THE FOOTPRINTERS

lc packkaging®

supporting your products

Greenhouse Gas Inventory 2021

20 April 2023

www.lcpackaging.com

Introduction & Descriptive information

1. Introduction

LC Packaging International has made a public commitment to set a science-based target aligned with the target-setting criteria defined by the Science Based Targets initiative (SBTi). With this commitment, LC Packaging has raised its ambition to reduce the emissions from its value chain in line with a 1.5°C pathway.

In this report the GHG inventory (scope 1, 2, 3) in line with the Greenhouse Gas Protocol (GHG Protocol) for base year 2021 is presented. The calculations are based on the Greenhouse Gas Protocol Corporate Value Chain Accounting and Reporting Standard. The Scope 3 emissions are calculated in accordance with the guidelines of the GHG Protocol Standard including at least the "minimum boundaries"

Recalculation

Base year 2021 was recalculated in line with LC Packaging's recalculation policy. There were three reasons for recalculation:

1. The availability of better data

LC Packaging hired a data and reporting analyst to improve the inventory data. Based on her work, the data for scope 3 categories 1 and 12 significantly improved. This enabled more emissions for 2021 to be calculated based on weight, instead of spend.

2. Changes to calculation methodology

The calculation methodologies have been improved for the categories 'purchased goods and services', 'capital goods', 'upstream transportation and distribution' and 'end-of-life of sold products'.

3. The acquisition of Weiterer

In 2022, LC Packaging acquired Karl Weiterer GmbH (Weiterer). This triggered a recalculation in which the full scope 1, 2, and 3 emissions of Weiterer were added to base year 2021. In 2021, LC Packaging was 49% owner of Weiterer; in 2022, the ownership became 100%. The associated emissions in category 15 investments have been removed from the recalculation to avoid double counting.

2. Descriptive information

LC Packaging is a family owned company that has been active in the packaging industry for four generations. The company is specialised in high quality flexible packaging solutions for safe, reliable and protective transportation of (dry) bulk goods. LC Packaging is specialised in FIBCs (big bags), cardboard, jute, net bags and WPP packaging for virtually every industry. The company is both manufacturer and distributor, with own production facilities for FIBCs and a solid network of about 80 production partners, of which 16 are considered key production partners, representing over 80% of procurement spend. LC Packaging has 21 offices, 3 production facilities and many warehouses in 15 countries in Africa, Asia and Europe. In 2022, the company launched its 2030 Ambition, in which it has set itself three ambitious goals with which it aims to make an important contribution to combating working poverty, waste and pollution and climate change.

In terms of combatting climate change, LC Packaging aims to reduce its direct and indirect emissions from the full value chain (Scope 1, 2 and 3) by 50% by 2030, compared to baseline year 2021. Intertwined with this goal, is the goal to have at least 80% of its turnover to come from packaging that delivers the circular economy.

Descriptive information	Company response
Company name	LC Packaging International BV
Contact information	Lotte Mastwijk (lmastwijk@lcpackaging.com) Manager Sustainability and Communications
Description of the company	LC Packaging is a family owned company, specialised in high quality flexible packaging solutions for safe, reliable and protective transportation of (dry) bulk goods.
Chosen consolidation approach	Operational control
The reporting period covered	2021
The year chosen as base year and rationale for choosing the base year	2021 2021 is chosen because this is the most recent year for which the scope 1, 2 and 3 Greenhouse Gas inventory is available.
Once a base year has been established, the chosen base year emissions recalculation policy. If base year emissions have been recalculated, the context for any significant emissions changes that triggered the recalculation.	**The following base year recalculations are already envisaged:** › Scope 3 category 1: LC Packaging intends to perform Carbon Footprints of all product groups. This will lead to a better insight into emissions from purchased goods and services. › Scope 3 category 12: calculations for end-of-life of sold products are based on statistics of end-of-life treatment of materials per region. LC Packaging intends to send out a survey to customers to get a better understanding of where products end up and what happens to them at end-of-life. **The following policies are in place** › Organic growth: in line with the GHG protocol, organic growth will not trigger a base year recalculation. › Structural changes: in case of acquisitions, divestitures, or mergers, a base year recalculation will be triggered. In case of an acquisition, historic emissions will be calculated and/or estimated and added to the company's base year. › Changes in calculation methods: changes such as updated emission factors, improved data access, updated calculation methods or protocols may require a base year recalculation. › Discovery of significant errors, or a number of cumulative errors that together are significant may require a base year recalculation. **Significance threshold** › The GHG protocol does not specify a threshold that requires recalculation. › In order to avoid constant recalculation, base year recalculation will only be required if cumulative effects of circumstances are 5% or greater of base year emissions. › However, recalculation may be performed at LC Packaging's discretion if changes represent less than 5% of base year emissions.

