CANPACK

Carbon Footprint Calculation Methodology

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1. INTRODUCTION

1.1. CANPACK Group description

CANPACK Group operates in the packaging market for almost 30 years. The first production line was launched in the beverage can plant in Brzesko (Poland). As a result of continuous investment CANPACK develops in terms of geographic and product expansion. The present organizational structure reflects the on-going processes within the Group. Dynamic development of particular aspects of our business activities requires development of a target structure based on different branches of production: aluminium cans (main product), steel cans, bottle closures, glass packaging and recycling.

In the last years CANPACK Group has achieved spectacular growth in Europe, Asia, America and Africa evolving into a modern Capital Group with a Headquarters located in Cracow (Poland) and is now one of the leading manufacturers of metal packaging in the world.

1.2. Aim of the assessment

We recognize that climate change is a global challenge that requires taking direct actions to mitigate its effects. Our responsibility as a global organization is to manage and reduce our corporate carbon footprint, therefore we have decided to perform carbon footprint calculation according to the most recognized standards as described below.

2. Methodological references

The corporate carbon footprint analysis is based on the following standards:

- World Resources Institute and World Business Council for Sustainable Development, Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard REVISED EDITION, March 2004,
- World Resources Institute and World Business Council for Sustainable Development, GHG Protocol Scope 2 Guidance. An amendment to the GHG Protocol Corporate Standard, 2015,
- World Resources Institute and World Business Council for Sustainable Development, Greenhouse Gas Protocol. Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Supplement to the GHG Protocol Corporate Accounting and Reporting Standard, September 2011,

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- ISO/TR 14069:2013 Greenhouse gases - Quantification and reporting of greenhouse gas emissions for organizations - Guidance for the application of ISO 14064-1.
- Additionally for operational boundaries and recycled content determination we have taken into consideration:
- European Commission, PEFCR Guidance document, - Guidance for the development of Product Environmental Footprint Category Rules (PEFCRs), version 6.3, May 2018.
- European Commission, PEFCR for Beer, FINAL version, June 2018.

3. Emission factors

3.1. Sources of emission factors:

- Defra's Conversion Factors 2021.
- Ecoinvent 3.8 (emission factors are taken as per system model “Allocation, cut-off by classification”. The allocation is based on physical, economic, mass or other properties. No by-products are included, assuming they’re all recycled. Indicators of so-called "markets" in this approach include all activities in a proportion appropriate to the volume of production.).
- Factors published by energy suppliers, governments and other authorities.
- D.A. Turner, Greenhouse gas emission factors for recycling of source-segregated waste materials, Resources, Conservation and Recycling 105/2015.
- ThyssenKrupp Rasselstein, Environmental product declaration for tin coated steel (tinplate), 2013.
- Aluminium supplier specific emission factors if said suppliers provide them.

3.2. Hierarchy of emission factor selection:

1. Supplier specific, based on primary data, if emission factor of sufficient quality is available
2. Globally recognized database.
3. Up-to-date.
4. The degree of adaptation to our situation.

5. Geographical reference:
   a. country specific
   b. regional
   c. global

4. Uncertainty and data quality

Uncertainty is applied for emission factors, input data and final results according to GHG Protocol - qualitative analysis, using the Pedigree Matrix (scope 3 methodology).

The criteria to evaluate the data quality indicators of activity data and emission factors:

Score	Technology	Time	Geography	Completeness	Reliability
Very good	Data generated using the same technology	Data with less than 3 years of difference	Data from the same area	Data from all relevant sites over an adequate time period to even out normal fluctuations	Verified data based on measurements
Good	Data generated using a similar but different technology	Data with less than 6 years of difference	Data from a similar area	Data from more than 50 percent of sites for an adequate time period to even out normal fluctuations	Verified data partly based on assumptions or non-verified data based on measurements

