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Greenhouse Gas Inventory 2022

19 May 2023

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Introduction & Descriptive information

1. Introduction & descriptive information

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 the year 2022 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”.

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 15 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	2022
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.	<p>The following base year recalculations are already envisaged:</p> <ul style="list-style-type: none"> ➤ Scope 3 Category 1 Purchased goods and services: LC Packaging intends to perform Carbon Footprints of all product groups. This will lead to a better insight into emissions from this category. ➤ Scope 3 category 12 End of life of sold products: calculations 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.. <p>The following policies are in place</p> <ul style="list-style-type: none"> ➤ 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. <p>Significance threshold</p> <ul style="list-style-type: none"> ➤ 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.

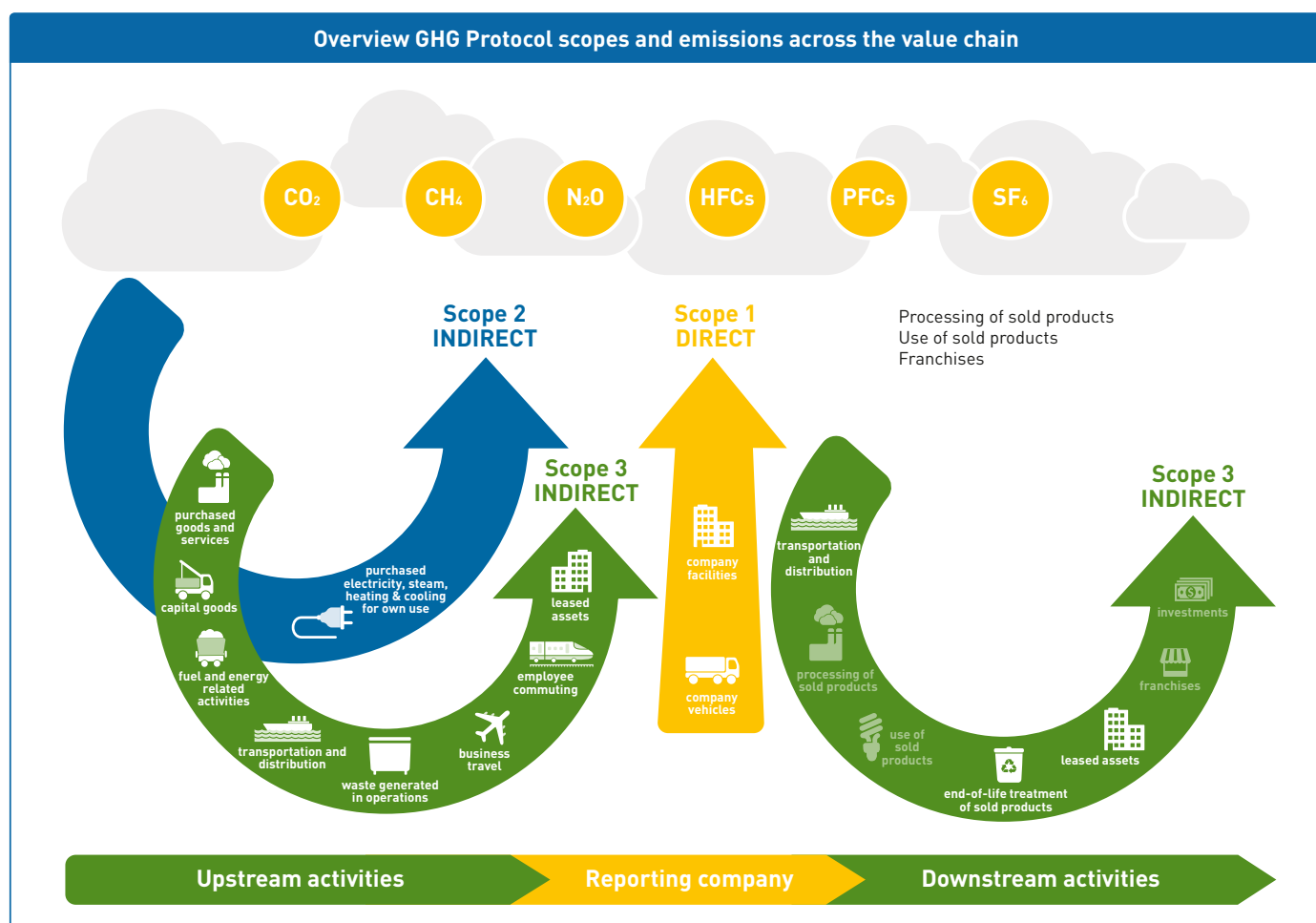
Descriptive information	Company response
<p>Description of the businesses and operations included in the company's organizational boundary</p>	<p>LC Packaging has offices, warehouses, and production locations in 15 countries in Europe, Africa and Asia. All these are accounted for under operational control. They are:</p> <p>➤ Offices & warehouses Hagens Verpakkingen B.V. Karl Weiterer Sack- und Planenfabrik GmbH (acquired in 2022) 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 B.V.</p> <p>➤ Production locations LC Shankar Ltd Dutch-Bangla Pack Ltd</p>