Descriptive information	Company response
A list of scope 1, scope 2, and scope 3 activities excluded from the report with justification for their exclusion	**Category 9:** Downstream transportation and distribution LC Packaging sells packaging to clients around the world. These packaging's primary use is to transport and store products. LC Packaging mostly sells to producers and distributers. This means that LC Packaging is not in a position to gather reliable data to estimate downstream transportation and distribution. Note that transport to LC Packaging's clients is included in Category 4: Upstream transportation and distribution as LC Packaging pays for this transport. **Category 10:** Processing of sold products LC Packaging does not sell intermediate products that require further processing, transformation, or inclusion in another product before use. **Category 11:** Use of sold products LC Packaging's products don't emit GHG emissions in use. **Category 14:** Franchises LC Packaging doesn't have franchises. **Category 15:** Investments In 2022, LC Packaging acquired Karl Weiterer GmbH (Weiterer). This triggered a recalculation in which the full scope 1, 2, and 3 emissions of Weiterer were added to base year 2021. In 2021, LC Packaging owned 49% of Weiterer. The associated emissions in category 15 investments have been removed from the recalculation to avoid double counting.

Descriptive information	Company response
Description of the businesses and operations included in the company's organizational boundary	LC Packaging has offices, warehouses, and production locations in 15 countries in Europe, Africa and Asia. All these are accounted for under operational control. They are: › **Offices & warehouses** Karl Weiterer Sack- und Planenfabrik GmbH (acquired in 2022) Hagens Verpakkingen B.V. LC Packaging International LC Packaging Global LC Packaging Belgium LC Embalajes Ibérica LC Packaging Netherlands LC Packaging Ireland LC Packaging UK LC Packaging GmbH LC Packaging France LC Packaging Hungary LC Packaging Romania LC Packaging Nordic LC Packaging Africa LC Packaging West Africa LC Packaging South Africa WorldBag › **Production locations** LC Shankar ltd Dutch-Bangla Pack ltd
A list of scope 3 activities included in the report	› **Category 1:** Purchased goods and services › **Category 2:** Capital goods › **Category 3:** Fuel- and energy-related activities (not included in scope 1 or scope 2) › **Category 4:** Upstream transportation and distribution › **Category 5:** Waste generated in operations › **Category 6:** Business travel › **Category 7:** Employee commuting › **Category 8:** Upstream leased assets › **Category 12:** End-of-life treatment of sold products › **Category 13:** Downstream leased assets

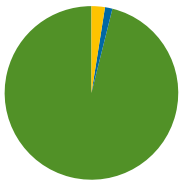
2021 GHG Inventory | Breakdown of greenhouse gas emissions

In accordance with the Greenhouse Gas Protocol (GHG Protocol).

2021 Gross GHG emissions

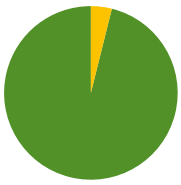
274,775 MT CO_2e

GHG emissions profile



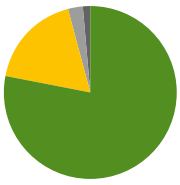
- Scope 1 (Direct) 2.1% 5,871 MT CO_2e
- Scope 2 (Indirect) 1.3% 3,410 MT CO_2e
- Scope 3 (Indirect) 96.6% 265,494 MT CO_2e

Own operations vs value chain



- Own operations 3.4%
- Value chain 96.6%

Scope 3 sub division



- Purchased goods and services 78.1%
- End-of-life treatment of sold products 17.8%
- Transport 2.8%
- Other categories 1.3%