Score	Technology	Time	Geography	Completeness	Reliability
Fair	Data generated using a different technology	Data with less than 10 years of difference	Data from a different area	Data from less than 50 percent of sites for an adequate time period to even out normal fluctuations or more than 50 percent of sites but for a shorter time period	Non-verified data partly based on assumptions, or a qualified estimate (e.g., by a sector expert)
Poor	Data where technology is unknown	Data with more than 10 years of difference or the age of the data are unknown	Data from an area that is unknown	Data from less than 50 percent of sites for shorter time period or representativeness is unknown	Non-qualified estimate

5. Assessment boundaries and other details

5.1. Organizational boundaries

The organizational boundaries are determined with 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).

As recommended for operational control approach (appendix F to the GHG Protocol Corporate Accounting and Reporting Standard – Revised Edition) emissions from leased assets associated with fuel combustion and using refrigerant gases are included in scope 1 and with use of purchased electricity are included in scope 2.

The operational control approach is chosen based on the following benefits:

- provides the company with the most complete carbon audit for reporting emissions (completeness of reporting was priority),
- enables the company to track performance - managers can be held accountable for activities under their control,
- the company has better access to operational data and therefore, better able to ensure that the information meets minimum quality standards when reporting on the basis of this control,
- it has the advantage that the company takes full ownership of all the GHG emissions that it can directly influence and reduce.

List of production sites/facilities/entities covered by organizational boundaries:

CANPACK Beverage Can Division:

- CANPACK, Brzesko, Poland
- CANPACK, Bydgoszcz, Poland
- CANPACK Finland, Hämeenlinna, Finland
- CANPACK Ukraine, Vyshgorod, Ukraine
- CANPACK Romania, Bucharest, Romania
- CANPACK Middle East, Dubai, UAE
- CANPACK UK, Scunthorpe, UK
- CANPACK India, Aurangabad, India
- CANPACK India, Nuh, India
- CANPACK Russia, Volokolamsk, Russia
- CANPACK Russia, Novocherkassk, Russia
- CANPACK Morocco, Casablanca, Morocco
- CANPACK Brazil, Maracanau (Fortaleza), Brazil
- CANPACK Brazil, Itumbiara, Brazil
- CANPACK Netherlands, Helmond, Netherlands
- CANPACK Czech Republic, Stribro, Czech Republic

Facility Can Asia Inc. in Mandaluyong in Philippines is excluded from because the economic interest held by CANPACK S.A. is lower than 50% - which means no operational control.

Offices:

- CANPACK Russia, Moscow, Russia
- CANPACK, Cracow, Poland

CANPACK Glass Division:

- CP GLASS S.A., Orzesze, Poland
- CANPACK India, Aurangabad, India

CANPACK Metal Closures Division:

- CANPACK Metal Closures, Tarnów, Poland
- CANPACK Yavoriv, Yavoriv, Ukraine
- CANPACK Slovakia, Kosice, Slovakia
- Kamoko, Modrice, Czech Republic
- Tapon France, St. Marcel, France

CANPACK Food & Industrial Packaging Division:

- CANPACK FIP, Brzesko, Poland
- CANPACK FIP, Dębica, Poland

Recycling Division:

- CANPACK Recycling
- CANPACK Recycling Romania

6. Reporting period and external verification.

Activity data (primary data) have been collected for period of 01.01.2021-31.12.2021.

7. Operational boundaries

The analysis is carried out for all relevant categories of the scope 1 and 2 and for the following categories of the scope 3:

- Purchased goods & services
- Capital goods
- Fuel- and energy-related activities
- Upstream transportation & distribution
- Waste generated in operations
- Business travel – category added in 2020 carbon footprint assessment
- Employee commuting
- Upstream leased assets – category added in 2020 carbon footprint assessment
- Downstream Transportation and Distribution – category added in 2020 carbon footprint assessment
- Processing of sold products – there are no significant emissions related with processing of sold products.
- Use of sold products – there are no emissions related with use of sold products.
- End-of-Life Treatment of Products – emission related with that category are included in emission factors for purchased goods such as aluminium, steel and glass cullet. Emissions related with other waste disposal methods are considered not material.
- Downstream Leased Assets – category added in 2020 carbon footprint assessment
- Franchises – category added in 2020 carbon footprint assessment
- Investments – category will be considered to be added in 2022 carbon footprint assessment. We estimate that this category is not relevant even if added to the inventory.

