries have not been changed compared to the base year.

Accounting continues to follow the **operational control approach**:

„A company has operational control over an operation if the former or one of its subsidiaries [...] has the full authority to introduce and implement its operating policies at the operation. This criterion is consistent with the current accounting and reporting practice of many companies that report on emissions from facilities, which they operate (i.e., for which they hold the operating license). It is expected that except in very rare circumstances, if the company or one of its subsidiaries is the operator of a facility, it will have the full authority to introduce and implement its operating policies and thus has operational control. Under the operational control approach, a company accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control. “(GHG Protocol Corporate Standard: S. 18)

The definition of these organizational accounting boundaries later affects the allocation of emissions to the different emission areas and thus areas of responsibility. By choosing this accounting approach, emissions from energy consumption in leased properties, for example, are allocated to scopes 1 and 2 and not to scope 3 (on the scopes, see section 3.3).

3.3 Operational boundaries

Within the organizational boundaries described emissions from scopes 1, 2 and 3 are to be recorded. The aim is to account fully for all emission sources, if these can be determined in accordance with the principles of relevance, completeness, consistency, transparency and accuracy.

The principle of the scopes is based on the distinction between direct and indirect emission sources:

- **Direct emissions:** Emissions from sources that the company either owns or directly controls.
- **Indirect emissions:** Emissions that arise because of the company's activities but are owned or controlled by a third party.

Building on this, three scopes are distinguished. According to the GHG Protocol, all emissions from scopes 1 and 2 must be included in the calculation and presentation of a CCF, whereas the inclusion of scope 3 emissions is voluntary but recommended.

- **Scope 1:** All emissions arising directly within the company, that is, emissions from sources that the company either owns or directly controls.
- **Scope 2:** All indirect emissions arising from the company's energy supply, that is, emissions from purchased electricity and heat.
- **Scope 3:** All other emissions that arise because of the company's activities but are owned or controlled by a third party.

Figure 3 provides an overview of the distinction between scopes 1-3 and examples of emission sources in the respective scopes.

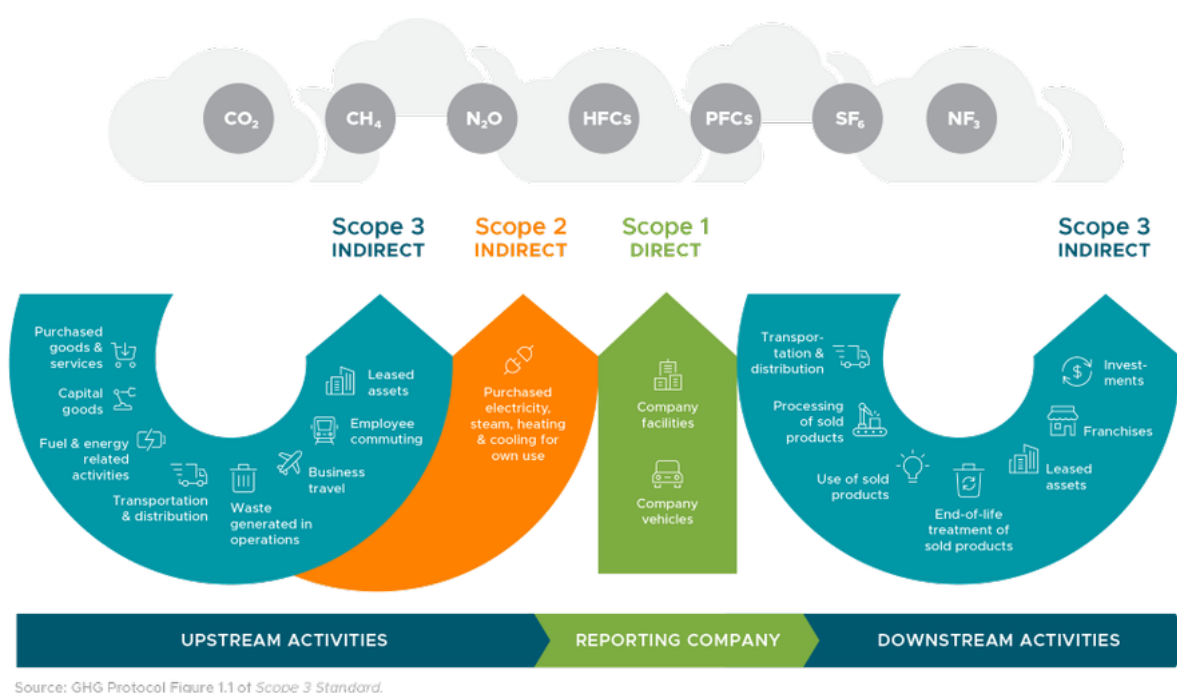


Figure 3: Overview of the scopes and emission sources according to the methodology of the GHG Protocol (source: based on GHG Protocol)

3.4 Emission sources RAMPA GmbH & Co. KG

On this basis, the following emission sources were determined for RAMPA (see Table 2):

Scope	Category	Emission source	Relevant	Emission sources - examples
1		Stationary combustion	Yes	▪ Heating fuel, fuel e.g. for generators, machinery
1		Company-owned vehicles	Yes	▪ Fleet (incl. leased vehicles)
2		Electricity	Yes	▪ Electricity
2		E-Mobility	Yes	▪ Electric vehicles

3	.1	Upstream	Purchased goods and services	Yes	- Raw materials - Merchandise - Packaging - Oil - Water supply
3	.2		Capital goods	Yes	- Projector - Notebook - Server room cooling
3	.3		Fuel- and energy-related emissions	Yes	Indirect (upstream) emissions
3	.4		Transportation and distribution	Yes	Logistics service providers (upstream and downstream)
3	.5		Waste generated in operations	Yes	- Water consumption - Residual waste - Wastepaper - Plastics/yellow bag - Bio waste
3	.6		Business travel	Yes	- Flights - Car - Train - Taxi/Uber - Overnight stays
3	.7		Employee commuting	Yes	- Car, train, public transport, etc. - Home office
3	.8		Leased assets	Yes	Under the operational control approach, energy emissions from leased assets fall under scopes 1 and 2
3	.9	Downstream	Transportation and distribution	No	
3	.10		Processing of sold products	No	
3	.11		Use of sold products	No	
3	.12		End-of-life treatment of sold products	No	
3	.13		Leased assets	No	
3	.14		Franchises	No	
3	.15		Investments	No	

Table 2: Emission items considered, RAMPA GmbH & Co. KG

The assessment of relevance, and thus the decision to include emission sources in the inventory, was made in consultation with RAMPA and based on FORLIANCE's experience. Omitted emission sources are discussed under 4.2.

3.5 Reporting period

The reporting period refers to the calendar year 2025.