Descriptive information	Company response
A list of scope 3 activities included in the report	<ul style="list-style-type: none"> ➤ 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
A list of scope 1, scope 2, and scope 3 activities excluded from the report with justification for their exclusion	<ul style="list-style-type: none"> ➤ 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 distributors. 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.

Greenhouse Gas Inventory 2022 - In accordance with the Greenhouse Gas Protocol

Total Gross GHG emissions	Total GHG emissions per net turnover	Gross Scope 1 GHG emissions	Gross Scope 2 GHG emissions (market based)	Gross Scope 3 GHG emissions
254,897 MT CO ₂ e	0.001 MT CO ₂ e	5,148 MT CO ₂ e	4,219 MT CO ₂ e	245,530 MT CO ₂ e

Scope	Category	MT CO ₂ e	% of total emissions	Progress compared to 2021 (%)
Scope 1 (Direct emissions)	 Fuel use and refrigerants in activities	4,912	1.9	-12.3%
	 Company owned vehicles	236	0.1	-25.5%
Scope 2 (indirect emissions)	 Purchased electricity for own use	4,219	1.7	+23.7%
	 Purchased goods and services	193,013	75.7	-6.9%
Scope 3 (indirect emissions)	 Capital goods	1,736	0.7	+17.7%
	 Fuel and energy related activities	857	0.3	-15.0%
	 Transportation and distribution	6,271	2.5	-14.7%
	 Waste generated in operations	78	0.0	+15.6%
	 Business travel	168	0.1	+76.8%
	 Employee commuting	213	0.1	+8.2%
	 Leased assets (up- and downstream)	534	0.2	-12.7%
	 End-of-life treatment of sold products	42,661	16.7	-9.7%
	 Investments	0	0.0	0%
	Total	254,897	100	-7.2%



Explanation: The calculations for the 2022 GHG Inventory 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".



Greenhouse gas emissions data

Scope 1, 2, 3 combined: 254,897 metric tons CO₂e
 Scope 3: 245,530 metric tons CO₂e (96.3%)

Scopes and categories	Metric tons CO ₂ e	Percentage
Scope 1: Direct emissions from owned/controlled operations	5,148	2.0%
Scope 2 market-based: Indirect emissions from the use of purchased electricity, steam, heating, and cooling	4,219	1.7%
Upstream scope 3 emissions		
Category 1: Purchased goods and services		
> Product-related	191,663	75.7%
> Other	1,350	
Category 2: Capital goods	1,736	0.7%
Category 3: Fuel- and energy-related activities (not included in scope 1 or scope 2)	857	0.3%
Category 4: Upstream transportation and distribution	6,271	2.5%
Category 5: Waste generated in operations	78	0.0%
Category 6: Business travel	168	0.0%
Category 7: Employee commuting	213	0.1%
Category 8: Upstream leased assets	339	0.1%
Downstream scope 3 emissions		
Category 12: End-of-life treatment of sold products	42,661	16.7%
Category 13: Downstream leased assets	195	0.1%

3.1 Part 2: Greenhouse gas emissions data (continued)

Greenhouse gas emissions	CO ₂		CH ₄		N ₂ O		HFCs		PFCs		SF ₆	
	Metric tons CO ₂	Metric tons CO ₂ e	Metric tons CH ₄	Metric tons CO ₂ e	Metric tons N ₂ O	Metric tons CO ₂ e	Metric tons of each HFC	Metric tons CO ₂ e	Metric tons of each PFC	Metric tons CO ₂ e	Metric tons SF ₆	Metric tons CO ₂ e
Scope 1	4,869	4,869	0.234	7	0.020	5	R134a 0.179 R22 0.136 R410a 0.008 R134 0.0001	267	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