Scopes and categories

Scope 1 - Direct emissions

Fuel use and refrigerants in facilities
5,555 MT CO_2e — 2.0%

Company owned vehicles
316 MT CO_2e — 0.1%

Scope 2 - Indirect emissions

Purchased electricity for own use
3,410 MT CO_2e (market-based) — 1.2%

Scope 3 - Indirect emissions

Purchased goods and services
207,423 MT CO_2e (99.5% product-related) — 75.5%

Capital goods
1,475 MT CO_2e — 0.5%

Fuel and energy related activities
1,008 MT CO_2e — 0.4%

Transportation and distribution (Upstream)
7,353 MT CO_2e — 2.7%

Waste generated in operations
67 MT CO_2e — 0.02%

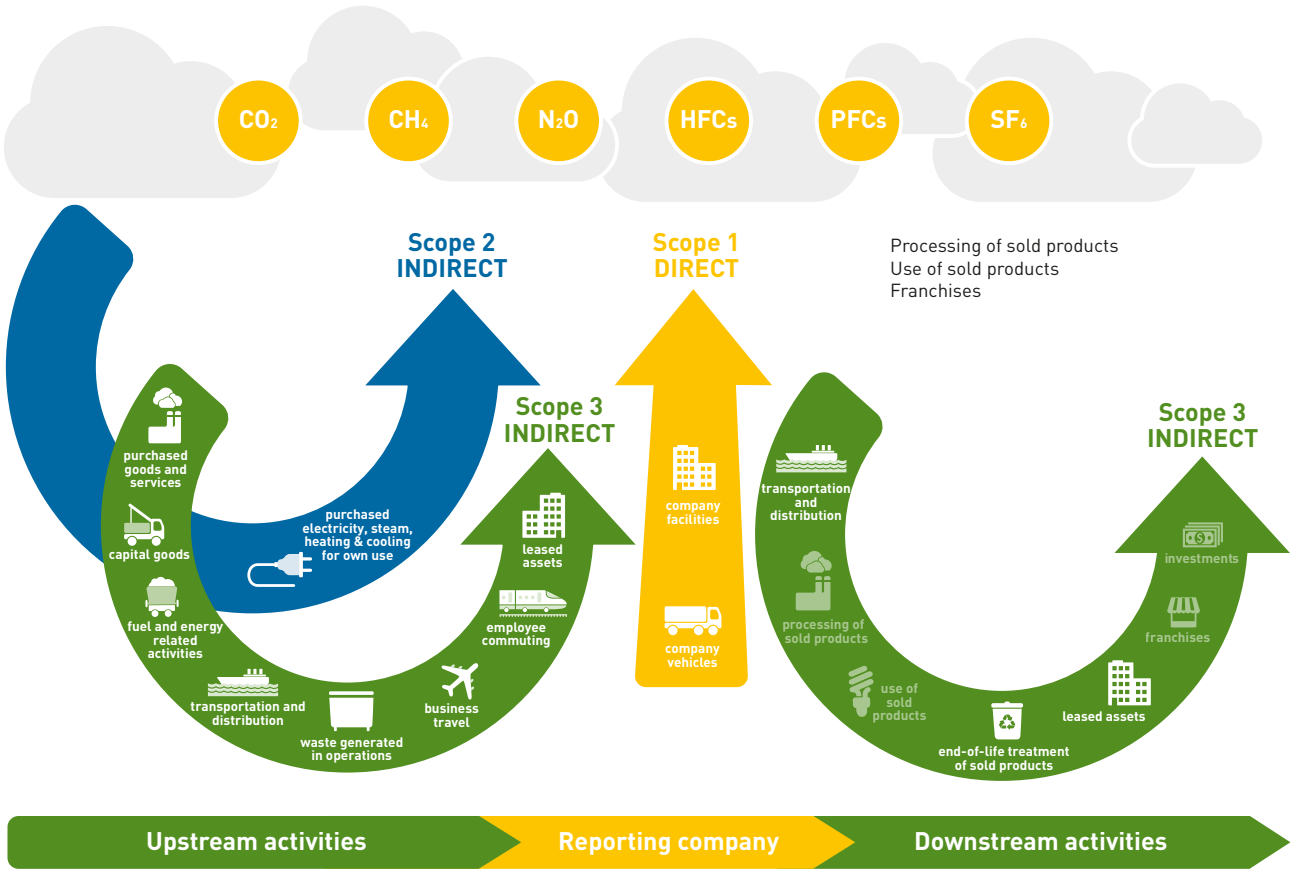
Business travel
95 MT CO_2e — 0.03%

Employee commuting
197 MT CO_2e — 0.1%

Leased assets (up- and downstream)
611 MT CO_2e — 0.2%

End-of-life treatment of sold products
47,265 MT CO_2e — 17.2%

Overview GHG Protocol scopes and emissions across the value chain



Explanation: The calculations for the 2021 GHG Inventory (base year) are based on the Greenhouse Gas Protocol Corporate Value Chain Accounting and Reporting Standard. The Scope 3 emissions are calculated in accordance with the guidelines of the GHG Protocol Standard including at least the "minimum boundaries".

3 Greenhouse gas emissions data

Scope 1, 2, 3 combined: 274,775 metric tons CO_2e
Scope 3: 265,494 metric tons CO_2e (96.6%)

Scopes and categories	Metric tons CO_2e	Percentage
Scope 1: Direct emissions from owned/controlled operations	5,871	2.1%
Scope 2 market-based: Indirect emissions from the use of purchased electricity, steam, heating, and cooling	3,410	1.2%
Upstream scope 3 emissions		
Category 1: Purchased goods and services › Product-related › Other	 206,275 1,148	 75.1% 0.4%
Category 2: Capital goods	1,475	0.5%
