



CARBON FOOTPRINT OF PRODUCTS

GREENHOUSE GAS EMISSIONS REPORT
BETWEEN 2022 AND 2023

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List of abbreviations

GHG – greenhouse gases

t CO₂e – tonnes of carbon dioxide equivalent

tkm – tonne-kilometer

KOBiZE – the National Centre for Emissions Management

LB – location-based method

MB – market-based method

DEFRA – Department for Environment, Food & Rural Affairs

ADEME – Agence de la transition ecologique

RES – renewable energy sources



Introduction

CARBON FOOTPRINT IS THE TOTAL SUM OF GREENHOUSE GAS EMISSIONS CAUSED DIRECTLY OR INDIRECTLY BY THE PRODUCTION OF A PRODUCT OR PROVISION OF A SERVICE.

Greenhouse gas emissions consist not only of emissions emitted by chimneys on factory premises, but also emissions associated with the production of utilities, raw materials or services purchased by companies, such as electricity, heat, main raw materials, auxiliary materials, semi-finished products or transportation services.

The greenhouse gases considered in the calculations are mainly carbon dioxide CO₂, methane CH₄ and nitrous oxide N₂O. The report also specifies the carbon content of the product. In addition to the numerical results, the report also points out unique aspects to consider when evaluating the impact of paper packaging on carbon emissions and the environment as a whole.

This report is a summary of the performance of calculations of GHG (greenhouse gas) emissions.

The calculations and report were prepared in accordance with the following standards:

- The Greenhouse Gas Protocol A Corporate Accounting and Reporting Standard Revised Edition.
- GHG Protocol Scope 2 Guidance.
- Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

01.

Organizational boundaries

THE ORGANIZATIONAL BOUNDARIES OF THE GHG EMISSION CALCULATIONS MADE INCLUDE THE ACTIVITIES OF DRUKPAK IN THE FULL RANGE OF PHYSICAL LOCATION AND ECONOMIC ACTIVITIES.

Carbon footprint analyses should identify a criterion for consolidating emission volumes at individual locations at the headquarters level.

! The criteria for consolidation are:

- operational control
- financial control
- capital department

The results were consolidated according to operational control at DrukPak, thus covering 100% of the gas emissions generated at the analyzed location.



02.

Operational boundaries

The carbon footprint calculations included direct emissions, indirect emissions – energy, and other indirect emissions from the activities listed above.

Operational boundaries of the performed calculations

Scope 2 indirect energy GHG emissions	Scope 1 direct GHG emissions	Scope 3 other indirect GHG emissions
Consumption of purchased electricity and purchased heat.	Combustion of gasoline, diesel, LPG in the company's own fleet, consumption of light fuel oil and also use of industrial gases.	Cat. 1. Purchased raw materials. Cat. 3. Energy and fuel-related emissions not included in Scope 1 and 2. Cat. 4. Upstream – transport and distribution. Cat. 5. Waste generated from operations. Cat. 6. Business travel. Cat. 9. Downstream – transport and distribution. Cat. 12. Dealing with sold products after use.

Greenhouse gas emissions



Scope 2
Indirect (energy) emissions
Emissions from heat or electricity generation

Scope 1
Direct emissions
Emissions from fuel combustion at the production facility

Scope 3
Other indirect emissions
Emissions related to the supply chain of goods and services



04. Methodology

THE INPUT DATA FOR THE CALCULATIONS WERE SOURCED FROM THE COMPANY'S INTERNAL RECORDS.

A summary of the data sources used was detailed in a dedicated tool for collecting and calculating the carbon footprint.

In carrying out the carbon footprint calculation for 2022-2023, the same unit of consumption was used as in the calculations for previous years

03. Reporting period

Periods for which GHG emissions were calculated

2022 **2023**

January 1, 2022
to
December 31, 2022

January 1, 2023
to
December 31, 2023

4.1 Fuels

Fuel consumption given in liters and tons was converted to consumption in GJ. The values in GJ were then multiplied by the corresponding emission indicators, yielding the result in t CO₂. In carrying out the carbon footprint calculation for 2022-2023, the same unit of consumption was used as in the calculations for previous years.

The Company generates thermal energy from its own boiler plants supplied with biogenic fuel (wood pellets).

The equipment also includes 3 EKOTERM fossil fuel (light fuel oil) boilers as a backup in case the pellet boilers fail. Heat consumption, given in GJ, was multiplied by the emission indicator, yielding the result in tCO₂. In carrying out the carbon footprint calculation for 2022-2023, the same unit of consumption was used as in the calculations for previous years.





4.2 Process gases

THE CALCULATION OF THE CARBON FOOTPRINT IN SCOPE 1 INCLUDES GHG EMISSIONS ASSOCIATED WITH PROCESS GASES USED IN THE PRODUCTION PHASE AND F-GASES USED IN REFRIGERATION EQUIPMENT

The gas quantities given were multiplied by the corresponding indicators obtained from conversions according to molar masses and volumetric CO₂ content (applies to gas mixtures with pure CO₂).

4.3 Purchased electricity

EMISSIONS RELATED TO ELECTRICITY CONSUMPTION WERE CALCULATED ACCORDING TO TWO METHODS: LOCATION-BASED AND MARKET-BASED.

1 Location-based method
is based on the country's average emission indicator, which illustrates the actual amount of emissions generated in a given region from the production of electricity purchased by the organization.

2 Market-based method
involves converting electricity consumption multiplied by emission indicators published by specific energy sellers, which illustrates the impact of a company's purchasing decisions on the size of its carbon footprint

Electricity consumption, given in MWh or kWh, was multiplied by the average emission indicator for Poland and emission indicators published by energy sellers.

The energy purchased during the studied period was not covered by the RES guarantee of origin.

If the purchased energy is covered by Guarantees of Origin, then the emission indicator is 0 tCO₂, regardless of the seller's published fuel mix.

4.4 Cat. 1 Purchased raw materials and services

IN TERMS OF 3 CATEGORY 1, EMISSIONS RELATED TO THE PRODUCTION OF GOODS AND SERVICES PURCHASED BY THE ORGANIZATION ARE INCLUDED.

The analysis covered purchased raw materials and manufacturing services, as well as materials and services for office operations.

Consumptions of raw materials were multiplied by their dedicated indicators from DEFRA, Agri footprint 5., Ecoinvent 3.8., ADEME databases, and raw material emissivity documents obtained from manufacturers disclosing their carbon footprint on their websites.

For combined products formed from several elements, e.g.: plank+matrix+patrix, an average indicator was developed using individual indicators with the assumption of an equal share of individual raw materials in the material/object/mixed tool.

The following assumptions were made for purchased services:



• **maintenance services**
– the number of ton-kilometers traveled by the serviceman was calculated and multiplied by a dedicated indicator from the DEFRA database,



• **laundry service**
- the consumption of utilities required for the process was calculated using the Product Environmental Footprint Category Rules (PEFCR) Tshirts document. Normal washing at 40° and the following energy consumption were assumed: 0.510 MJ/kg; water consumption: 11.11 l/kg; wastewater: 11.11 l/kg,



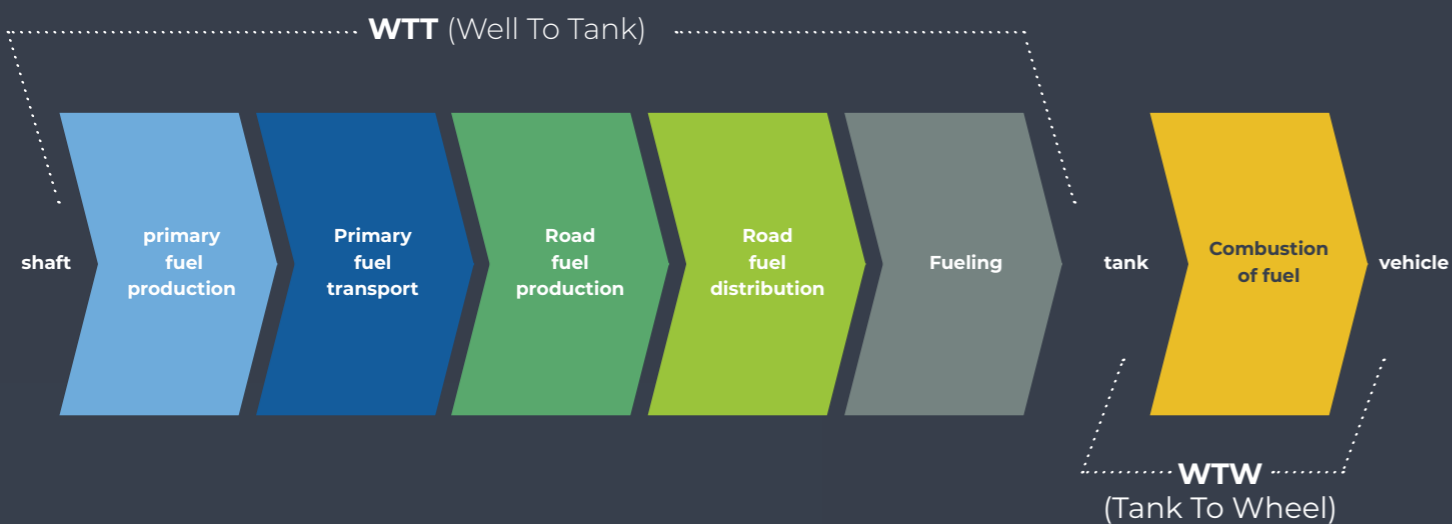
• **purchase of restorative meals** - the calculated number of meals was multiplied by a dedicated indicator from the ADEME database.

4.5

Cat. 3. Energy and fuel-related emissions not included in Scope 1 and 2

Scope 3 in Cat 3 includes WTT (Well to Tank) emissions, i.e., emissions generated at the stage of fuel production and fuels for electricity generation and emissions related to the generation of electricity lost during transmission and distribution. They are part of WTW (Well to Wheel) emissions, or emissions from production to consumption of fuel/energy.

Example of WTW emissions for fuels



The remainder of the WTW emissions are Tank to Wheel (TTW) emissions, which arise from the combustion of fuels at facilities used by the entity (Scope 1) or from the production of electricity purchased by the organization (Scope 2).