3.6 Data collection process

The data collection was carried out independently by RAMPA GmbH & Co. KG. The corresponding collection templates were set up by FORLIANCE based on the previous year's data collection. The data on employee commuting was requested and collected by RAMPA. The plausibility check and review of the collected data was carried out by FORLIANCE.

4 ACTIVITY DATA

As described, the data was collected based on individual collection sheets and submitted in line with the previous year to allow a comparison.

4.1 Data format

Most of the data was submitted in the required form. Only a few data points were converted or adjusted to match the corresponding emission factor.

4.2 Omitted emission sources

The following emission sources were not considered:

- Purchased goods and services other than raw materials and merchandise, including packaging (e.g. office supplies)
- Downstream emissions

The purchased goods category includes raw materials, merchandise and packaging. Other consumables were not accounted for. Scope 3 downstream emissions were likewise not included in this inventory. The footprint concentrates on the sources that RAMPA can influence to implement reduction measures. Omitted emission sources can be added in future. A comparison with previous years is possible.

Reasons for excluding individual scope 3 categories (as of September 2026)

RAMPA sees reasons to exclude the following categories from the inventory.

Category 9: *Downstream transportation and distribution*

The category “Downstream transportation and distribution” refers to the transport and distribution of products after they have left RAMPA's plant. At RAMPA, all shipments sent under the delivery term “ex works” are attributed to the customers, as they bear responsibility for the transport and the resulting emissions. In emissions terms, however, RAMPA accounts for all deliveries with the “free domicile” term. In these cases, RAMPA selects the transport company and therefore influences the choice of transport partner. The emissions from these free-domicile deliveries are recorded and accounted for in the category “Upstream transportation and distribution”. Since all other transports lie outside RAMPA's direct sphere of influence, they are not considered further in the calculation of scope 3 emissions.

Category 10: *Processing of sold products*

With its fasteners, RAMPA supplies an intermediate product that is used in a wide variety of end products across different industries. Given the broad range of possible uses and the delivery to diverse industrial sectors, RAMPA cannot make a well-founded statement about the emissions arising from the further processing of the products. As the processing lies in the hands of the respective end customers and depends heavily on specific industrial processes for which RAMPA has no detailed information, an accurate quantification of the emissions in this category is not feasible.

Category 11: *Use of sold products*

RAMPA supplies its products to many customers from a wide range of industries. Because of the broad range of applications and the considerable diversity of its customer base, RAMPA cannot track or quantify the use of the products in a systematic way. The individual ways in which the fasteners are used vary greatly and lie outside RAMPA's direct sphere of influence. For these reasons, a well-founded assessment of the emissions caused by product use is not feasible.

Category 12: *End-of-life treatment of sold products*

RAMPA supplies its products to many customers and industries, and these are often passed on to end customers via distributors. Because of the great diversity of the customer base and the complex distribution chains across various distributors, RAMPA is unable to obtain reliable information on the disposal of the products at the end customers. The service life, the differing disposal practices and the dispersion of the products make it impossible to track and quantify the associated emissions.

Category 13: *Downstream leased assets*

RAMPA does not own any assets that are leased on to third parties. The company does not engage in any *downstream leasing* activities in which RAMPA assets or products could be leased to external parties.

Category 14: *Franchises*

RAMPA does not operate a franchise model and is not involved in any franchise activities.

Category 15: *Investments*

RAMPA's business model does not include any financial holdings or investments that would fall within the scope of this category. The "Investments" category is primarily relevant for financial institutions and companies that pursue active investment strategies.

4.3 Data consolidation

The submitted data was checked for plausibility by FORLIANCE.

4.4 Data quality

The overall data collection process has resulted in an extensive data catalogue. Since data quality has a considerable influence on the accuracy of the result, the collected data is assessed qualitatively by FORLIANCE below. The following categories are used to classify the most important activity data:

- High data accuracy (+); based e.g. on an invoice
- Medium data accuracy (O); based e.g. on the extrapolation of a sample
- Low data accuracy (-); based e.g. on an estimate

The categorization is based on FORLIANCE's many years of experience.

SCOPE 1			
Emission source	Quality	Original source	Comment
Company-owned vehicles	+	Real consumption data	The kilometers driven were reported precisely. The data quality can be classified as high.
Stationary combustion	+	Real consumption data	The data was submitted as a total quantity of kWh consumed. No conversion was required. The data quality is therefore classified as high.

SCOPE 2			
Emission source	Quality	Original source	Comment
Electricity	+	Real consumption data	The total quantity in kWh was submitted. No conversion was required. The data quality is classified as high.
E-Mobility	+ / O	Real consumption data	The total quantity was submitted in km. No conversion was required, as suitable emission factors are available. Nevertheless, kWh values are to be preferred. The data quality is classified as high to medium.

SCOPE 3			
Emission source	Quality	Original source	Comment
Purchased goods and services	+	Real consumption data	The raw materials, the merchandise and the packaging material were submitted in full. The total quantity was given in kg. The data quality is therefore classified as high.
Capital goods	+	Real consumption data	The data was supplied very precisely, and no conversions had to be made. The data quality can be classified as high.
Fuel- and energy-related emissions	+	Real consumption data	See scope 1 and scope 2.
Transportation and distribution	+	Real consumption data	The data was supplied very precisely, and no conversions had to be made. The data quality can be classified as high.
Waste generated – water and waste	O	Real consumption data	The data was submitted as a total quantity of liters of waste and m ³ of water consumed. A conversion was required. The data quality is therefore classified as medium.
Business travel	+	Real consumption data	The data was supplied very precisely, and no conversions had to be made. The data quality can be classified as high.
Employee commuting	+	Survey results	A survey was conducted to collect data on employee mobility regarding the distance to work, the means of transport used and the number of working days. The data quality can therefore be classified as high.
Home office	+	Survey results	The data for the home-office hours were submitted by RAMPA, which was broken down by country. The data quality can therefore be classified as high.

Table 3: Data quality

Conclusion on data quality

Overall, the data quality can be classified as very good. Nevertheless, there is room for improvement regarding the e-mobility and waste data. Kilowatt-hour and weight figures would be more meaningful than distance and volume figures, as the conversion would no longer be necessary.

In combination with the emission factors (see the section on emission factors), the submitted and processed data allows a robust statement to be made about the magnitude of total emissions and about the emission hotspots. This inventory therefore provides a sound basis for the next steps within a climate strategy.

5 EMISSION FACTORS

In addition to the activity data, accounting for GHG emissions requires emission factors, which make it possible to convert the activity data into emissions. Selecting the correct factor for each data item is of great importance here. Emission factors were therefore reviewed, assessed and selected in the analysis based on various criteria. These include:

- Technology: Is the correct technology represented?
- Time: Is the correct period represented?
- Geography: Is the correct geographical reference represented?
- Completeness: Is the value representative?
- Reliability: Are the sources and methods reliable and verified?