Category 3: Fuel- and energy-related activities (not included in scope 1 or scope 2)	1,008	0.4%
Category 4: Upstream transportation and distribution	7,353	2.7%
Category 5: Waste generated in operations	67	0.0%
Category 6: Business travel	95	0.0%
Category 7: Employee commuting	197	0.1%
Category 8: Upstream leased assets	371	0.1%
Downstream scope 3 emissions		
Category 12: End-of-life treatment of sold products	47,265	17.2%
Category 13: Downstream leased assets	240	0.1%

3.1 Part 2: Greenhouse gas emissions data (continued)

Greenhouse gas emissions	CO2		CH4		N20		HFCs		PFCs		SF6	
	Metric tons CO2	Metric tons CO_2e	Metric tons CH4	Metric tons CO_2e	Metric tons N20	Metric tons CO_2e	Metric tons of each HFC	Metric tons CO_2e	Metric tons of each PFC	Metric tons CO_2e	Metric tons SF6	Metric tons CO_2e
Scope 1	5,726	5,726	0.267	7	0.029	8	R134a: 0.121	157	n/a	n/a	n/a	n/a
Scope 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

4 Part 3: Biogenic CO_2 emissions data (if applicable)

Scopes and categories	Metric tons biogenic CO_2
Direct biogenic CO_2 emissions from owned/controlled operations	14
Indirect biogenic CO_2 emissions from the use of purchased electricity, steam, heating, and cooling	unknown
Indirect biogenic CO_2 emissions - Upstream	
Purchased goods and services	-4,732
Capital goods	unknown
Fuel- and energy-related activities (not included in scope 1 or scope 2)	unknown
Upstream transportation and distribution	unknown
Waste generated in operations	93
Business travel	unknown
Employee commuting	unknown
Upstream leased assets	unknown
Indirect biogenic CO_2 emissions - Downstream	
End-of-life treatment of sold products	2,532
Downstream leased assets	unknown
Investments	unknown