Fuel and energy consumption data reported in Scopes 1 and 2 were used for the calculations, which were then multiplied by indicators from the DEFRA database

4.6

Cat. 4. Upstream – transport and distribution

CATEGORY 4 INCLUDES THE CARBON FOOTPRINT OF THE SUPPLY OF PURCHASED RAW MATERIALS AND EMISSIONS RESULTING FROM THE PERFORMANCE OF TRANSPORTATION AND DISTRIBUTION SERVICES PURCHASED BY THE ORGANIZATION, SUCH AS TRANSPORTATION OF FINISHED PRODUCTS, THE COST OF WHICH IS BORNE BY THE ORGANIZATION.

The analysis applies only to third-party transports (own fleet fuel consumption is shown in Scope 1).

Emissions are calculated based on the mass transported and the distance traveled by mode of transport, according to one of the rules:

- Providing a summary of transports, where each line corresponds to a single transport – distance traveled with cargo and the weight of that cargo.
- Providing aggregate data on transports, i.e., total weight transported during the reported period and average distance along the route.
- Providing aggregate data on transports, i.e., average weight transported per route and total distance traveled in the reported year.

Using one of the above three rules allows to correctly calculate the transport work performed (ton-kilometers) and select an indicator appropriate to the tonnage and type of transport vehicle.

If you switch from road to sea or rail, or use any available mode of transportation, the calculation method is the same. The data acquired allowed the calculation of ton-kilometers traveled. The resulting ton-kilometers [tkm] were then multiplied by indicators from the DEFRA database.

4.7

Cat. 5. Waste generated from activities

The calculations include GHG emissions associated with the management of the resulting waste, subjected to various modes of transformation and management: recycling, disposal, landfilling or reuse.

The reported waste masses were grouped by type and management method; then the consumptions were multiplied by the corresponding emission indicators from the DEFRA database.



4.8

Cat. 6 Business travel

Included in Category 6 are business trips made by air, train, bus and non-business car (fuel consumption in business cars is reported in Scope 1).

Calculations were made on the basis of statements showing the number of kilometers traveled by various means of transportation, obtaining data in the unit of passenger-kilometer.

Dedicated emission indicators from the DEFRA database were used to calculate the carbon footprint of this category.



4.9

Cat. 9 Downstream – transport and distribution

Category 9 takes into account transports of finished products carried out by external companies or customers, the cost of which is not covered by the reporting organization.

For each transport, the number of tonne-kilometers [tkm] traveled was calculated, and then emissions were calculated by multiplying the tonne-kilometer numbers by the dedicated emission indicators from the DEFRA database.

4.10

Cat. 12. Dealing with sold products after their end of life

Category 12. Applies to dealing with sold products after their end of life.

For the products sold, recycling was adopted as the recommended method of handling post-consumer waste.

The mass of products produced was converted by a dedicated indicator from the DEFRA database.



4.11

Biogenic emissions – outside the scopes

BIOGENIC MATERIALS, WHICH INCLUDE PELLETS, BIOMASS, BIOFUELS AND BIOGAS, ARE INCREASINGLY BEING USED IN ENERGY PRODUCTION.

At DrukPak, pellets are the main fuel for heat generation.

According to GHG Protocol, energy production using biogenic materials is much less carbon intensive compared to conventional feedstocks. This is due to a shortened (closed) carbon cycle – the biomass consumed is generated in a natural cycle, and the CO₂ emissions themselves are of biogenic rather than fossil origin.

Therefore, CO₂ emissions from biomass combustion are calculated outside the scopes. The reported amount of pellets consumed was multiplied by the emission indicator derived from the DEFRA database.

05.

Emission indicators and conversion rates

THE FOLLOWING ARE SOURCES OF EMISSION INDICATORS WITH FULL NAMES AND LINKS (IF THE DATA IS PUBLICLY AVAILABLE).

For gasoline, diesel, LPG and light fuel oil, respective documents were used:

- Calorific values (WO) and CO emission indicators in 2021 for reporting under the Emissions Trading Scheme for 2023.
- Documents available at: <https://www.kobize.pl/pl/article/komunikaty/id/2523/wartosci-opalowe-wo-i-wskazniki-emisji-co2-we-w-roku-2021-do-raportowania-w-ramach-systemu-handlu-uprawnieniami-do-emisji-za-rok-2024r>.
- The emission indicator for pure CO₂ equals the consumption value. Consumption in kilograms was converted to tons.
- The emission indicator for a mixture with CO₂ (18%) – Ar 82% was calculated using a constant conversion rate according to molar masses and volumetric CO₂ content.
- The emission indicator for pellets and the biogenic emission indicator for pellets come from the DEFRA database (indicators to be updated annually).
- For waste, transports, WTT emissions and some raw materials, the DEFRA database was used. Indicators are available for waste in the "Waste disposal" sheet,

for transports in the "Freighting goods" sheet, for WTT emissions in the "WTT fuels" and "WTT-UK & overseas elec" sheets, for raw materials in the "Material use" sheet. DEFRA databases are available at: <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>.

- For some of the raw materials purchased, the Ecoinvent 3.8 database was used.
- For meals and shoes, the ADEME base was used. Available at the link: <https://bilans-ges.ademe.fr/en/accueil/authentication>
- For other raw materials, documents from manufacturers and information from the following websites were used:
 - www.afera.com/technical-centre/sustainability;
 - <https://www.klebstoffe.com/die-welt-des-klebens/nachhaltigkeit-umwelt/product-carbon-footprint.html>;
 - https://ec.europa.eu/environment/eussd/smgp/pdf/PEFCR_tshirt.pdf
- The emission indicator for purchased heat is not applicable to DrukPak, due to in-house heat generation for the entire plant.
- The indicators for electricity from a particular seller (market-based method) come from the website of the energy seller in question.

The average emission indicator for electricity in Poland was calculated on the basis of data contained in the document "Emission indicators of CO₂, SO₂, NO_x, CO and total dust for electricity on the basis of information contained in the National database on emissions of greenhouse gases and other substances for 2022".

Documents available at: <https://www.kobize.pl/pl/article/aktualnosci-2022/id/2229/nowe-wskazniki-emisyjnosc-dla-energii-elektrycznej>.

The indicator has been converted to comply with the requirements of GHG Protocol.

The following conversions were made:

Emission indicators for electricity produced in Poland for 2022, published in December 2023 (used in calculations for 2022 and 2023).

The volume of electricity production reported from fuel combustion plants in reports to the National Base for 2022 amounted to **144 443 114 MWh**.

In the case of the analysis to determine the emission indicators for electricity at end-users, the balance of electricity, expressed in MWh, in 2022 was as follows:

- | | | | |
|--|---|--|---|
| • amount of electricity produced in combustion plants:
144 443 114 | • amount of electricity produced from water
2 815 000 | • amount of electricity produced from wind and other RES:
27 602 000 | • balance sheet losses and differences:
– 8 811 000 |
|--|---|--|---|

The balanced amount of electricity at end users was: **166 049 114 MWh**

CO₂ emissions: 113 799 238 201 kg CO₂

$$HV = \frac{(113\,799\,238\,201 \text{ kg CO}_2)}{(144\,443\,114 + 2\,815\,000 + 27\,602\,000 \text{ MWh})} = 685,33 \text{ kg CO}_2/\text{MWh}$$

06.

Results and commentary

CALCULATIONS WERE MADE FOR SCOPE 1, 2 AND 3 ACCORDING TO TWO METHODS: LOCATION-BASED (LB) AND MARKET-BASED (MB).

For the location-based method, electricity consumption was multiplied by the average emission indicator for Poland. In contrast, the market-based calculation multiplied energy consumption by the emission indicator published by the energy seller.

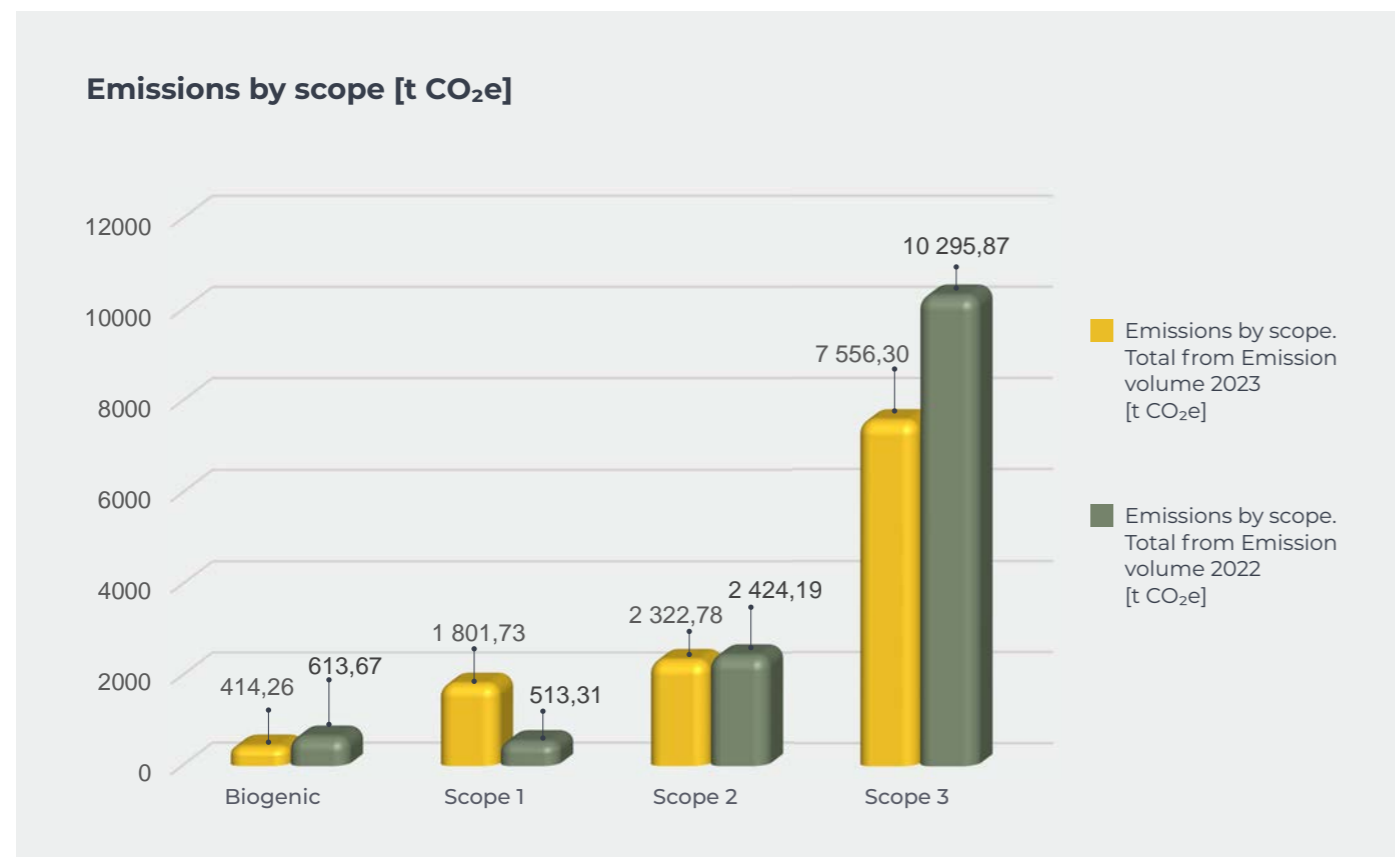
Biogenic emissions were also recorded as a result of pellet combustion at DrukPak, amounting to 414.26346 t CO₂e