Where this was necessary for the selection and assessment of the emission factor, further qualitative information on the activity data was requested (composition, origin, age, etc.). These criteria also feed into the following categorization:

- High accuracy (+)
- Medium accuracy (O)
- High inaccuracy (-)

The categorization is based on FORLIANCE's many years of experience.

Central sources

The central sources for this inventory are the following databases:

- **Department for Energy Security & Net Zero (DESNZ)**. UK Government GHG Conversion Factors for Company Reporting. 2025.
- **Ecoinvent 3.12**. 2025.
- **German Environment Agency (UBA)**. Liste mit Emissionsfaktoren für die Treibhausgasbilanzierung von Organisationen. 2025.

All sources are of high quality and are maintained by public and private institutions as well as by non-profit organizations. Nevertheless, some of these factors also must be converted and adjusted in order to form a suitable counterpart to the corresponding activity data point.

5.1 Emission factor quality

The following table shows the quality of the emission factors (see Table 4).

SCOPE 1			
Emission source	Quality	Source	Comment
Company-owned vehicles	+	DESNZ	The factors represent direct emissions from vehicle use. Further life cycles are not considered. The quality of the factors is classified as high.
Stationary combustion	+	DESNZ	The activity data allowed an accurate assessment of the emissions. Specific emission factors could be used. The quality of the factors is classified as high.

SCOPE 2			
Emission source	Quality	Source	Comment
Electricity	+	UBA	An accurate selection of the emission factors was possible. Specific emission factors could therefore be used. The quality is therefore classified as high.
E-Mobility	+	DESNZ	The activity data allowed an accurate assessment of the emissions. Specific emission factors could be used. The quality of the factors is classified as high.

SCOPE 3			
Emission source	Quality	Source	Comment
Purchased goods and services	+ / O	DESNZ, Ecoinvent 3.12	An accurate selection of the emission factors was possible for most of the data. Specific emission factors could therefore be used. The quality of the factors is classified as high to medium.
Capital goods	+ / O	DESNZ	An accurate selection of the emission factors was possible for most of the data. Specific emission factors could therefore be used. The quality of the factors is classified as high to medium.
Fuel- and energy-related emissions	+	UBA, DESNZ	An accurate selection of the emission factors was possible. Specific emission factors could therefore be used. The quality of the factors is classified as high.
Transportation and distribution	+	DESNZ	An accurate selection of the emission factors was possible. Specific emission factors could therefore be used. The quality of the factors is classified as high.
Waste generated – water and waste	+	Ecoinvent 3.12	An accurate selection of the emission factors was possible. Specific emission factors could therefore be used. The quality of the factors is classified as high.
Business travel	+	DESNZ	An accurate selection of the emission factors was possible. Specific emission factors could therefore be used. The quality of the factors is classified as high.
Employee commuting	+	DESNZ, UBA	An accurate selection of the emission factors according to vehicle size and fuel type was possible. Specific differentiation was also possible for other modes of transport. Specific emission factors could therefore be used. The quality of the factors is classified as high.
Home office	O	DESNZ, UBA	Country-specific electricity data was used. The emission factors for electricity and heating consumption were calculated by FORLIANCE based on UBA studies. The quality of the factors is classified as medium.

Table 4: Quality of the emission factors

Conclusion on emission factor quality

The quality of the emission factors is to be assessed positively. As a rule, high-quality emission factors could be used. It should be noted that the selection of the emission factors is always indirectly linked to the available activity data.

Should emission factors be adjusted during subsequent inventories, these adjustments should also be applied retroactively to the current inventory. Consistency should be maintained here.

6 RESULTS

The results presented relate to RAMPA GmbH & Co. KG. The inventory boundary and the reporting period have been described. The results of the Corporate Carbon Footprint for RAMPA are presented below by scope (see section 3.3).

6.1 Total emissions RAMPA GmbH & Co. KG

According to the requirements of the GHG Protocol, a distinction has had to be made since 2015 between the market-based approach and the location-based approach (see the excursus on GHG Protocol scope 2 reporting). For the reporting year 2025, RAMPA was able to submit supplier-specific emission values, so that the emissions were accounted for according to the contractually guaranteed electricity mix. This approach is called the market-based approach.

Market-based approach

Under the **market-based approach**, the total greenhouse gases caused by RAMPA in 2025 amount to **769.36 t CO₂e**.

Location-based approach

Under the **location-based approach**, the total greenhouse gases caused by RAMPA in 2025 amount to **1,002.79 t CO₂e**.

6.2 Putting the difference in context

A comparison of the two accounting approaches illustrates the benefit of procuring green electricity: the difference between the location-based result (1,002.79 t CO₂e) and the market-based result (769.36 t CO₂e) of around 233 t CO₂e corresponds to the volume of emissions avoided by purchasing green electricity. Given that electricity consumption rose by 28% in 2025, this effect gains additional significance.

Excursus: GHG Protocol scope 2 reporting

For scope 2 emissions, the GHG Protocol requires dual reporting of purchased electricity, or the unambiguous documentation of the accounting method applied. Two reporting methods are to be applied for the electricity purchased:

1. Market-based approach: emissions are accounted for according to the contractually guaranteed electricity mix.
2. Location-based approach: emissions are accounted for according to the local average emissions of the respective electricity mix (e.g. the German electricity mix).

6.3 Emissions by scope

Further analysis of the results follows the **market-based approach**. In the first step, the results are presented according to the principle of the scopes (see Figure 4). The scope 1 emissions of RAMPA GmbH & Co. KG amount to a total of 65.07 t CO₂e (8.46% of total emissions). The scope 2 emissions amount to 0.80 t CO₂e (0.10% of total emissions). Scope 3 emissions are considerably higher at 703.49 t CO₂e (91.44% of total emissions).