Summary of categories included and excluded from the analysis:

SCOPE	GHG Emission or removal categories	Emissions quantified	Reasons for categories not quantified or partially quantified
SCOPE 1	Direct Emissions from Stationary Combustion	yes	
	Direct Emissions from Mobile Combustion	yes	
	Direct Emissions from Process Sources	yes	
	Direct Emissions from Fugitive Sources	yes	
	Direct Emissions from Agricultural Sources	yes	no agricultural sources
SCOPE 2	Indirect Emissions from Purchased/Acquired Electricity	Yes	
	Indirect Emissions from Purchased/Acquired Steam	yes	no purchased/acquired steam
	Indirect Emissions from Purchased/Acquired Heating	yes	
	Indirect Emissions from Purchased/Acquired Cooling	yes	
SCOPE 3	Purchased goods & services	partial	Purchased goods (aluminium sheet (with determined recycled content)), steel, varnishes, glass cullet and materials for glass production, LDPE/PVC granulate, HDPE keys, water) and consumed or purchased products (consumables and packaging materials) –

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SCOPE	GHG Emission or removal categories	Emissions quantified	Reasons for categories not quantified or partially quantified
			without primary, secondary and tertiary packaging of purchased goods Transport services are included in upstream transportation and downstream transportation categories. Other than transport services as well as ancillary products i.e. working clothes are excluded as they would have minimal impact onto final results of the calculation.
	Capital goods	partial	New buildings (built or acquired in reported period) are taken into account, as it may be potentially used in future to include carbon footprint as integral part of investment decision making Other capital goods expenditures are excluded due to low financial and environmental materiality.
	Fuel- and energy-related activities	partial	Including fuels, electricity and heating Excluding emissions associated with cooling

SCOPE	GHG Emission or removal categories	Emissions quantified	Reasons for categories not quantified or partially quantified
			due to the lack of appropriate emission factor in databases
	Upstream transportation & distribution	partial	CANPACK Aluminium Beverage Can Division: transport of aluminium, inks and varnishes is calculated. CANPACK Glass Division: transport of glass cullet, dolomite, soda ash, limestone, feldspar, calumite, silica sand (materials for direct glass production) is calculated CANPACK Metal Closures Division: transport of steel, aluminium and LDPE, PVC granulate and HDPE tabs is calculated CANPACK Food and Industrial Packaging Division: transport of steel, steel and varnishes is calculated
	Waste generated in operations	yes	
	Business travel	yes	Based on data from Poland and extrapolated on rest of the CANPACK Group due to the most advanced business travel tracking for Polish subsidiaries

SCOPE	GHG Emission or removal categories	Emissions quantified	Reasons for categories not quantified or partially quantified
	Employee commuting	yes	
	Upstream leased assets	no	Leased assets are included as a source in scope 1 and 2 (this results from the choice of operational control approach)
	Downstream transportation & distribution	yes	
	Processing of sold products	Yes	There is no processing of sold products. Packaging sold by CANPACK Group is filled by its customers and closed either by lid in case of cans or crown corks in case of bottles. CANPACK Group's products are do not change their properties after they are sold.
	Use of sold products	no	There are no emissions during the use of sold products of CANPACK Group..
	End of life treatment of sold products	no	Category excluded due to the fact that emissions related to recycling (including preparation to recycling) are included in Category Purchased goods as recycled content (pre-consumer and post-consumer scrap).