07. Results of CO₂ emissions calculations for 2022-2023

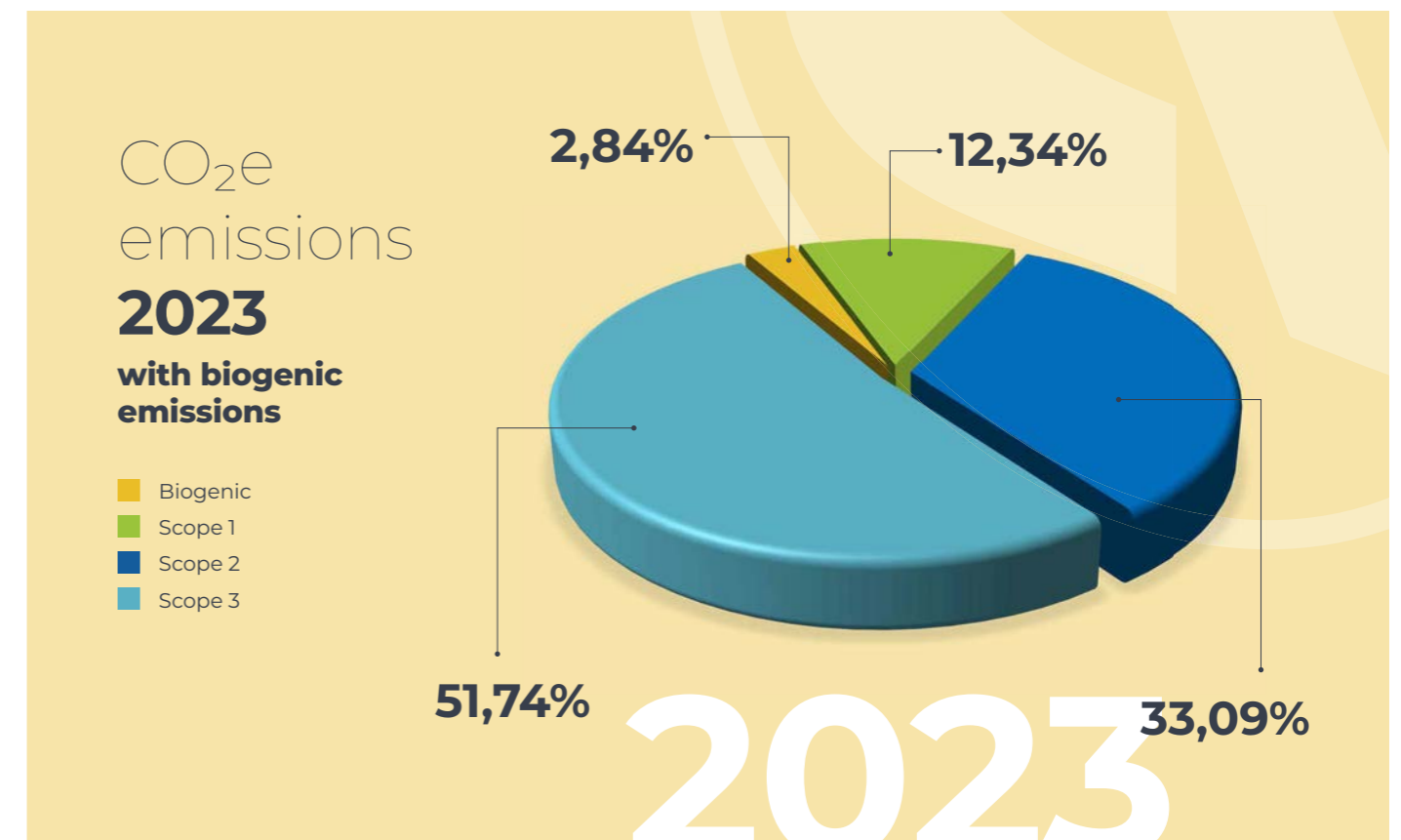
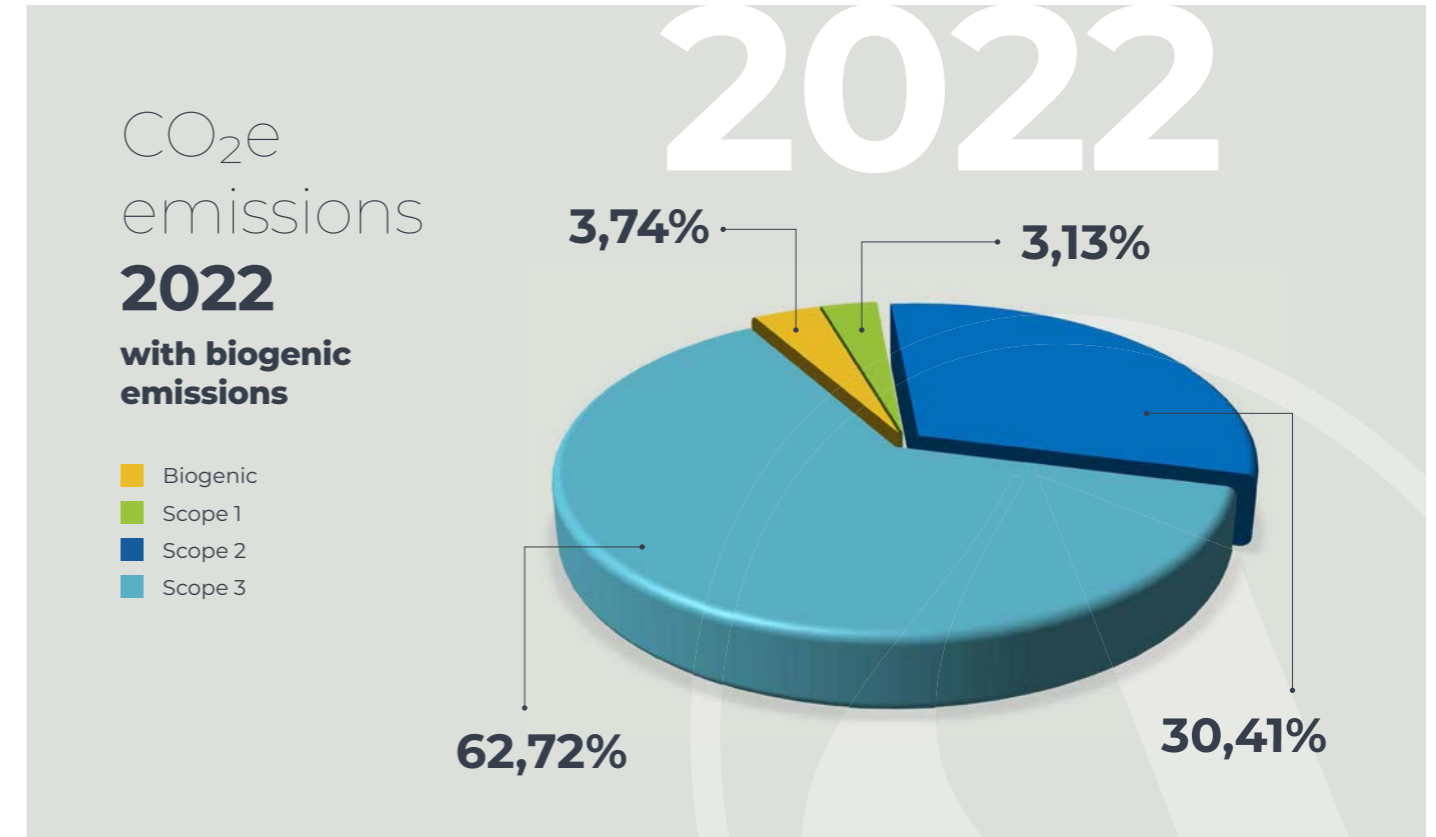
7.1 Carbon footprint – emissions by scope with biogenic emissions