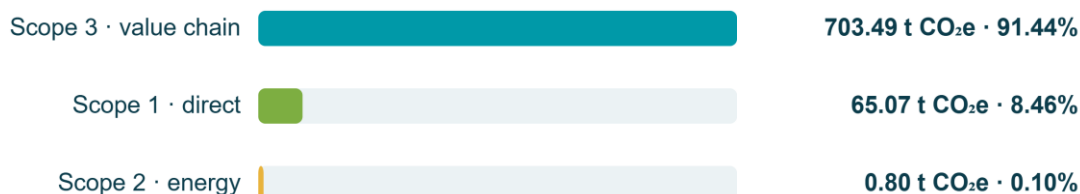


Figure 4: CO₂e emissions by scope (2025)

The presentation of emission sources by scope and their subcategories is based on the methodological requirements of the GHG Protocol and serves the transparency of Corporate Carbon Footprints. For ease of understanding, presenting them by emission source within the scopes is helpful. This results in the following categories (see Table 5 and Figure 5):

	Emission sources	t CO ₂ e	%
Scope 1	Stationary combustion	57.17	7.43
	Company-owned vehicles	7.90	1.03
	Total scope 1	65.07	8.46
Scope 2	Electricity	0.00	0.00
	E-Mobility	0.80	0.10
	Total scope 2	0.80	0.10
Scope 3	Purchased goods and services	538.70	70.02
	Capital goods	7.88	1.02
	Fuel- and energy-related emissions	11.70	1.52
	Transportation and distribution (upstream)	84.42	10.97
	Waste generated in operations	6.30	0.82
	Business travel	2.52	0.33
	Employee commuting (incl. home office)	51.97	6.76
	Total scope 3	703.49	91.44
Total		769.36	100.00

Table 5: Emissions by source

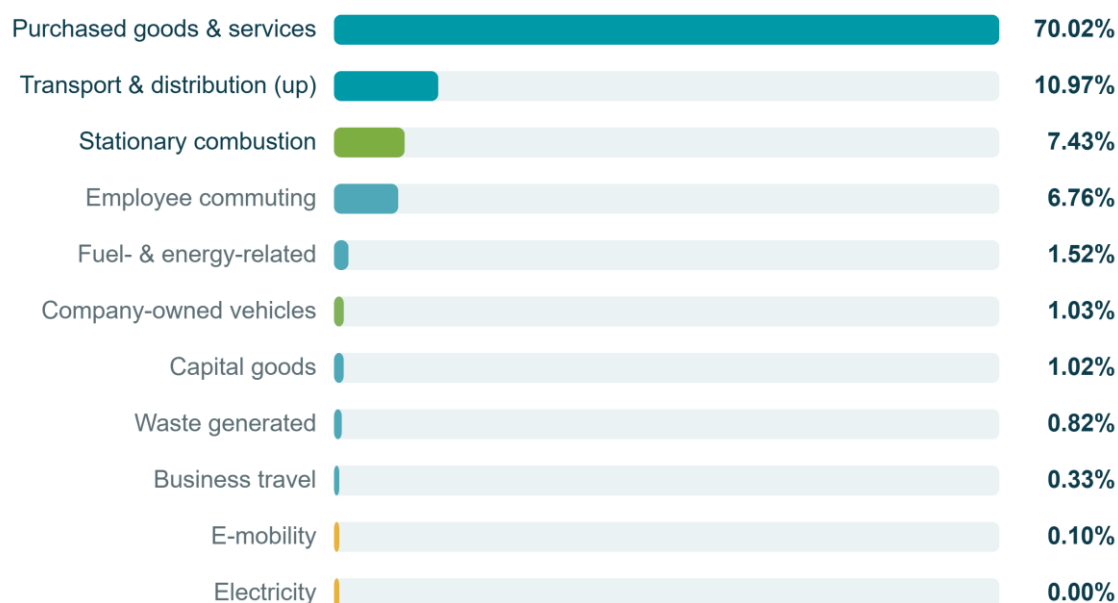


Figure 5: Share of the categories in total CO₂e emissions (2025)

Emission hotspots

This presentation (see Table 5 and Figure 5) clearly reveals the emission hotspots. The three identified emission hotspots account for 88.42% of total emissions.

1. Purchased goods and services (538.70 t CO₂e; 70.02%)
2. Transportation and distribution (upstream) (84.42 t CO₂e; 10.97%)
3. Stationary combustion (57.17 t CO₂e; 7.43%)

6.4 Detailed examination of the emission hotspots

Customer-specific data makes it possible to allocate the GHG emissions to subcategories in more detail. The emission hotspots are examined more closely below.

Breakdown of the emissions caused by purchased goods

The purchased goods were grouped and listed in Table 6 with the corresponding quantities and emissions. The overview shows that the purchased raw materials represent the largest share of emissions. Free-cutting steel contributes by far the most to emissions. Among the merchandise, most emissions continue to arise from steel merchandise. It should also be noted that the emission intensity (kg CO₂e/kg of material) of nylon is considerably higher than that of steel.

Breakdown	kg	t CO ₂ e
Raw material	158,940.30	325.11
Free-cutting steel	141,484.00	286.41
Stainless steel	7,762.00	38.32
Brass	9,694.30	0.38
Merchandise	84,490.00	192.24
Steel merchandise	75,702.51	153.24
Brass merchandise	2,108.15	12.05
Stainless steel merchandise	3,504.20	17.30
Zinc merchandise	3,117.00	9.10
Nylon merchandise	58.14	0.54
Packaging	10,036.03	15.42
Cardboard packaging	8,323.14	9.99
Film packaging	1,712.89	5.43
Oils	4,173.10	5.85
Total	257,639.43	538.61*

* The water supply (0.09 t CO₂e) is not included in this overview, but forms part of category 3.01 "Purchased goods and services" and thus of the total of 538.70 t CO₂e reported in Table 5.

Table 6: Emissions from purchased goods

Breakdown of the emissions caused by transportation and distribution

The emissions from transportation and distribution were divided into transport occurring upstream and downstream of the production process, that is, into the transport of raw materials from the supplier to RAMPA and the transport of finished products from RAMPA to the customer.

Methodologically, it should be noted here that the GHG Protocol does not understand upstream and downstream emissions in process terms but in monetary terms. The criterion is the purchase and sale of the service. Since the transport is not carried out by RAMPA but by contracted service providers, all these emissions belong to scope 3, upstream.

The transport occurring upstream and downstream of the production process was divided into legs, as individual sections were covered by different modes of transport. This breakdown is shown in Table 7. It is striking that in upstream transport the highest emissions are attributable to truck journeys. In the transport occurring downstream of the production process, the distances covered by truck likewise cause the highest emissions.

The transport emissions occurring downstream of the production process were differentiated by mode of transport and by delivery terms, to allocate responsibility for the emissions caused more accurately. In this context, RAMPA reported that the delivery term *ex works* means that the decision on the mode of transport and the costs is borne by the customer. Under the delivery term *free domicile*, the responsibility, the decision and the costs lie with RAMPA itself. In this case, therefore, only the emissions for *free domicile* were accounted for and reported as emissions in the overall result. It should be noted that part of the transport occurring downstream of the production process has already been offset through the choice of service providers. Methodologically, the emissions caused are nevertheless part of the inventory but would no longer need to be offset. This concerns the climate-neutral transport provided by GLS (0.10 t CO₂e). A corresponding certificate was presented to FORLIANCE.