SCOPE	GHG Emission or removal categories	Emissions quantified	Reasons for categories not quantified or partially quantified
			Other end-of-life scenarios (incineration and landfilling) are also excluded due to low materiality of them.
	Downstream leased assets	Yes	
	Franchises	Yes	Organization does not have its own nor operate franchises
	Investments	no	Category excluded due to lack of sufficient quality of data. Further studies are required to collect all necessary data for CAN ASIA subsidiary.

8. Data collection

For data collection centralized approach is applied. Activity data is collected from different sources and combined on the corporate level by CANPACK Sustainability Office.

The following hierarchy of data collection is applied:

1. Internal IT systems (SAP, Wiera)
2. Global offices (e.g. Procurement, EHS, HR)
3. Employees from production sites responsible for certain categories

To eliminate clerical errors, wrong categorization and possible omissions all input data is verified at a source according to the best available knowledge.

9. GHG emission categories – detailed description

9.1.SCOPE 1

9.1.1. Direct emissions from stationary combustion

Quantification method:

Best scenario according to ISO/TR 14069: The most accurate activity data that means the total volume or mass of each fuel was used.

Activity data:

Fuels burned in stationary boilers: natural gas, diesel oil, LPG mainly from invoices and measurement systems if available. Data collected from utility managers.

Emission Factors:

Direct combustion emissions, DEFRA 2021. Emission factors relevant for scope 1 for analysed time period.

9.1.2. Direct emissions from mobile combustion

Quantification method:

Best scenario according to ISO/TR 14069: The most accurate activity data that means the total volume or mass of each fuel was used.

Activity data:

Purchased amounts of gasoline, diesel oil and LPG from invoices, installed meters, IT systems. Data collected from utility managers or warehouse depending on the fuel type.

Emission Factors:

Direct combustion emissions, DEFRA 2021. Emission factors relevant for scope 1 for analysed time period. CO2, CH4 and N2O GWP values converted from AR4 to AR5.

9.1.3. Direct Emissions from Process Sources

Quantification method:

Best scenario according with ISO/TR 14069: The most accurate activity data that means the total quantities of each material that was used.

Activity data:

Consumed soda ash, limestone or dolomite from, consumption protocols. In case of Glass Works Orzesze quantities audited in accordance to EU ETS are used for calculation. Data collected from warehouse (Aurangabad) or EHS manager (Orzesze).

Emission Factors:

- For Glass Mill Orzesze actual carbon dioxide measurements compliant with external EU ETS audit are used instead of emission factors per mass of consumed materials.
- For Glass Mill Aurangabad IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: MINERAL INDUSTRY EMISSIONS are used as emission factors.

9.1.4. Direct emissions from fugitive sources

Quantification method:

Best scenario according with ISO/TR 14069: For cooling systems, it is the quantity of refrigerants that is needed to refill the equipment.

Activity data:

Replenished mass of refrigerants from invoices or service protocols. Data collected from utility managers.

Emission Factors:

IPCC, Fifth assessment report (AR5) – the most up-to-date emission factors.

9.1.5. Direct Emissions from Agricultural Sources

There are no direct emissions from agricultural sources in CANPACK Group.

9.2.SCOPE 2

9.2.1. Indirect emissions from purchased/acquired electricity

Quantification method:

Best scenario according to ISO/TR 14069: Exact amount of electricity bought by the organization is known from electricity meters or electricity bills for the relevant period.

Activity data:

Electricity purchased/consumed from invoices. Data collected from utility managers.

Emission Factors:

Supplier-specific wherever possible (market-based collected direct contact with energy supplier), which involves collecting emissions data from power generators (Poland, Dubai, Romania, UK, Morocco, Finland, Netherlands, Slovakia, Czechia),

Average-data method (location-based), which involves estimating emissions by using grid average emission rates (India, Brasil, Ukraine, Russia, Colombia, France).

Other information:

Renewable electricity

Poland: 100% guarantees of origin in 2021

UK: 100% guarantees of origin in 2021.