Emissions by scope

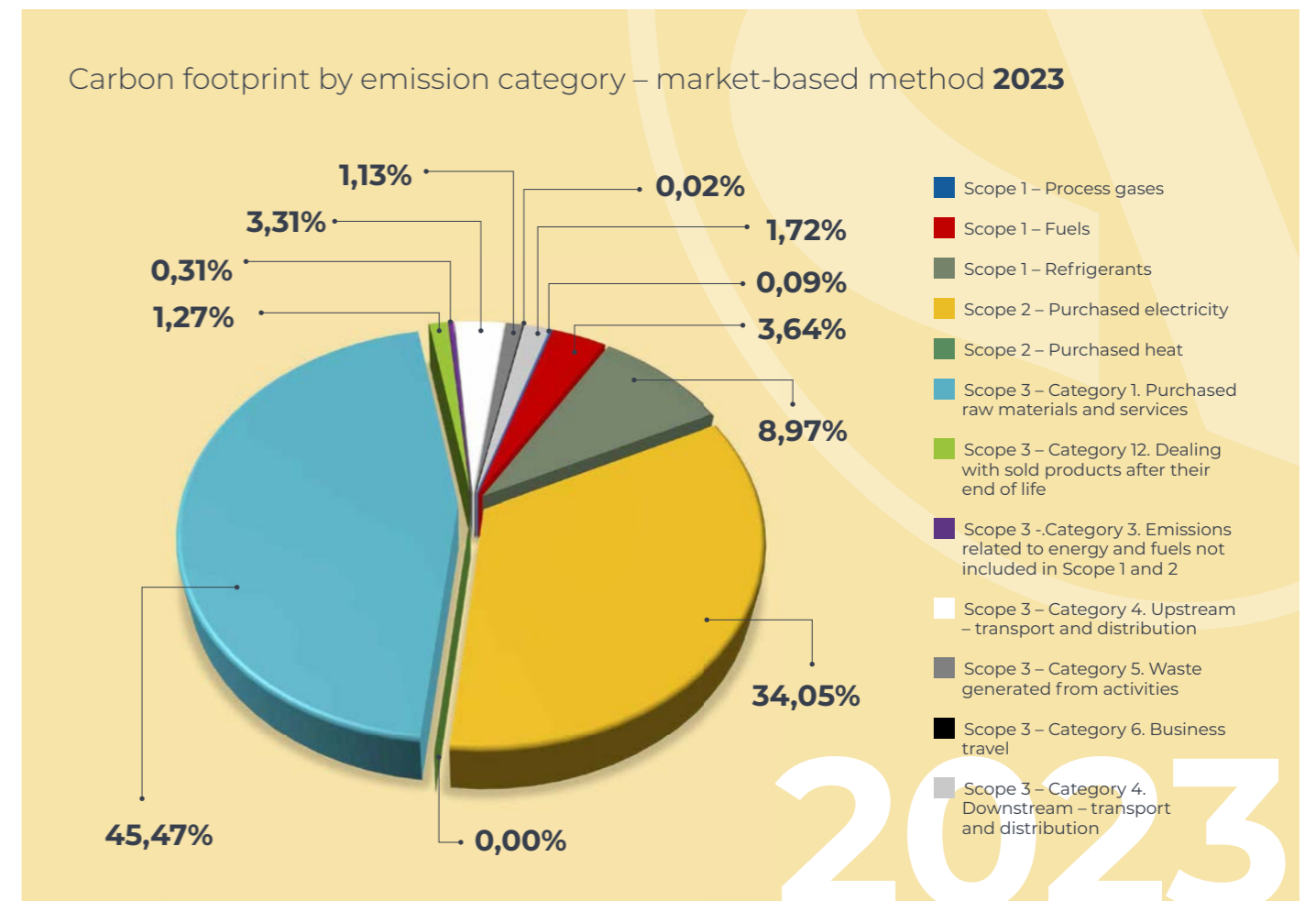
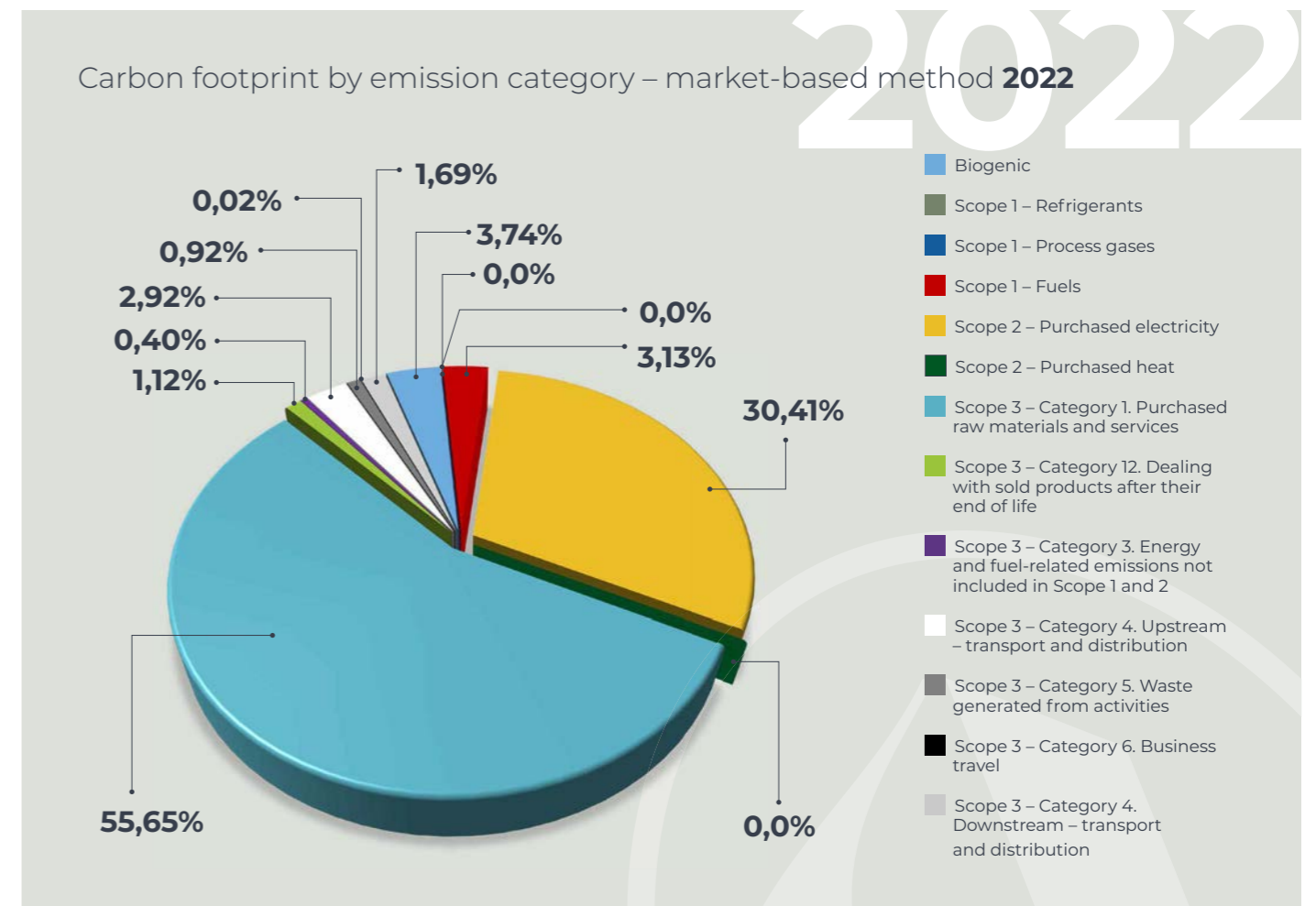
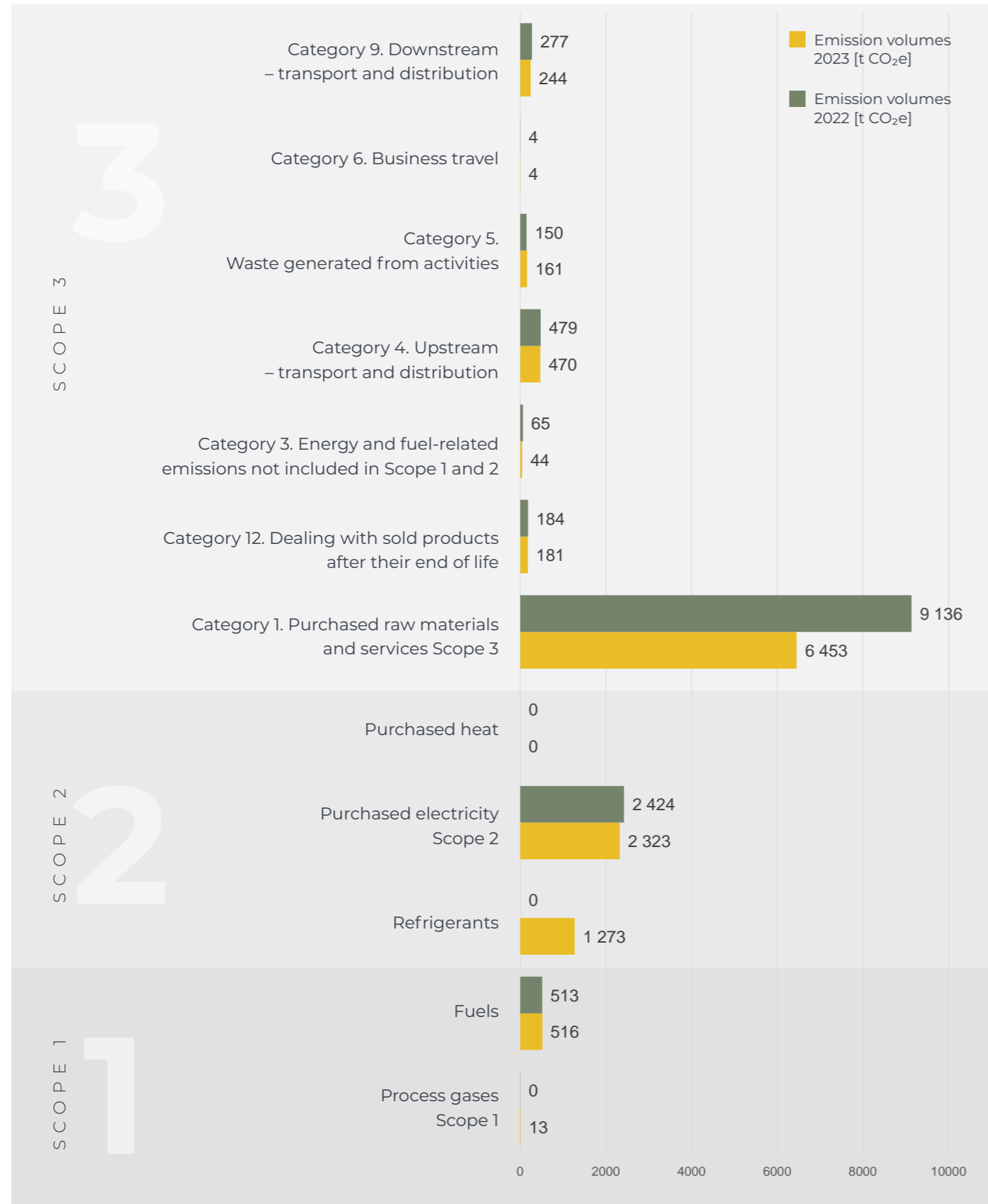
Line labels	Total from Emission volume 2023 [t CO ₂ e]	Total from Emission volume 2022 [t CO ₂ e]
Biogenic	414,26	613,67
Scope 1	1801,73	513,31
Scope 2	2322,78	2424,19
Scope 3	7556,30	10295,87