In addition, RAMPA booked the sustainability services GoGreen and GoGreen Plus for its DHL shipments. According to the final CO₂e report of Deutsche Post AG / DHL Paket GmbH for the period January to December 2025 (EKP 5002581126, calculation logic confirmed by SGS, all values *Well-to-Wheel*), 1.88 t CO₂e were offset via GoGreen (offsetting) and 3.33 t CO₂e were reduced via GoGreen Plus through insetting in accordance with the Voluntary Market Based Measures Framework of the Smart Freight Centre (SFC); the reduction to be recognized amounted to 97% of CO₂e emissions in 2025. As both services were booked for the shipments from January to June, these figures overlap and must not be added together. In this inventory, the emissions from DHL shipping are reported gross at 3.46 t CO₂e, that is, without taking the insetting into account; after insetting, 0.13 t CO₂e remained according to the report. The SFC framework complements the GLEC Framework and ISO 14083 but is not part of the GHG Protocol; offsetting and insetting therefore do not reduce the gross inventory.

Breakdown	t CO ₂ e	Specification	t CO ₂ e
Upstream transport (Scope 3, upstream)	64.31	Truck >12t (excluding DB Schenker)	45.95
		DB Schenker truck	2.16
		DB Schenker air freight	13.85
		DB Schenker sea freight	2.35
Downstream transport (Scope 3, upstream)	20.11	Truck > 12t (excluding FedEx®)	13.34
		FedEx® air freight	0.47
		FedEx® truck	2.73
		DHL shipping	3.46
		GLS shipping (CO ₂ e offsetting)	0.10

Table 7: Emissions from transportation and distribution

Breakdown of the emissions caused by energy

The energy-related GHG emissions for the Büchen site are listed in Table 8.

Büchen	t CO ₂ e
Stationary combustion (scope 1)	57.17
Electricity (scope 2)	0.00
Energy-related emissions (scope 3)	9.44

Table 8: Emissions from energy consumption

7 DEVELOPMENT & ANALYSIS

This chapter serves to compare the previous inventory with the current one. The key changes are to be highlighted and examined more closely.

7.1 Development of emissions in comparison

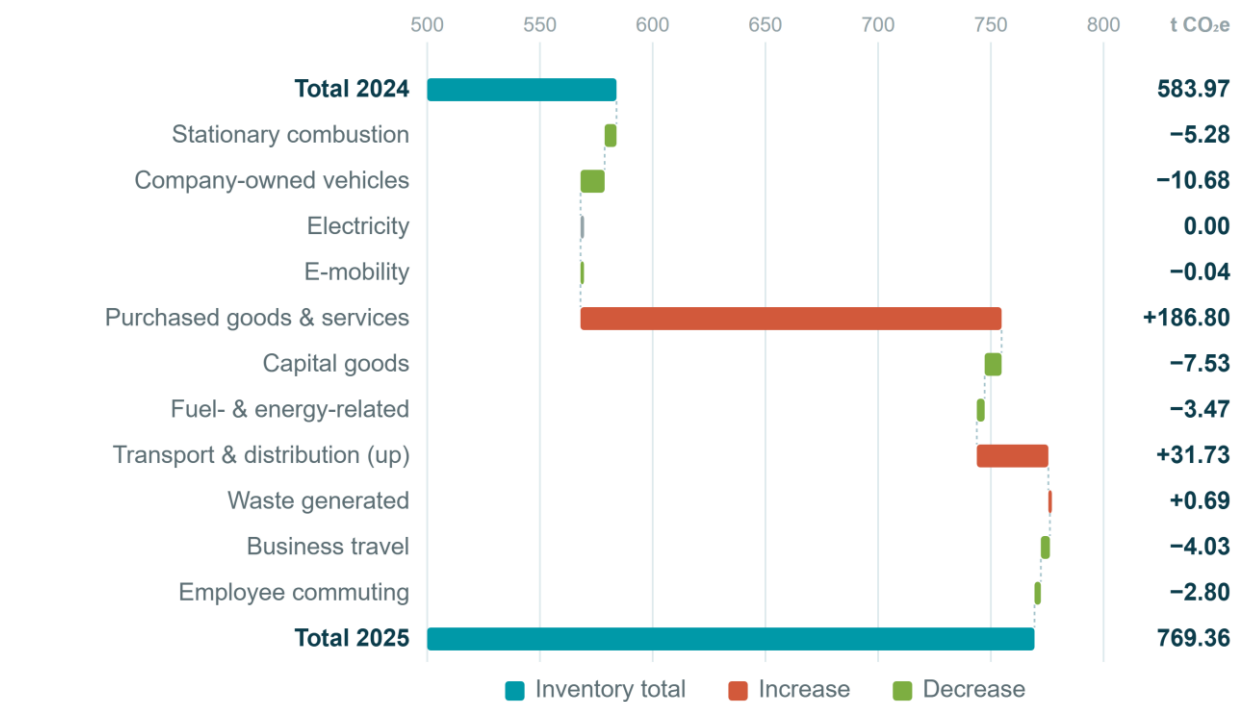
Compared with the previous year, total emissions increased by 31.74%. This is essentially attributable to a 40.11% rise in scope 3 emissions. This increase is observed above all in the categories purchased goods and services (+53.08%) and transportation and distribution (upstream) (+60.21%). Several categories, by contrast, declined, including capital goods (-48.87%), business travel (-61.53%) and fuel- and energy-related emissions (-22.88%). Scope 2 emissions fell slightly (-5.31%); scope 1 emissions fell by 19.70%.

The increase in emissions is essentially attributable to the following developments:

- Extension of production times: in 2025, manufacturing was increasingly supplemented by staggered shifts, weekend work and unmanned production times. These measures were already partly in place in 2024 but were used to a greater extent in 2025. The resulting increase in production output largely explains the higher purchasing volume of raw materials.
- A significantly higher purchasing and production volume, particularly for raw materials (including free-cutting steel, stainless steel and brass), the purchased quantities of which rose sharply compared with the previous year.
- Increased upstream transport volumes, particularly in truck transport for the procurement of goods.
- Working in the opposite direction were lower energy and fleet emissions as well as significantly lower emissions from business travel and capital goods.