Slovakia: 100% from hydropower according to the contract in 2021.

Romania: 30% guarantees of origin in 2021.

Czech Republic: 100% guarantees of origin in 2021 in Metal Closures plant.

9.2.2. Indirect Emissions from Purchased/Acquired Steam

There are no indirect emissions from purchased/acquired steam in CANPACK Group

9.2.3. Indirect Emissions from Purchased/Acquired Heating

Quantification method:

Best scenario according to ISO/TR 14069: The exact amount and type of energy (heating) bought by the organization is known and collected from energy meters or energy bills for the relevant period.

Activity data:

Heat from the grid from invoices (Poland, Romania, Russia). Data collected from utility managers.

Emission Factors:

Ecoinvent 3.8; heat and power co-generation, Poland, Russia, RoW, hard coal

9.2.4. Indirect Emissions from Purchased/Acquired Cooling

Quantification method:

Best scenario according to ISO/TR 14069: The exact amount and type of energy (cooling) bought by the organization is known and collected from energy meters or energy bills for the relevant period.

Activity data:

Cooling from the grid from invoices. Data collected from utility managers.

Emission Factors:

Ecoinvent 3.8; cooling generation, Global. The indicator “cooling energy, from natural gas, at cogen unit with absorption chiller 100kW” contains scope 3 emissions also, but scope 3 emissions were considered insignificant.

9.3.SCOPE 3

9.3.1. Purchased goods & services

Quantification method:

According to GHG Protocol Average-data method – estimates emissions for goods by collecting data on the mass and multiplying by the relevant secondary emission factors.

According to ISO/TR 14069 Best scenario: The most accurate quantification is when an exact physical amount (weight, volume, number of units) is known for each of the goods and services.

GHG emissions both for raw materials and packaging used in production is calculated according to cradle to gate approach by multiplying respective weight and emission factors.

Activity data:

- The weight of the purchased aluminium is determined per invoices as it provides the most accurate data regarding purchased quantity. The most recent data at a time of conducting CO2 calculation is used as input data. Minor differences (<0,1%) might occur due to correction of invoices, complaints, and misallocations between periods. Data collected from Global Procurement Office. Used the most recent data at a time of calculation. Internal spreadsheet file is used as base for calculation.
- Steel quantity is determined as per documents of acceptance into the warehouse. The most recent data at a time of conducting CO2 calculation is used as input data. Minor differences (<0,1%) might occur due to correction

of invoices, complaints, and misallocations between periods. Data collected from Global Procurement Office. Internal spreadsheet file is used as base for calculation.

- Varnishes, glass cullet and other materials for glass production (dolomite, soda ash, limestone, anhydrite, feldspar, calumite, iron red, portachrom, cobalt oxide, selenium), LDPE/PVC granulate, HDPE keys, chemicals are determined as per documents of acceptance into the warehouse. The most recent data at a time of conducting CO2 calculation is used as input data. Minor differences (<0,1%) might occur due to correction of invoices, complaints, and misallocations between periods. Data collected from Global Procurement Office. SAP system is used for exporting data.
- Purchased water – quantities used are based on invoices. Data collected from utility managers.
- The weight of other materials including consumables and packaging for finished products are calculated as per document of acceptance into the warehouse. Data collected from warehouses. Where available SAP system is used for exporting data. If SAP is unavailable internal spreadsheet files are used.
- primary, secondary and tertiary packaging of purchased goods is excluded.
- Transport services are included in upstreasm transportation and downstream transportation categories. Other provided services are excluded.