Percentage share of scopes in total CO₂ emissions



7.2 Carbon footprint by emission category – market-based method



7.3 Carbon footprint – location-based method

Electricity-related emissions calculated using Poland's average emission indicator

Line labels	Total from Emission volume 2023 [t CO ₂ e]	Total from Emission volume 2022 [t CO ₂ e]
Scope 1	1801,73	513,31
Scope 2	2509,63	2568,50
Scope 3	7556,30	10295,87
End total	11867,67	13377,68

Emissions by scope [t CO₂e]

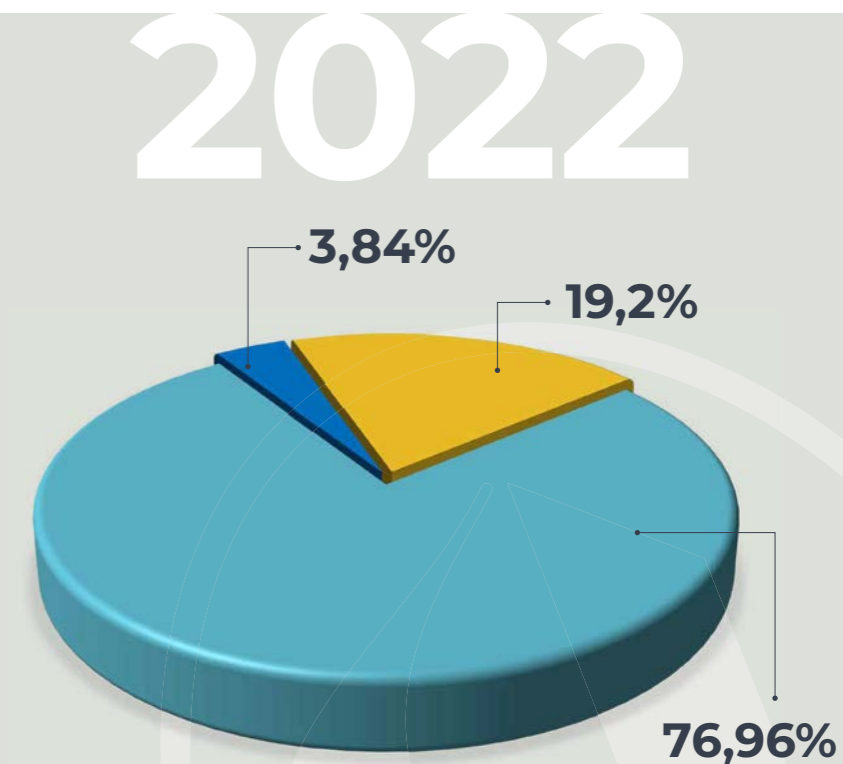


Percentage share of scopes (location-based) in CO₂ emissions

Carbon footprint – location-based method

Electricity-related emissions calculated using energy seller-specific emission indicator **2022**

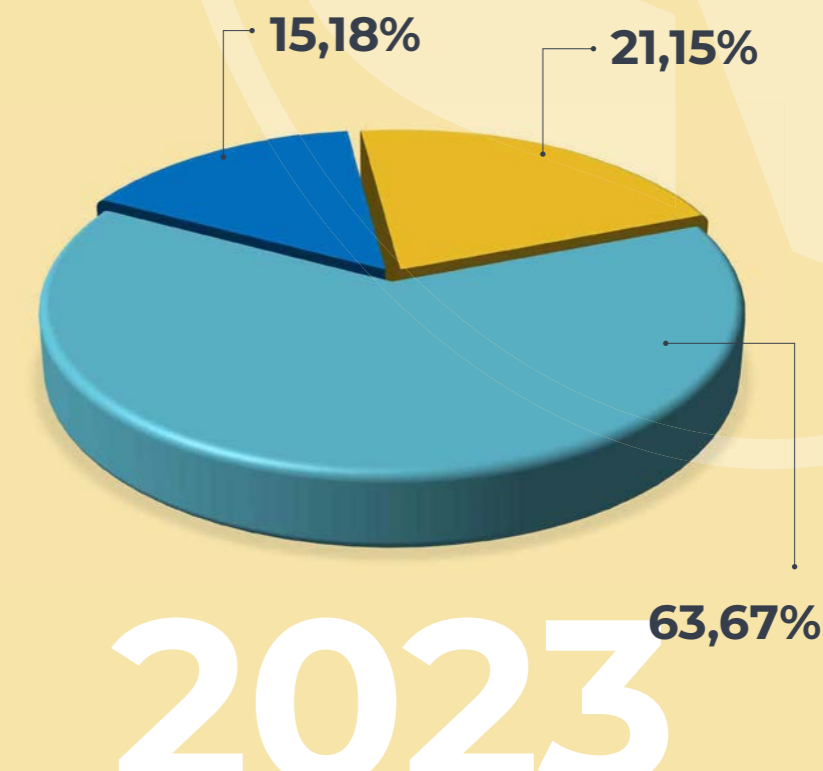
- Scope 1
- Scope 2
- Scope 3



Carbon footprint – location-based method

Electricity-related emissions calculated using energy seller-specific emission indicator **2023**

- Scope 1
- Scope 2
- Scope 3

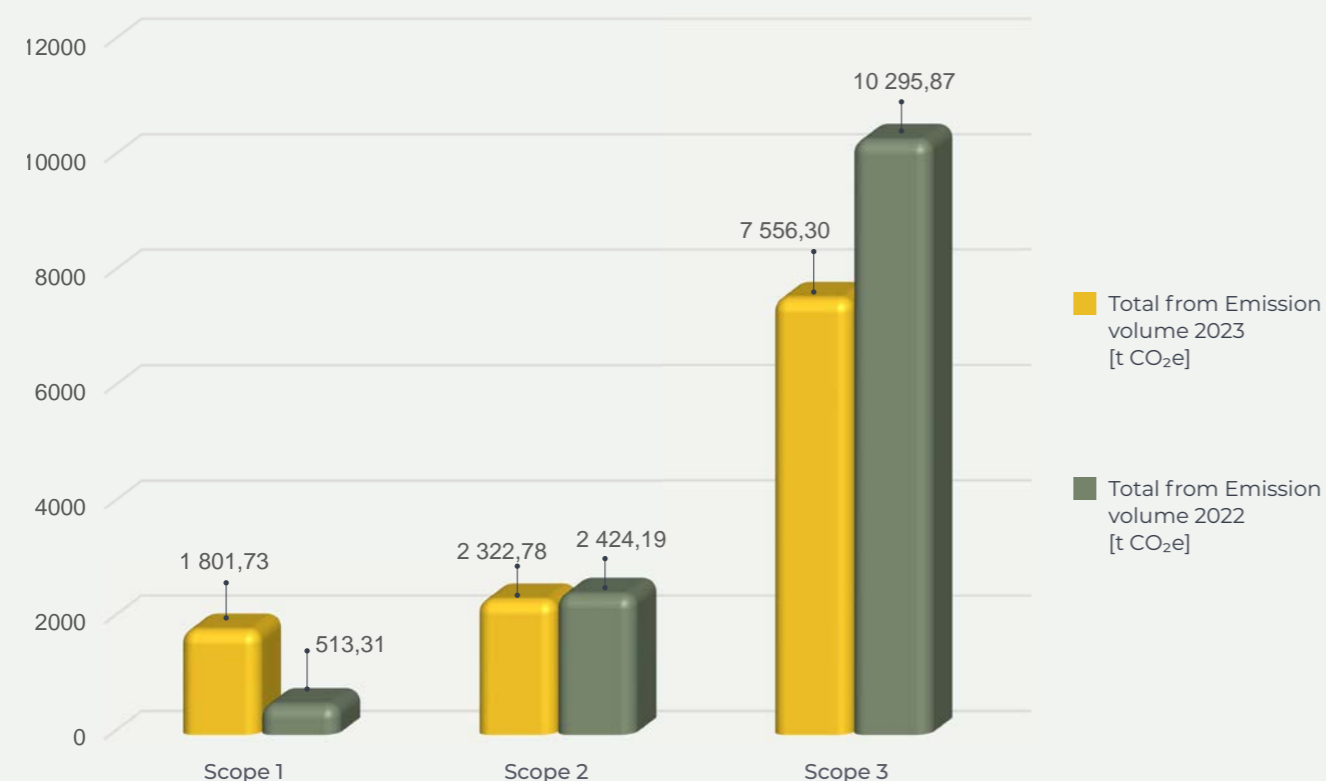


7.4 Carbon footprint – market-based method

Emissions by scope

Line labels	Total from Emission volume 2023 [t CO ₂ e]	Total from Emission volume 2022 [t CO ₂ e]
Scope 1	1801,73	513,31
Scope 2	2322,78	2424,19
Scope 3	7556,30	10295,87
End total	11680,81	13233,37

Electricity-related emissions calculated using energy seller-specific emission indicator

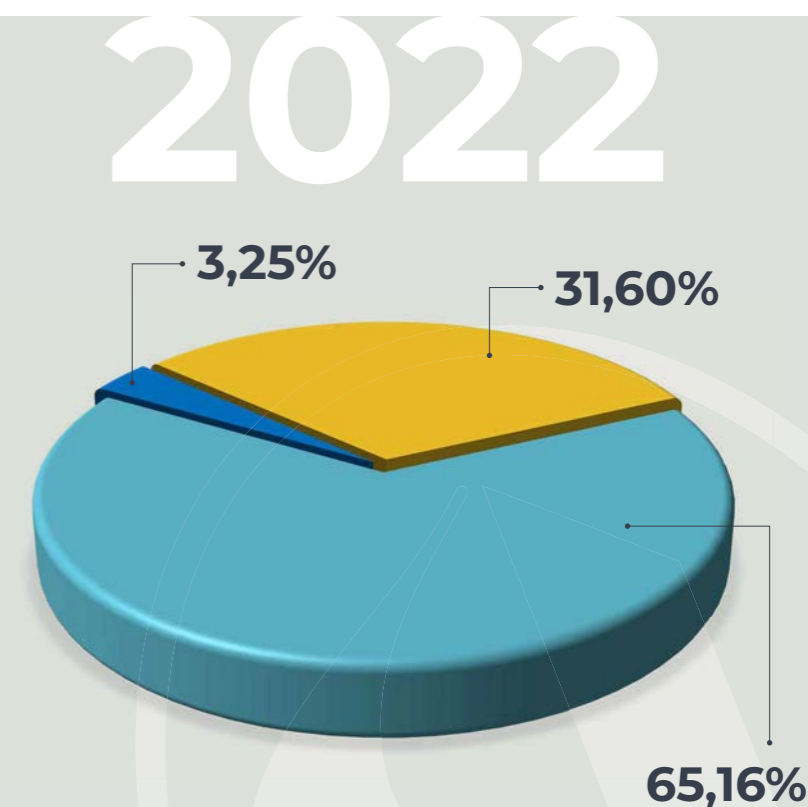


Percentage share of scopes (market-based) in CO₂ emissions

Carbon footprint – market-based method

Electricity-related emissions calculated using energy seller-specific emission indicator **2022**