	2024	2025	Development	
	t CO ₂ e	t CO ₂ e	t CO ₂ e	%
Total	583.97	769.36	185.38	31.74%
Scope 1	81.03	65.07	-15.96	-19.70%
Stationary combustion	62.45	57.17	-5.28	-8.45%
Company-owned vehicles	18.58	7.90	-10.68	-57.47%
Scope 2	0.84	0.80	-0.04	-5.31%
Electricity	0.00	0.00	0.00	
E-Mobility	0.84	0.80	-0.04	-5.31%
Scope 3	502.10	703.49	201.39	40.11%
Purchased goods and services	351.90	538.70	186.80	53.08%
Capital goods	15.40	7.88	-7.53	-48.87%
Fuel- and energy-related emissions	15.17	11.70	-3.47	-22.88%
Transportation and distribution (upstream)	52.69	84.42	31.73	60.21%
Waste generated in operations	5.61	6.30	0.69	12.34%
Business travel	6.56	2.52	-4.03	-61.53%
Employee commuting (incl. home office)	54.77	51.97	-2.80	-5.11%

Table 9: Development of emissions in comparison



Scale starts at 500 t CO₂e

Figure 6: Development of emissions in comparison

7.2 Analysis of the emission development

The increase in total emissions of 185.38 t CO₂e compared with the previous year can be allocated to the individual categories. The main increases came from purchased goods and services (+186.80 t CO₂e) and transportation and distribution (upstream) (+31.73 t CO₂e); waste generated rose slightly (+0.69 t CO₂e). Set against this were declines in almost all other categories: company-owned vehicles (-10.68 t CO₂e), capital goods (-7.53 t CO₂e), stationary combustion (-5.28 t CO₂e), business travel (-4.03 t CO₂e), fuel- and energy-related emissions (-3.47 t CO₂e), employee commuting (-2.80 t CO₂e) and e-mobility (-0.04 t CO₂e). The increase is thus almost entirely attributable to the purchasing and transport categories, while all energy- and mobility-related categories declined.

Development of energy-related emissions

The development of energy consumption in 2025 is shaped by two opposing effects. On the one hand, production time was extended (staggered shifts, weekend work and unmanned production), which significantly increased electricity demand (green electricity Büchen: +28.32%). As this is green electricity, additional consumption has no effect on scope 2 emissions under the market-based approach. On the other hand, natural gas consumption at the Büchen site fell by 8.48%: the longer production times meant that the production hall cooled down less, and the new heating system installed in the warehouse building at the end of 2024 took full effect in 2025. Emissions from stationary combustion fell almost correspondingly, by 8.45%. The 41.41% decline in emissions from the petrol-powered medium-sized car, despite a 33.34% higher mileage, is attributable to the replacement of the conventional petrol vehicle by a plug-in hybrid (emission factor 0.177 → 0.078 kg CO₂e/vkm; the factor for petrol itself remained virtually unchanged at 0.175 kg CO₂e/vkm).

The decline in e-mobility despite higher mileage is attributable to the updated emission factor for electric vehicles (DESNZ 2025, small battery electric car: 0.0394 → 0.0334 kg CO₂e/vkm, around –15%). The cause is the further decarbonization of the UK electricity mix, whose emission factor fell by 14.5% (0.207 → 0.177 kg CO₂e/kWh).

Breakdown	2024	2025	Development		
	Quantity	Quantity	Quantity	%	t CO ₂ e
Natural gas (Büchen, kWh)	341,428.00	312,459.00	-28,969.00	-8.48%	-8.45%
Green electricity (Büchen, kWh)	426,104.00	546,786.00	120,682.00	28.32%	
Fleet car - medium Diesel (vkm)	102,871.00	41,601.00	-61,270.00	-59.56%	-58.68%
Fleet car - medium petrol / from 2025 plug-in hybrid (vkm)	7,297.00	9,730.00	2,433.00	33.34%	-41.41%
E-mobility (vkm)	68,983.00*	78,439.00*	9,456.00	13.71%	-5.31%

*Kilometers that cause additional energy consumption outside the electricity consumption on the company premises

Table 10: Development of scope 1 and 2 consumption in comparison

Development of purchased goods and services

Emissions in the purchased goods and services category rose significantly compared with the previous year (+53.08%). This is primarily due to a higher purchasing volume, particularly for raw materials (including free-cutting steel, with an increase in quantity of around 255%).

Breakdown	2024	2025	Development		
	kg	kg	kg	%	t CO ₂ e
Raw material	48,455.00	158,940.30	110,485.30	228.02%	148.18%
Free-cutting steel	39,814.00	141,484.00	101,670.00	255.36%	241.03%
Stainless steel	4,127.00	7,762.00	3,635.00	88.08%	83.59%
Brass	4,514.00	9,694.30	5,180.30	114.76%	-98.56%
Merchandise	93,870.00	84,490.00	-9,380.00	-9.99%	-8.85%
Steel merchandise	87,800.00	75,702.51	-12,097.49	-13.78%	-17.26%
Brass merchandise	351.00	2,108.15	1,757.15	500.61%	493.14%
Stainless steel merchandise	3,283.00	3,504.20	221.20	6.74%	4.19%
Zinc merchandise	2,317.00	3,117.00	800.00	34.53%	53.03%
Nylon merchandise	119.00	58.14	-60.86	-51.14%	-51.14%
Packaging	3,727.85	10,036.03	6,308.18	169.22%	132.78%
Cardboard packaging	2,625.15	8,323.14	5,697.99	217.05%	218.58%
Film packaging	1,102.70	1,712.89	610.19	55.34%	55.72%
Oils	2,359.19	4,173.10	1,813.91	76.89%	76.89%
Total	148,412.04	257,639.43	109,227.39	73.60%	53.08%

Table 11: Development of purchased goods and services in comparison

The emission factors for purchased goods have largely remained stable or fallen slightly compared with the previous year (see Table 12). Only minor decreases were recorded for steel (–4.03%), stainless steel (–2.38%) and brass merchandise (–1.24%); nylon and oils remained unchanged. Slight increases are seen for zinc (+13.75%), cardboard (+0.48%) and plastic films (+0.24%).

The emission factor for brass (raw material) stands out clearly, having fallen by 99.33% from 5.790 to 0.039 kg CO₂e/kg. The reason for this is that the material is accounted for as 100% recycled brass from RAMPA's own shavings cycle (secondary material), the production of which has a considerably smaller CO₂e footprint than primary brass. This adjustment applies exclusively to the brass purchased as raw material – brass merchandise continues to be assessed using the factor for primary material, which explains the difference between the two items. By using secondary rather than primary brass, around 55.7 t CO₂e were avoided in 2025.

Without this effect, the Corporate Carbon Footprint would be approximately 825 t CO₂e, which would correspond to an increase of around 41% compared with 2024.

Overall, the changes in the emission factors – except for the recycled brass – are small. The marked increase in emissions in the purchased goods and services category is therefore predominantly attributable to the higher purchasing volume and not to changed emission factors.