Emission Factors:

- Cradle-to-gate emissions factors are obtained from commercially available database – Ecoinvent v 3.8.
- If supplier provide aluminium alloy specific emission factor this factor is used in calculation.
- If aluminium supplier do not provide alloy specific emissions factor emission factors for aluminium are based on:
  - % of primary aluminium and other alloying additions.
  - % of pre-consumer (new scrap) - the weight of external scrap from manufacturing of finished aluminium products, e.g. manufacturing scrap

from canmaker (allround scrap is excluded) divided by the weight of produced aluminium sheets (final stage of production)

- % of post-consumer (old scrap) - the weight of old scrap (e.g. aluminium cans and other used aluminium products gathered from the market) measured at the entrance to furnace (after cleaning) divided by the weight of produced aluminium sheets (final stage of production)

Weight of aluminium delivered by certain supplier

RECYCLED CONTENT for aluminium:

The Recycled Content calculation (separate for can body and can ends) is based on average data from previous years sent to CANPACK Group by its suppliers and by can manufacturing plants covered by this inquiry. Differences in methodologies used by suppliers for calculations may influence the final result. Given numbers are not verified by any third party.

- Emission factor for steel:

  Tin coated steel (tinplate): Application: cans for food, packagings for chemical products, aerosol cans, closures and beverage cans.

  Recycled content: for 1 kg tin coated steel produced, about 0,12 kg of post-consumer steel scrap is used (12%).

  Recycling rate: 93,6%.

  Boundaries: from cradle to gate (iron ore, alloying elements, pellets, transport of hot rolled strip, process chain (from sintering to tin coated steel) incl. operating materials, consumables (thermal and electrical energy)).

  Emission factor = 2,64 kg CO2e/ kg tin coated steel.

  Source: ThyssenKrupp Rasselstein, Environmental product declaration for tin coated steel (tinplate), 2013.

9.3.2. Capital goods

Quantification method:

According to GHG Protocol: Average-data method: In this method, the company collects data on the mass or other relevant units of purchased goods or services and multiplies them by relevant secondary (e.g., industry average) cradle-to-gate emission factors. Secondary emission factors may be found in process-based life cycle inventory databases.

According to ISO/TR 14069: Best scenario: The description and number of the different items of equipment is known and the data are site-specific.

GHG cradle to gate emissions measured by total size (m^2) of new (built or purchased in reported period) buildings multiplied by emission factor.

Activity data:

Data collected at each legal entity from local investment teams.

Emission Factors:

Cradle-to-gate emissions factors were obtained from commercially available database – Ecoinvent v 3.8.

9.3.3. Fuel- and energy-related activities

Quantification method:

Calculation method for fuels and heat:

According to GHG Protocol: Average-data method, which involves estimating emissions by using secondary (e.g., industry average) emission factors for upstream emissions per unit of consumption (e.g., kg CO2e/kWh).

Calculation method for electricity:

Average-data method, which involves estimation of emissions by using grid average emission rates

The GHG emissions from the extraction, production and transportation of fossil fuels used for power and heat generation in our facilities is determined by multiplying the amount of purchased fuels by cradle-to-gate CO2e emission factors.

GHG emissions associated with losses of purchased electricity are included in scope 3 emissions in the reporting years.

Activity data:

Same values for corresponding fuel and energy sources as in scope 1 and 2.

Emission Factors:

DEFRA database – differentiated for countries.

For fuels: Well-to-tank (WTT) fuels conversion factors for the upstream Scope 3 emissions associated with extraction, refining and transportation of the raw fuel sources to an organisation's site, prior to combustion.

For heat: Well-to-tank (WTT) heat conversion factors from the extraction, refinement and transportation of primary fuels that generate the heat organisations purchase.

For electricity (if renewable energy is purchased): Ecoinvent 3.8 for relevant source of electricity.

For electricity (if renewable energy is not purchased): DEFRA's Well-to-tank (WTT) conversion factors for UK and overseas electricity - extraction, refining and transportation of primary fuels before their use in the generation of electricity.

For electricity (if renewable energy is not purchased): Transmission and distribution (T&D) factors - emissions associated with grid losses (the energy loss that occurs in getting the electricity from the power plant to the organisations that purchase it).