5 Description of methodologies and data used

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Scope 1 Company facilities & company vehicles	Activity data (primary data) Data on fuel and refrigerant use were gathered from LC Packaging's offices, warehouses & production facilities. If fuels for company owned vehicles was not known, the sites provided kilometres driven, type of fuel and size of vehicle (unknown, small, medium or large). **Emissions factors (secondary data)** › Refrigerants GWP100 IPPC AR5 › Fuels and kms for vehicles: UK's Department for Business, Energy & Industrial Strategy (BEIS, 2021)	Scope 1 is calculated for all locations individually. It includes leaked refrigerants, fuels used (stationary combustion), company owned cars (mobile combustion) and forklifts, vans, or trucks (mobile combustion). The amounts of fuel and refrigerants were multiplied with the respective emission factors. Only refilled refrigerants were calculated. There might be a data gap because five affiliates reported using air conditioning, but did not provide data on refilling. It is assumed that EU+UK uses biofuels as specified in BEIS2021. For other countries it is assumed pure mineral fuels were used. Biogenic CO_2 was only calculated for the fuels reported. Some sites reported kilometres driven for company owned cars and BEIS2021 does not specify biogenic CO_2 for these impact factors. Therefore these weren't accounted for.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Scope 2 Purchased electricity, steam, heating & cooling for own use	Activity data (primary data) Data on electricity use was gathered from LC Packaging's offices, warehouses & production facilities **Emissions factors (secondary data)** **Location-based** › Europe: AIB European Residual Mixes 2020 › UK: BEIS2021 › Other: EcoInvent 3.8 **Market-based** › BE SKW: Scholt Energy Control B.V. › DE: Energie-und Wasserversorgung Rheine GmbH › IE: https://pinergy.ie/terms-conditions/fuel-mix/ › LC GLO, INT & NL: Fuel mix DVEP › UK: https://www.britishgaslite.co.uk/fuel-mix › Weiterer: Fortas	Scope 2 is calculated for all locations individually. The amount of electricity used in 2021 was multiplied with either location-based emission factors or market-based emission factors when available. No steam, heating or cooling for own use was reported by any site.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		25%

Category 1 Purchased goods and services	Activity data (primary data) Calculations are based on procurement spend and, where feasible, on the kg of purchased goods or raw materials. Emissions factors (secondary data) a) Purchased goods: emissions factors were taken from EcoInvent 3.9.1 and LCA data of LC Packaging. b) For procurement spend, the 2019 Exiobase database was used.	LC Packaging sells both products that are made in their own production locations and resells products that are ready-made. For the products purchased, the emissions were calculated using kilograms purchased, multiplied by cradle to gate emissions factors from EcoInvent 3.9.1 and cradle to gate LCA data of LC Packaging, based on the emissions of key suppliers. Scope 1 and 2 emissions for production facilities owned by LC Packaging were subtracted from the totals to prevent double counting. Other procurement categories were calculated based on procurement spend. Each type of procurement was assigned a corresponding Exiobase category. The amount of spending was then multiplied by the respective GHG conversion factor.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		16%

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Category 2 Capital goods	Activity data (primary data) Monetary purchasing volumes of capital goods purchased in 2021. Emissions factors (secondary data) › Supply chain emission factors for spending on capital goods were obtained from the 2019 Exiobase.	Each type of procurement of capital goods was assigned a corresponding Exiobase category. The amount of spending was then multiplied by the respective GHG conversion factor.
Description of the data quality of reported emissions		Fair
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

Category 3 Fuel and energy related activities	Activity data (primary data) Data on fuel and refrigerant use were gathered from LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) › WTT emission factors from the UK's Department for Business, Energy & Industrial Strategy (BEIS, 2021).	GHG emissions from the extraction, production, and transportation of fossil fuels were determined by multiplying the amount of purchased fuels by the WTT emission factor. Transmission and distribution losses for electricity acquired are already included in scope 2. Generation of electricity and steam that is sold to end users is not applicable.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Category 4 Upstream transportation and distribution	Activity data (primary data) a) Distance and trade lane for sea container transport b) Weight and distance for truck shipments. c) Supplier reported CO_2e emissions. d) Air transport data Emissions factors (secondary data) › BEIS 2022 › EcoInvent 3.9.1 › GLEC Framework impact factors for sea transport	LC Packaging products are shipped by container ship and by truck. Truck transport producer to harbour: tonne.km was multiplied by an impact factor from EcoInvent. Sea container transport teu.mk were multiplied by emissions factors from the GLEC Framework. Truck transport affiliates: All affiliates work with specific suppliers for truck transport. Where available, supplier-reported CO2e emissions were used. Where these were not available, a survey was used to determine the type of truck and tonne/km. GHG emissions were calculated by multiplying tkm by BEIS2022 emissions factors.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		7%