Part 3: Biogenic CO₂ emissions data (if applicable)

Scopes and categories	Metric tons biogenic CO ₂
Direct biogenic CO ₂ emissions from owned/controlled operations	5
Indirect biogenic CO ₂ emissions from the use of purchased electricity, steam, heating, and cooling	unknown
Indirect biogenic CO₂ emissions - Upstream	
Purchased goods and services	-5,421
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	113
Business travel	unknown
Employee commuting	unknown
Upstream leased assets	unknown
Indirect biogenic CO₂ emissions - Downstream	
End-of-life treatment of sold products	1,925
Downstream leased assets	unknown
Investments	unknown

Biogenic CO₂ is considered for the following categories:

- Scope 1: burning of forecourt fuels that contain small amounts of biofuels, based on BEIS.
- Purchased goods and services: for the product group jute the uptake is based on the carbon footprint calculated by LC Packaging following the GHG protocol. Other product groups are excluded for this year.
- Waste generated in operations considered based on Ecoinvent.
- End of life: for the product group jute the emissions are based on the carbon footprint calculated by LC Packaging following the GHG protocol. Other product groups are excluded for this year.



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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) > UK's Department for Business, Energy & Industrial Strategy (BEIS, 2022)	Scope 1 is calculated for all locations individually. It includes refilled 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 1 affiliate 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.
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 and electric vehicles charging was gathered from LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) Location-based ➤ Europe+UK: AIB European Residual Mixes 2021 ➤ Other: EcolInvent 3.9.1 Market-based ➤ BE SKW: Scholt Energy ➤ DE: Energie-und Wasserversorgung Rheine GmbH ➤ Hagens: Scholt Energy ➤ IE: Pinergy ➤ NL: DVEP ➤ SE: E-on ➤ UK: British Gas ➤ Weiterer: Fortas ➤ Worldbag: Eneco	Scope 2 is calculated for all locations individually. The amount of electricity used in 2022 was multiplied with either location-based emission factors or market-based emission factors when available. Electric vehicles charging is multiplied by the European residual mixes. 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		37%
Category 1 Purchased goods and services	Activity data (primary data) Calculations are based on procurement spend and, where feasible, kilograms of purchased goods. Emissions factors (secondary data) a) Purchased goods: emissions factors were used from EcolInvent 3.9.1 and LCA data of LC Packaging. 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 EcolInvent 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 2022 Emissions factors (secondary data) > Exiobase 2019	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 use were gathered from LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) > BEIS 2022	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 ₂ e emissions. d) Air transport data was not available for this year. The 2021 calculations showed the emissions associated with air transport to be minimal. Emissions factors (secondary data) > BEIS 2022 > Ecolnvent 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 Ecolnvent. Sea container transport teu.mk were multiplied with emissions factors from the GLEC Framework. Truck transport affiliates: All affiliates work with specific suppliers for truck transport. Where available, supplier reported CO ₂ e emissions were used. Where these were not available, a survey was used to determine type of truck and tonne.km. GHG emissions were calculated by multiplying tkm with 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		14%

	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) > EcolInvent 3.9.1	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 EcolInvent 3.9.1.
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) Other flights were reported in the '2022 business flights report' c) For other business travel, spend was used. Emissions factors (secondary data) > BEIS, 2022 For spend the 2019 Exiobase database was used.	Each type of business travel expense was assigned a corresponding Exiobase category. The amount of spending was then multiplied by the respective GHG conversion factor. Flight emission data that wasn't provided by the travel agency was calculated by multiplying the distances and flight class with the corresponding emission factors from BEIS, 2022.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		36%
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, 2022	GHG emissions were calculated by multiplying the travelled distance (216 days per year, back and forth) with 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		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 cars, or the distances and vehicle sizes were reported by LC Packaging's offices, warehouses & production facilities. Emissions factors (secondary data) > BEIS, 2022	GHG emissions were calculated by multiplying the amount of fuel used in 2022 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 2022 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 Ecolnvent (waste treatment for biowaste). Emissions factors (secondary data) > Ecolnvent 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 Ecolnvent. The GHG emissions were calculated by multiplying the amounts of waste with 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. Electricity use was calculated based on the power of the machine and the time it was in use as specified by the lessees. > DBPL leases dormitories to their employees. The electricity use was provided by DBPL. 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 2021 > Bangladesh: EcolInvent 3.9.1	The amount of electricity used in 2022 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

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THE
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