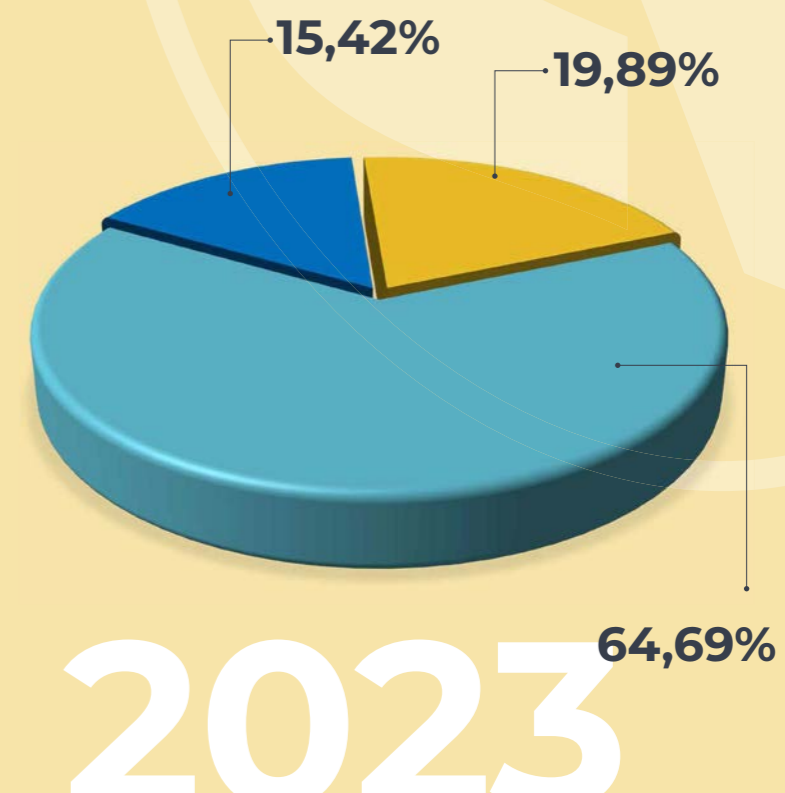
- Scope 1
- Scope 2
- Scope 3



Carbon footprint – location-based method

Electricity-related emissions calculated using energy seller-specific emission indicator **2023**

- Scope 1
- Scope 2
- Scope 3





08. Product carbon footprint – overview

THE REPORT ON THE CARBON FOOTPRINT OF ALL PRODUCTS WAS COMPILED BASED ON THE LATEST AVAILABLE DATA FROM 2023.

Analyzing the size of carbon footprint of products on the basis of the latest data allows us to determine the carbon footprint of the solutions used and make changes that will minimize the company's overall environmental impact.

Product carbon footprint calculations were performed in accordance with the GHG Protocol Product Life Cycle Accounting and Reporting Standard.

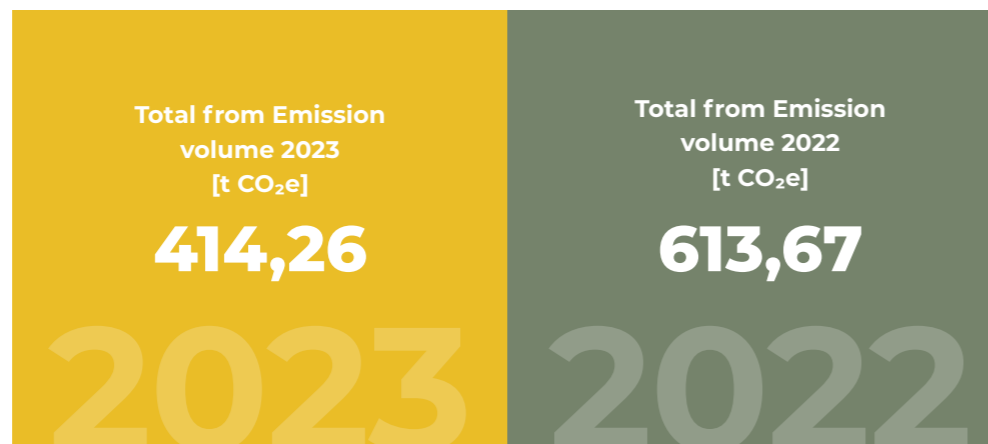
Studies that only cover GHG emissions have the limitation of being able to ignore potential trade-offs and mutual benefits between different aspects of environmental impact. Therefore, the results of a study based only on GHG emissions calculations should not be used to communicate the overall environmental performance of a product.

7.5 Biogenic emissions – outside the scopes

Biogenic emissions at DrukPak arise from pellet combustion (fuel for CH and DHW) in the amount of 414.26346 t CO₂e in 2023 and 613.6684217 t CO₂e in 2022

The biomass consumed is generated in a natural cycle, and the CO₂ emissions themselves are of biogenic rather than fossil origin. Therefore, CO₂ emissions from biomass combustion are calculated outside the scopes.

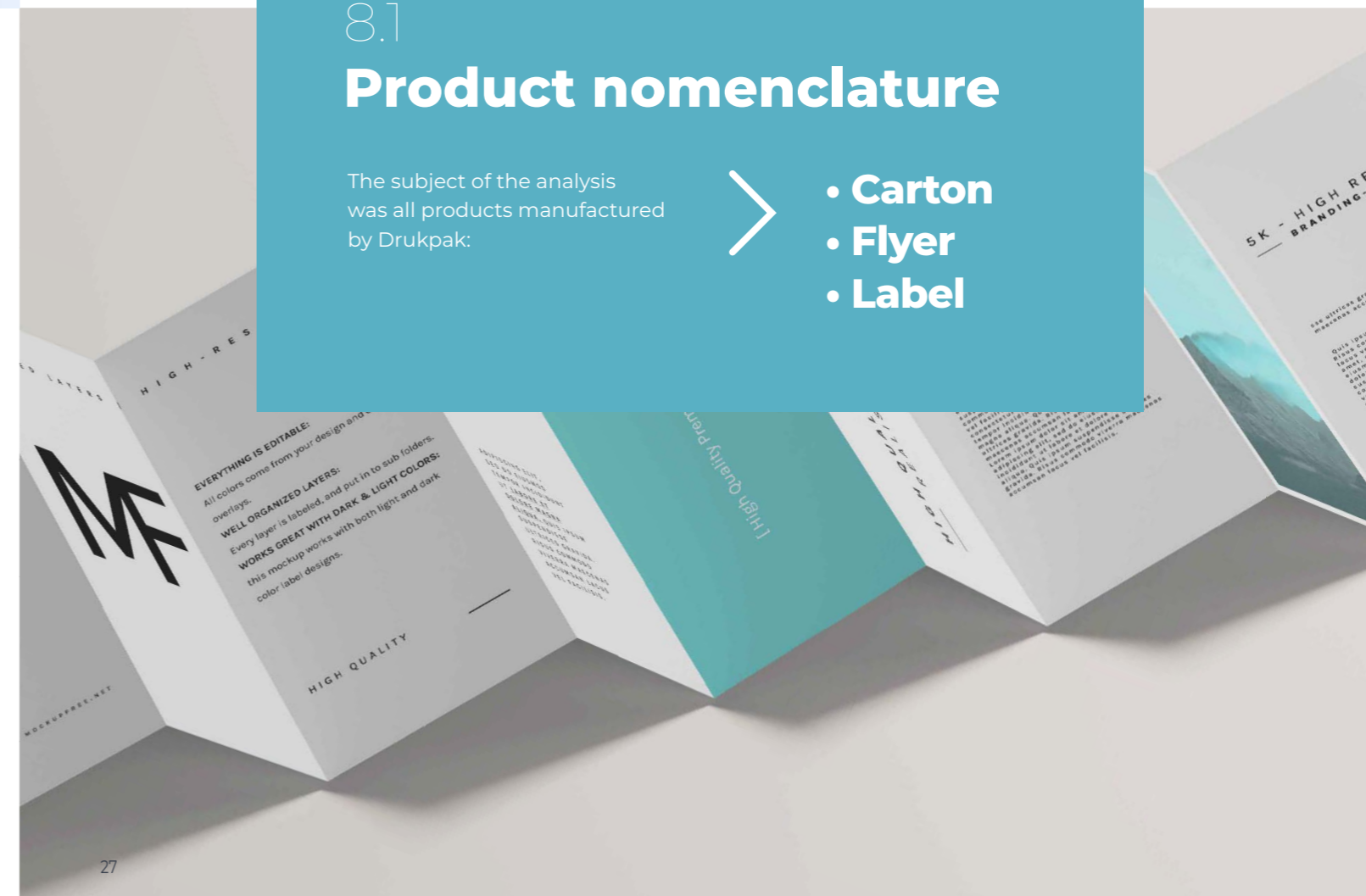
Biogenic emissions – out of scope. Reported out of scope as additional information



8.1 Product nomenclature

The subject of the analysis was all products manufactured by Drukpak:

- Carton
- Flyer
- Label



8.2 Unit of analysis and reference flow

1 kg of finished product was taken as the functional unit.
The reference flow is 1 kg of final product, and the calculated emissions at each stage of the analyzed life cycle were related to it.

In addition to GHG emissions arising directly from the life cycle of the products studied, the analysis also included emissions arising from the electricity generation and industry used in the process, as well as the production of fuels (Well-To-Tank emissions).