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Category 5 Waste generated in operations	Activity data (primary data) The types of waste and the disposal methods were reported by LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) › EcoInvent 3.8	Recycling and reuse of waste is assigned zero emissions in line with the recycled content method of the Greenhouse Gas Protocol. The GHG emissions of on-site recycling of polypropylene at Green-Bangla pack are already included in scope 1 & 2 of DBPL. The GHG emissions from waste incineration and landfill were selected from EcoInvent 3.8.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

Category 6 Business travel	Activity data (primary data) a) For flights booked through the travel agency the supplier provided emissions. b) For other business travel, the amount of money spend on business travel in 2021. Emissions factors (secondary data) › Supply chain emission factors for spending on business travel were obtained from the 2014 DEFRA "Indirect emissions from the supply chain"	Each type of business travel expense was assigned a corresponding SIC code. The amount of spending was then multiplied by the respective GHG conversion factor. Types of business travel considered were flights, train and car travel.
Description of the data quality of reported emissions		Fair
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		6%

Category 7 Employee commuting	Activity data (primary data) The distances, transport mode and travel days of employees were reported by LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) › BEIS, 2021: Emission factors from the UK's Department for Business, Energy & Industrial Strategy	GHG emissions were calculated by multiplying the travelled distance (216 days per year, back and forth) with the respective GHG conversion factor. The effect of the corona pandemic on employee commuting was not taken into account.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Category 8 Upstream leased assets	Activity data (primary data) Fuel used for leased vehicles or the distances and vehicle sizes were reported by LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) › BEIS, 2021: Emission factors from the UK's Department for Business, Energy & Industrial Strategy	GHG emissions were calculated by multiplying either the amount of fuel used in 2021 with the corresponding emission factor from BEIS. If fuels were not available, the kilometres travelled were multiplied by the emission factor corresponding to the size and type of car (diesel, petrol, hybrid or electric). For electric vehicles the assumption was made that they were charged for 50% at LC Packaging's premises. This electricity use is already included in scope 2.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

Category 12 End-of-Life treatment of sold products	Activity data (primary data) Quantity and material constitution of products sold in 2021 and the percentage of sales in different regions (EU, Africa). The ratio of the different waste disposal methods (incineration, landfill, recycling) in each region was derived from data on waste treatment provided by OECD (Global Plastics Outlook, 2022), Eurostat (Recycling rate of paper by type of packaging, 2022) and EcoInvent (waste treatment for biowaste). Emissions factors (secondary data) › EcoInvent 3.9.1	GHG emissions were calculated assuming that the products would be disposed of in the regions to which LC Packaging sold them. The amount of GHG emissions was calculated separately for each region, material and end-of-life method. Recycling and composting is assigned zero emissions in line with the recycled content method of the Greenhouse Gas Protocol. The GHG emissions from incineration, open dump, and landfill were selected from EcoInvent. The GHG emissions were calculated by multiplying the amounts of waste by the appropriate emission factor.
Description of the data quality of reported emissions		Fair
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used to calculate emissions
Category 13 Upstream leased assets	Activity data (primary data) This category includes two activities: › LC Packaging leases cardboard erecting machines. › DBPL leases dormitories to their employees. Scope 1 & 2 activity data was requested from the lessees of the cardboard erecting machines and dormitories. Only electricity was used for both activities. Emissions factors (secondary data) Electricity Location-based › Europe: AIB European Residual Mixes 2020 › Other: EcoInvent 3.8	The amount of electricity used in 2021 was multiplied with location-based emission factors.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0%

worldwide

LC Packaging International BV
Otto Matseweg 9
2742 JW Waddinxveen
The Netherlands

T+31 180 39 38 37

info@lcpackaging.com
www.lcpackaging.com

THE FOOT PRIN TERS

lc packaging®