9.3.4. Upstream transportation & distribution

Quantification method:

Distance-based method, which involves determining the mass, distance, and mode of each shipment, then applying the appropriate mass-distance emission factor for the vehicle used.

The GHG emissions associated with transportation of purchased aluminium and varnishes is calculated by multiplying the quantities of goods procured by a transportation distance and by an emissions factor for the mode of transport. The weight of packaging used for transportation is excluded as it being not material enough.

The transportation distance in each region is estimated by logistics experts.

Activity data:

Procurement Office (supplier location, destination, weight as per purchased goods and services category, modes of transport). Tonne-kilometers are internal calculation of Sustainability Office for purpose of carbon footprint calculation.

Emission Factors:

DEFRA 2021 database, "freighting goods" and "WTT-delivery vehs &freight" combined.

For aluminium, steel, raw materials for glass production transported by truck "HGV (all diesel) – Articulated (>33t) – 100% laden" emission factor is used.

For other materials transported by truck “HGV (all diesel) – Articulated (>33t) – average laden” emission factor is used.

For rail transport for all materials “freight train” emission factor is used.

For marine transport “Cargo ship – general cargo – average” emission factor is used.

For plane transport “Freight flights – international, to/from non-UK” is used.

Other information:

Scenarios for transportation aluminium, steel, varnishes, LDPE/PVC granulate, HDPE keys and were determined:

Land transportation – the shortest distance (according to Google Maps) between supplier and destination plant multiplied by total weight of materials (from given supplier) and by emission factor according to certain type of truck (diesel) and the % of truck capacity (100% capacity for aluminium and steel, average DEFRA capacity for varnishes and LDPE/PVC granulate, HDPE keys)

Sea and land transport (verified seaports) – shortest distances according to google maps and seadistances.org. Land transport as above. Sea transport – the distance multiplied by the weight and by the emission factor (DEFRA – average container ship)

Sea and land transport (unknown seaports) same as above but using the nearest seaport to supplier/final destination.

In case of transport between two CANPACK plants emissions are allocated as follows:

Emissions from transport between supplier and CANPACK plant are allocated to CANPACK plant that received it first.

Emissions from transport between CANPACK plants are allocated to plant which received the materials.

9.3.5. Waste generated in operations

Quantification method:

Waste-type-specific method, which involves using emission factors for specific waste types and waste treatment methods.

The GHG emissions associated waste recycling, incineration, landfilling and composting are calculated by multiplying the quantities of waste by an emissions factor for certain waste management type.

Activity data:

Local employees responsible for waste management at the plant level according to local legal requirements for waste registers.

Emission Factors:

DEFRA 2021 and Ecoinvent 3.8 databases.

Other information:

Emission factor for aluminium and steel scrap (new scrap):

According to ISO/TR 14069: „Another risk of double-counting concerns the emission factor used for materials with recycled content. If an organization uses materials with recycled content, the GHG emission or removal factors of this product may take into account the avoided emissions due to the non-production of virgin materials. In this case, the emissions due to the recycling of this product (category 19) should not take into account the avoided emissions due to the non-production of virgin material. Only emissions for the collection and the recycling process should be considered in category 19.

There is a risk of double counting avoided emissions through recycling for the following categories: purchased goods; waste generated from organizational activities; capital equipment".

As the emission factor for purchased aluminium and steel includes the recycled content (preparation for recycling as well as emissions related to recycling process) and as recycled content method is used for end of life modelling, the emission factor for aluminium and steel scrap generated in facilities (so called new scrap) equals 0 mt CO2e/mt.

Assumptions for conversion of values using different given units (in case the data was in other units than emission factors):

For data on MSW in units m3: Estimated density of MSW is 311.73 kg/m3.

To avoid double counting wastewater treatment emission factor is related only with the process out of production site (doesn't apply for the amount of water which is not returned to sewage). Wastewater treatment at site is calculated

within category of electricity from grid and purchased goods and services (chemicals).