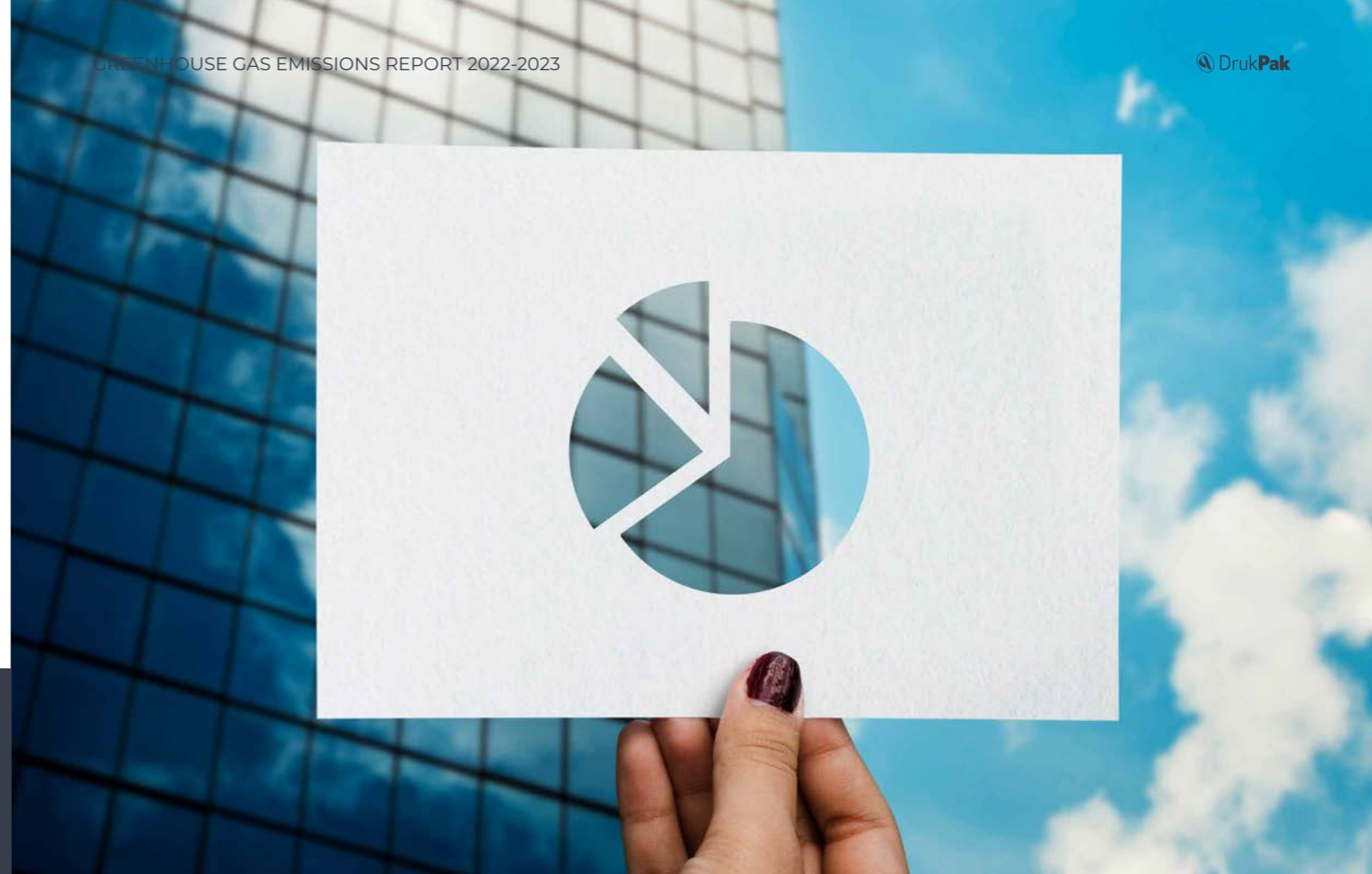
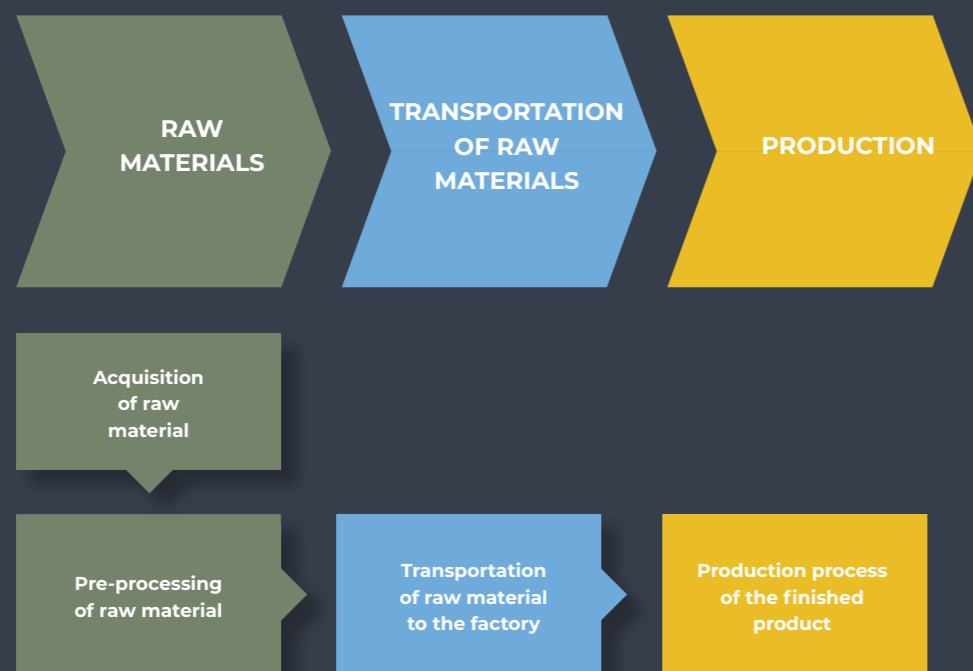
In addition, GHG emissions accompanying the processing of waste generated by the Company's operations and the treatment of consumed tap water were calculated.

8.3 Zakres obliczeń dla produktów

The study was conducted on a cradle-to-gate basis – the calculated carbon footprint scopes from the extraction of raw materials to the creation of the finished product.

The following life cycle stages were included in the analysis:

- Extraction and pre-processing of raw material – emissions generated during the extraction of raw material and its pre-processing.
- Transportation of raw material – emissions generated during transportation of purchased raw material to the production facility.
- Production process – direct emissions generated during processing and emissions related to the electricity used.



8.4 Allocation

ALLOCATION REFERS TO THE ATTRIBUTION OF GREENHOUSE GAS EMISSIONS GENERATED IN A UNIT PRODUCTION PROCESS TO THE PRODUCTS OF THE PROCESS.

It was conducted on a mass basis for each product. In the production phase, DrukPak consumes water, electricity and heat; plant waste is also generated as a result of the performed processes.

The number of tons of finished products was used to allocate consumptions to individual products, and the consumptions were presented in relation to 1 ton of finished product.

Consumptions for the production and administrative parts was allocated on an area basis, assuming that 92.12% of consumption comes from the production process while the remaining 7.88% is generated during administrative activities.

8.5 Data and data sources

The data used in the study came from the Company's internal electronic register "drupaczek", "radius" and from purchase invoices.

8.6 Emission indicators and conversion rates

The following are sources of emission indicators with names and links (if publicly available).

- For LPG, the KOBIZE document Heating Values (HV) and CO₂ Emission Indicators (EI) in 2021 was used for reporting under the Emission Trading Scheme for 2024. <https://www.kobize.pl/pl/article/komunikaty/id/2523/wartosci-opalowe-wo-i-wskazniki-emisji-co2-we-w-roku-2021-do-raportowania-w-ramach-systemu-handlu-uprawnieniami-do-emisji-za-rok-2024r>
- For part of raw materials, transport, tap water, waste and WTT emissions for fuel, electricity, DEFRA UK

Greenhouse gas reporting: conversion factors 2021 database was used – GOV.UK www.gov.uk

- The indicators for electricity from a particular seller come from the website of the energy seller in question.
- GHG emission indicators for other purchased raw materials are from databases:
 - **Ecoinvent 3.8.**
 - <https://www.afera.com/technical-centre/sustainability/>
 - <https://www.klebstoffe.com/die-welt-des-klebens/nachhaltigkeit-umwelt/productcarbon-footprint.html>



09. Results and commentary

CARBON FOOTPRINT CALCULATIONS WERE PERFORMED FOR ALL PRODUCTS MANUFACTURED AT DRUKPAK, ON A CRADLE-TO-GATE BASIS.

The largest share of the carbon footprint of the products analyzed is accounted for by emissions from the acquisition and pre-processing of raw materials. They range from 34.1% to 49.7% of total product lifecycle emissions. The differences are due to the type and quantity of raw materials used. Between 0.747 t CO₂e and 1.548 tCO₂e per ton of product is emitted into the atmosphere during the extraction and pre-processing stages. The emission indicators used are from the Ecoinvent database.

The second most emissive stage in the life cycle of the products analyzed is the production stage. Emissions from this stage range from 27.9% to 39.5% of total emissions. This is largely due to the reported volumes of utilities consumed. The emission indicator for electricity comes from information published by energy supplier PGE Obrót.

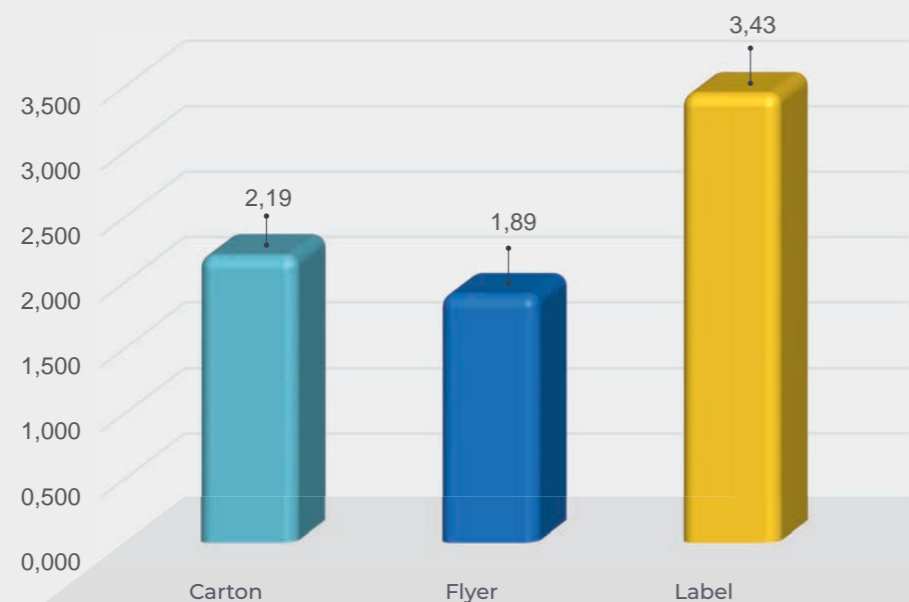
The stage of transporting raw materials to the factory accounts for the smallest share of total emissions is between 19.3% and 27% of total emissions. The input data used to calculate the emissions resulting from the transportation stage are estimates derived from the annual production volume at the factories and averaged data on the mode of transportation, its payload, the weight of the cargo transported and the distance.