Material	Product group	EF 2024	EF 2025	Deviation
		kg CO ₂ e/kg	kg CO ₂ e/kg	%
Free-cutting steel	Raw material	2.109	2.024	-4.03%
Stainless steel	Raw material	5.058	4.937	-2.38%
Brass	Raw material	5.790	0.039*	-99.33%
Steel	Merchandise	2.109	2.024	-4.03%
Brass	Merchandise	5.790	5.718	-1.24%
Stainless steel	Merchandise	5.058	4.937	-2.38%
Zinc (zinc die casting)	Merchandise	2.566	2.918	13.75%
Nylon (plastic)	Merchandise	9.304	9.304	0.00%
Cardboard	Cardboard packaging	1.194	1.200	0.48%
Plastic	Film packaging	3.165	3.172	0.24%
Oils	Oils	1.401	1.401	0.00%

** This brass is reprocessed material produced entirely from RAMPA's own shavings (100% recycled material). The recycling process does not take place at RAMPA but at a third-party provider: the shavings are delivered there, and the quantity is credited to an account held for RAMPA; for the next production run, the quantity required is debited from this account and processed. Because of this closed material cycle, the material is assessed as secondary material with a correspondingly lower emission factor.*

Table 12: Development of the emission factors in comparison

Development of transportation and distribution (upstream)

Compared with the previous year, the transport distances covered and the associated emissions have risen significantly. Upstream transport in particular – that is, transport for the procurement of goods – stands out, with emissions more than doubling year on year. Especially striking is the increase in air freight (DB Schenker) of 1,147.83% to 13.85 t CO₂e, which thus accounts for around one fifth of upstream transport emissions. As air freight is by far the most emission-intensive mode of transport, shifting to sea or land transport offers the greatest leverage here.

		2024	2025	Development		
		tkm	tkm	tkm	%	t CO ₂ e
Upstream	Truck > 12t (excluding DB Schenker)	63,368.03	126,377.51	63,009.48	99.43%	90.72%
	DB Schenker truck	*	*			87.28%
	DB Schenker air freight	*	*			1,147.83%
	DB Schenker sea freight	*	*			74.35%
Downstream	Truck > 12t (excluding FedEx®)	34,602.55	36,694.96	2,092.41	6.05%	1.41%
	FedEx® air freight	*	*			159.42%
	FedEx® truck	*	*			92.31%
	GLS shipping (CO ₂ e offsetting)	*	*			-98.96%
	DHL shipping	*	*			686.36%

*The WTW (Well-to-Wheel) emissions calculated by the carrier were used instead of calculating the tkms.

Table 13: Development of the transported tkms in comparison

Development of business travel

Emissions from business travel fell significantly compared with the previous year (-61.53%). The main reasons are the elimination of long-haul flights (> 3,700 km, -100%) and lower flight activity overall. Individual modes of transport developed in the opposite direction, particularly the distances covered by car (medium petrol and large diesel).

Breakdown	2024	2025	Development		
	Quantity	Quantity	Quantity	%	t CO ₂ e
Car - medium diesel (vkm)	3,696.00	2,169.80	-1,526.20	-41.29%	-40.01%
Car - medium petrol (vkm)	108.00	2,232.00	2,124.00	1.966.67%	1.937.29%
Car - small petrol (vkm)	283.00	301.00	18.00	6.36%	5.90%
Car - large diesel (vkm)	0.00	2,937.80	2,937.80		
Train long-distance (pkm)	4,141.00	3,413.00	-728.00	-17.58%	-17.58%
Taxi/Uber (pkm)	191.00	49.00	-142.00	-74.35%	-74.35%
Flights < 750 km per leg (pkm)	1,364.00	668.00	-696.00	-51.03%	-58.80%
Flights 750 – 3,700 km per leg (pkm)	6,304.00	3,503.00	-2,801.00	-44.43%	-61.79%
Flights > 3,700 km per leg (pkm)	15,611.00	0.00	-15,611.00	-100.00%	-100.00%
Hotel (no. of overnight stays)	16.00	37.00	21.00	131.25%	132.26%

Table 14: Development of the pkms and vkms traveled, and of the number of overnight stays, in comparison

8 CONCLUSION & OUTLOOK

The goal of RAMPA GmbH & Co. KG was to have its GHG emissions for 2025 accounted for and to compare them with those for 2024.

Under the market-based approach, the total greenhouse gases caused by the company in 2025 amount to 769.36 t CO₂e. This covers scopes 1, 2 and 3 emissions and corresponds to an overall increase in emissions of 31.74% compared with 2024. The main reasons are a higher purchasing and production volume, particularly for raw materials, and increased transport volumes. The driver of the higher volume was the extension of production times (staggered shifts, weekend work and unmanned production times), which were already partly in place in 2024 and were used to a greater extent in 2025. Working in the opposite direction were lower energy and fleet emissions.

Despite the absolute increase, significant efficiency gains were achieved in 2025: around 55.7 t CO₂e were avoided using secondary brass and around 233 t CO₂e through the procurement of green electricity. At 91.4%, most emissions is attributable to scope 3 – in particular to purchased goods and services (70.0%). Future decarbonization efforts should therefore focus primarily on the value chain. As regards data collection, this was carried out independently by RAMPA. FORLIANCE evaluated and processed the incoming data. Overall, the data quality is to be classified as good. The quality of the emission factors was assessed as high.

Process

RAMPA has now had a Corporate Carbon Footprint prepared for the sixth year in succession. This established process allows a direct comparison of the reporting years.

Recommendations

To sustain decarbonization efforts, FORLIANCE recommends:

- Focusing on scope 3 and the supply chain: involving the most important suppliers, collecting primary data (product-specific PCFs) and taking CO₂e criteria into account in purchasing.
- Expanding the use of secondary and recycled materials: the success of the recycled brass (saving around 55.7 t CO₂e) should be transferred to further materials such as steel and stainless steel.
- Covering the increased electricity demand from renewable sources: maintaining and expanding the procurement of green electricity and examining own generation (e.g. photovoltaics or a PPA) in view of the extended production times.
- Setting reduction targets: defining a base year and science-based targets (e.g. in accordance with SBTi), both as absolute targets and as intensity targets.
- Introducing intensity indicators (t CO₂e per quantity produced, per revenue or per employee) to assess growth and efficiency separately. Without such reference values it is difficult to put the absolute emissions into context; comparison with other companies is only possible to a limited extent owing to insufficient comparative data.
- Optimizing transport and logistics: in view of the increase of 60.2%, it is advisable to consolidate

shipments, shift to lower-emission modes of transport and select climate-friendly service providers.

- Continuing the annual accounting and reviewing material changes in emissions to identify trends at an early stage and derive options for intervention.
- Neutralizing currently unavoidable emissions through investments in high-quality climate protection projects, preferably those that remove carbon from the atmosphere in the long term.