9.3.6. Business travel

Quantification method and activity data: Emissions were extrapolated on entire CANPACK Group based on emissions from business travel per 1 employee in Poland. This approach to calculation of the Business travel was chosen due to the fact that 40% of employees of CANPACK Group works in Poland and also we have advanced system to monitor business travel implemented for Poland. In the future we are going to expand it onto other countries.

Emission factors: DEFRA database.

9.3.7. Employee commuting

Quantification method:

Average-data method, which involves estimating emissions from employee commuting based on average (e.g., national) data on commuting patterns.

Activity data:

Average number of employees per facility provided by local HR team, average number of employees that travel in vehicles owned by organization, average number of employees that commute in vehicles paid by CANPACK Group, but that are not owned by organization, the number of workdays.

Emission Factors:

DEFRA's GHG Conversion Factors for Company Reporting (2020)

Other information:

Summary of assumptions for employee commuting emission factor:

Modes	Travel to work mode share (2017) [%]	Average distance (incl. return) [km]	Description	Source
Car/van	68	50	average car, unknown fuel	DEFRA 2021 business travel land+wtt
Walk	10			

Rail	11	108	national rail	DEFRA 2021 business travel land+wtt
Bus	7	68	average local bus	DEFRA 2021 business travel land+wtt
Other	4			

Source - travel to work % modes, time; page 3: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/787488/tsgb-2018-report-summaries.pdf

9.3.8. Upstream leased assets

Emissions related with upstream leased assets are included into SCOPE1 and SCOPE2 as they are related with fuel and energy purchased by CANPACK Group. There is no distinction between owned and leased assets for purposes of the calcutlation.

9.3.9. Downstream transportation & distribution

Quantification method: Distance-based method, which involves determining the mass, distance, and mode of each shipment, then applying the appropriate mass-distance emission factor for the vehicle used. The GHG emissions associated with transportation of sold products is calculated by multiplying the quantities of goods sold by a transportation distance and by an emissions factor for the mode of transport. The weight of packaging used for transportation is excluded. The transportation distance in each region is estimated by logistics experts.

Activity data: Sales Office (supplier location, destination, weight). Tonne-kilometers are internal calculation of Sustainability Office for purpose of carbon footprint calculation.

Emission Factors: DEFRA database

For aluminium and steel cans transported by truck “HGV (all diesel) – Articulated (>33t) – 15% laden” emission factor is used. Factor is converted from 50% laden.

For glass and metal closures transported by truck “HGV (all diesel) – Articulated (>33t) – 100% laden” emission factor is used.

For marine transport “Cargo ship – general cargo – average” emission factor is used.

Other information: Scenarios for transportation were determined: Land transportation – the shortest distance (according to Google Maps) between production plant and customer destination plant multiplied by total weight of materials (from given plant) and by emission factor according to certain type of truck (diesel) and the % of truck capacity.

Sea and land transport (verified seaports) – shortest distances according to google maps and seadistances.org. Land transport as above.

Sea transport – the distance multiplied by the weight and by the emission factor (DEFRA – average container ship) Sea and land transport (unknown seaports) same as above but using the nearest seaport to supplier/final destination

9.3.10. Processing of sold products

There are no significant processing of sold products emissions.

9.3.11. Use of sold products

There are no emissions during the use of sold products.

9.3.12. End of life treatment of sold products

End of life treatment emissions of sold products are included in purchased goods emissions factors as recycled content emissions.

9.3.13. Downstream Leased Assets

Quantification method:

Based on a data from meters regarding energy and utility consumption

Activity data:

Local employees responsible for energy and utility management at the plant level provide sustainability office with information on downstream leased assets. Collected data covers: energy and utilities used by leasing company.

Emission Factors:

DEFRA 2021 and Ecoinvent v 3.8 databases.

Other information:

n/c

10. Review Mechanism

Sustainability Office review this Document at least once a year, before start of data collection and will be amended as necessary.