The emission indicators used in the calculations are from the DEFRA (Department for Environment, Food & Rural Affairs) database and may differ from the actual emission indicators for transporting raw materials to the indicator.

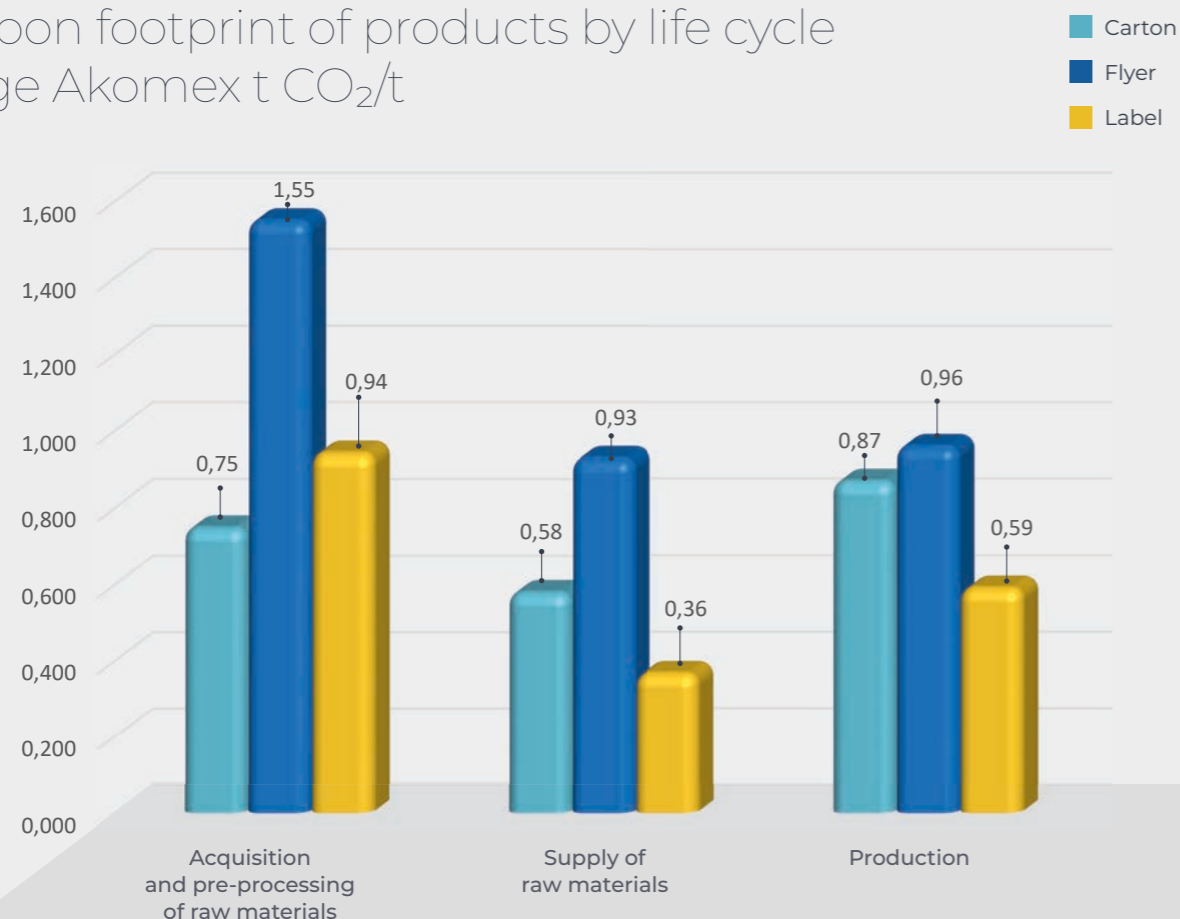


The charts below show the carbon footprint of each product. There were no biogenic emissions in the analysis conducted.

Carbon footprint of the product [t CO₂e/t of product]



Carbon footprint of products by life cycle stage Akomex t CO₂/t



9.1 Carton

CARTON IS THE PRIMARY PRODUCT MANUFACTURED AT DRUKPAK.

The carbon footprint of one ton of finished product was **2,192 t CO₂e**.

Carbon footprint of 1 ton of carton

Life cycle stage	Carbon footprint of products [t CO ₂ e/t]	Percentage of stages
Raw materials	0,747	34,1%
Emissions from transportation of raw materials	0,578	26,4%
Produkcja, w tym:	0,867	39,5%
Zużycie mediów	0,732	84,4%
Materiały opakowaniowe	0,125	14,4%
Odpady produkcyjne	0,011	1,21%

9.2 Flyer

The carbon footprint of one ton of finished product (leaflets) was **1,893 t CO₂e**.

The percentage of emissions arising in the subsequent stages of the life cycle is shown in the table below.

Carbon footprint of 1 ton of leaflet

Life cycle stage	Carbon footprint of products [t CO ₂ e/t]	Percentage of stages
Raw materials	0,940	49,7%
Emissions from transportation of raw materials	0,365	19,3%
Produkcja, w tym:	0,588	31,1%
Zużycie mediów	0,496	84,4%
Materiały opakowaniowe	0,085	14,4%
Odpady produkcyjne	0,007	1,2%

9.3 Label

The carbon footprint of one ton of finished product (label) was **1,893 t CO₂e**.

The percentage of emissions arising in the subsequent stages of the life cycle is shown in the table below.

Carbon footprint of 1 ton of label

Life cycle stage	Carbon footprint of products [t CO ₂ e/t]	Percentage of stages
Raw materials	1,548	45,1%
Emissions from transportation of raw materials	0,927	27,0%
Produkcja, w tym:	0,958	27,9%
Zużycie mediów	0,808	84,4%
Materiały opakowaniowe	0,138	14,4%
Odpady produkcyjne	0,012	1,2%

10.

Reduction activities

ALL PAPER AND CARDBOARD PRODUCTS HAVE TWO UNIQUE POSITIVE CHARACTERISTICS:

- They are based on a renewable raw material – wood. Wood binds CO₂ during the growth phase.
- They store carbon, and by recycling paper and cardboard products, CO₂ is retained and not released back into the atmosphere

Planned measures to reduce CO₂ emissions

<p>PURPOSE > Reduce carbon footprint emissions by approximately 5% (Scope 3) compared to 2023 i.e. 0.001 tCO₂e.</p> <p>TASK > Carry out lighting maintenance to keep the installation in working order and reduce waste 16 02 13* whose recovery / disposal generates a carbon footprint of 0.013 tCO₂e/t.</p> <p>TIMING > 2024</p>	<p>PURPOSE > Reduce carbon footprint (scope 2) by approximately 141.15 tCO₂e/ year</p> <p>TASK > Perform a PV installation and obtain power in the range of 370-400 kW from RES.</p> <p>TIMING > 2025-2027</p>
<p>PURPOSE > Reduce the consumption of electricity sourced from external suppliers, generated from the combustion of fossil fuels, by generating 720 MWh of electricity from internal plant.</p> <p>TASK > <ul style="list-style-type: none"> • Perform a PV installation with a capacity in the range of 370-400 kW, allowing to generate about 720 MWh of electricity per year from RES. • Modify lighting by installing temporary light switches in passageways, sanitary facilities, etc., which will reduce energy consumption. </p> <p>TIMING > 2025-2027</p>	



10.1 Initiatives to support carbon footprint reduction goal

- **Reduce the use of fossil fuels for thermal energy generation** (CH and DHW) by using wood pellets in the company's boiler room.
- **Reduce electricity consumption** by replacing energy-intensive appliances with energy-efficient ones.
- **Engage in dialogue with suppliers** as part of efforts to reduce environmental footprint.
- **Optimize transportation of finished goods and eliminate the so-called "empty kilometers"** by planning the delivery of goods taking into account the location of deliveries, the size of cargo, the size of cargo spaces of cars, the possibility of using double deck trailers, i.e. 66 instead of 33 Euro pallets in a trailer, optimizing transport routes.
- **Use DrukPak fleet cars with low emissions of substances harmful** to human health and the environment, including carbon dioxide (CO₂), nitrogen oxide (NO_x), sulfur oxide (SO_x), hydrocarbon (HC), particulate matter (PM), carbon monoxide (CO), and other organic and inorganic compounds.
- **Ensure high efficiency of CH and DHW infrastructure**, ventilation, air conditioning and building infrastructure through regular inspections and maintenance.



11.

Declaration and expectations

TO SUPPORT GLOBAL EFFORTS TO COMBAT CLIMATE CHANGE, DRUKPAK IS TAKING STEPS TO REDUCE ITS OWN GREENHOUSE GAS EMISSIONS AND ENCOURAGING ITS BUSINESS PARTNERS TO DO THE SAME.

We are implementing measures to reduce greenhouse gas emissions, aiming to achieve climate neutrality in terms of carbon footprint in 2030.

The actions taken are measurable and verifiable, so we have counted the CO₂e emissions resulting from our operations, which is evaluated and updated annually, along with determining further improvement actions.

We also present the above insights to our qualified suppliers, believing that a responsible supply chain is the key to effectively provide customers with quality products manufactured from the best quality materials, while supporting current and future generations, who should live in a sustainable world with environmental and social considerations. Through shared values, open communication and clearly established principles, we aim to ensure sustainable development.

We trust that the intended goals will be achieved by strengthening cooperation with our suppliers and customers, for whom sustainability issues are of equally high value.

What we expect from suppliers:

- Information on the product's carbon footprint, given in kg or Mg CO₂e per kg or Mg of product purchased, calculated in accordance with the GHG Protokol Product Standard or ISO 14067:2018.
- Product carbon footprint reduction plan.



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