9 ANNEX

Emission details

Scope	Emission source according to GHG Protocol	Own category	Specific	t CO ₂ e	%
Scope 1	1.01 Company-owned vehicles	Medium-sized car	Diesel	7.14	0.93%
Scope 1	1.01 Company-owned vehicles	Medium-sized car	Plug-in hybrid (petrol)	0.76	0.10%
Scope 1	1.02 Stationary combustion	Natural gas	Old building: direct	56.89	7.39%
Scope 1	1.02 Stationary combustion	Natural gas	New building: direct	0.28	0.04%
Scope 2	2.01 Electricity	Green electricity	New building: direct	0.00	0.00%
Scope 2	2.03 E-Mobility	Small car	Electric	0.80	0.10%
Scope 2	2.03 E-Mobility	Medium-sized car	Electric	0.00**	0.00%
Scope 3 (upstream)	3.01 Purchased goods and services	Free-cutting steel	Raw material	286.41	37.23%
Scope 3 (upstream)	3.01 Purchased goods and services	Stainless steel	Raw material	38.32	4.98%
Scope 3 (upstream)	3.01 Purchased goods and services	Brass	Raw material	0.38	0.05%
Scope 3 (upstream)	3.01 Purchased goods and services	Steel	Merchandise	153.24	19.92%
Scope 3 (upstream)	3.01 Purchased goods and services	Brass	Merchandise	12.05	1.57%
Scope 3 (upstream)	3.01 Purchased goods and services	Stainless steel	Merchandise	17.30	2.25%
Scope 3 (upstream)	3.01 Purchased goods and services	Zinc (zinc die casting)	Merchandise	9.10	1.18%
Scope 3 (upstream)	3.01 Purchased goods and services	Nylon (plastic)	Merchandise	0.54	0.07%
Scope 3 (upstream)	3.01 Purchased goods and services	Cardboard	Cardboard packaging	9.99	1.30%
Scope 3 (upstream)	3.01 Purchased goods and services	Plastic	Film packaging	5.43	0.71%
Scope 3 (upstream)	3.01 Purchased goods and services	Oils	Oils	5.85	0.76%
Scope 3 (upstream)	3.01 Purchased goods and services	Water supply		0.09	0.01%
Scope 3 (upstream)	3.02 Capital goods	Total		7.88	1.02%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Medium-sized car	Diesel	1.71	0.22%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Medium-sized car	Plug-in hybrid (petrol)	0.246	0.03%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Natural gas	Old building: indirect	9.39	1.22%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Natural gas	New building: indirect	0.05	0.01%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Green electricity	New building: indirect	0.00	0.00%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Small car	Electric	0.31	0.04%
Scope 3 (upstream)	3.03 Fuel- and energy-related emissions	Medium-sized car	Electric	0.00**	0.00%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Procurement transport	Truck >12 t general	45.95	5.97%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Procurement transport	Truck (kg CO ₂ e)	2.16	0.28%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Procurement transport	Air freight (kg CO ₂ e)	13.85	1.80%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Procurement transport	Sea freight (kg CO ₂ e)	2.35	0.31%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Distribution transport	DHL shipping	3.46	0.45%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Distribution transport	Truck >12t (excluding FedEx®)	13.34	1.73%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Distribution transport	GLS shipping (CO ₂ e offsetting)	0.10	0.01%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Distribution transport	FedEx® truck	2.73	0.35%
Scope 3 (upstream)	3.04 Transportation and distribution (upstream)	Distribution transport	FedEx® air freight	0.47	0.06%
Scope 3 (upstream)	3.05 Waste generated in operations	Water consumption		0.08	0.01%
Scope 3 (upstream)	3.05 Waste generated in operations	Residual waste		3.69	0.48%
Scope 3 (upstream)	3.05 Waste generated in operations	Waste paper		0.18	0.02%
Scope 3 (upstream)	3.05 Waste generated in operations	Plastics/yellow bag		2.35	0.31%
Scope 3 (upstream)	3.05 Waste generated in operations	Bio waste		0.00	0.00%
Scope 3 (upstream)	3.05 Waste generated in operations	Scrap metal		0.00*	0.00%
Scope 3 (upstream)	3.05 Waste generated in operations	Brass shavings		0.00*	0.00%
Scope 3 (upstream)	3.05 Waste generated in operations	Stainless steel scrap		0.00*	0.00%
Scope 3 (upstream)	3.05 Waste generated in operations	Steel shavings		0.00*	0.00%
Scope 3 (upstream)	3.06 Business travel	Small car	Petrol	0.04	0.01%
Scope 3 (upstream)	3.06 Business travel	Medium-sized car	Petrol	0.39	0.05%

Scope 3 (upstream)	3.06 Business travel	Medium-sized car	Diesel	0.37	0.05%
Scope 3 (upstream)	3.06 Business travel	Taxi		0.01	0.00%
Scope 3 (upstream)	3.06 Business travel	Train (long-distance)		0.02	0.00%
Scope 3 (upstream)	3.06 Business travel	Flights < 750 km		0.15	0.02%
Scope 3 (upstream)	3.06 Business travel	Flights 750 - 3,700 km		0.45	0.06%
Scope 3 (upstream)	3.06 Business travel	Executive car	Diesel	0.62	0.08%
Scope 3 (upstream)	3.06 Business travel	Overnight stays	Germany	0.46	0.06%
Scope 3 (upstream)	3.06 Business travel	Overnight stays	Switzerland	0.01	0.00%
Scope 3 (upstream)	3.07 Employee commuting	Home office - electricity mix DE	0.4397	0.30	0.04%
Scope 3 (upstream)	3.07 Employee commuting	Home office - green electricity	0.5603	0.00	0.00%
Scope 3 (upstream)	3.07 Employee commuting	Home office - heating		3.67	0.48%
Scope 3 (upstream)	3.07 Employee commuting	E-bike		0.05	0.01%
Scope 3 (upstream)	3.07 Employee commuting	Motorcycle		0.40	0.05%
Scope 3 (upstream)	3.07 Employee commuting	Public transport		1.44	0.19%
Scope 3 (upstream)	3.07 Employee commuting	Train (local transport)		0.56	0.07%
Scope 3 (upstream)	3.07 Employee commuting	Moped / scooter		0.30	0.04%
Scope 3 (upstream)	3.07 Employee commuting	Small car	Petrol	9.26	1.20%
Scope 3 (upstream)	3.07 Employee commuting	Medium-sized car	Diesel	12.68	1.65%
Scope 3 (upstream)	3.07 Employee commuting	Medium-sized car	Petrol	13.81	1.79%
Scope 3 (upstream)	3.07 Employee commuting	Small car	Diesel	0.91	0.12%
Scope 3 (upstream)	3.07 Employee commuting	Executive car	Diesel	3.52	0.46%
Scope 3 (upstream)	3.07 Employee commuting	Executive car	Petrol	5.02	0.65%
Scope 3 (upstream)	3.07 Employee commuting	E-scooter		0.05	0.01%
				769.36	100%

* Sent directly for recycling (via a service provider) and therefore causes no accounted disposal emissions.

** Charged with 100% green electricity at the Büchen site; therefore 0.00 t CO₂e under the market-based approach.

10 REFERENCES

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