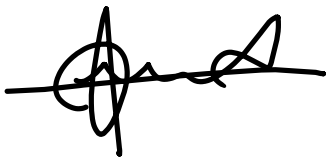
Qualifying Explanatory Statement

Declaration of carbon neutrality

Carbon neutrality of Tetra Pak beverage cartons with plant-based polymers in packaging material and closures carrying the Carbon Trust 'Carbon Neutral Packaging' label achieved by Tetra Pak in accordance with PAS 2060 at January 1st, 2024, with commitment to maintain to December 31st, 2024, Carbon Trust certified.

Signed: Gilles Tisserand, Vice President Climate & Biodiversity, Tetra Pak



Date: 2024-04-01

This Qualifying Explanatory Statement (QES) contains all the required information on the carbon neutrality of Tetra Pak® packages carrying the Carbon Trust 'Carbon Neutral Packaging' label. All the information provided within this report has been reviewed by a third party and is believed to be correct. Should any information be provided which affects the validity of the statements within this document, a revised version of the document will be subsequently issued.

This report is publicly available: https://www.tetrapak.com/sustainability/focus-areas/biodiversity-and-nature/responsible-sourcing/polymers

Issue date: 2024-04-01

Contents

1 Introduction

This Qualifying Explanatory Statement (QES) demonstrates that Tetra Pak has achieved carbon neutrality of beverage cartons with plant-based polymers in packaging material and closures, carrying the Carbon Trust 'Carbon Neutral Packaging' label, for the period starting January 1, 2023, and ending December 31, 2023.

Tetra Pak beverage cartons come in various types, formats, sizes and shapes. They are produced from paperboard, polymers and aluminium. In scope for the Carbon Neutrality certification are only those packages, which carry the Carbon Trust "Carbon Neutral Packaging" Label on pack. Eligible for this labelling are only Tetra Pak beverage cartons, where all polymer layers suitable[1] for conversion are replaced by plant-based polymers made from sugarcane. If the packaging has a closure, only packages with closures utilizing plant-based polymers are in scope.

The plant-based polymers are fully traceable to their sugarcane origin. Since March 2020 All Tetra Pak products made from plant-based polymers are delivered to customers as Bonsucro certified[2].

The increased share of plant-based materials reduces the carbon footprint of the package.
As an example, for Tetra Brik® Aseptic Edge 1000ml with plant-based LightCap 30, 37% carbon footprint reduction was achieved by utilizing plant-based polymers, compared to a standard package (based on Tetra Pak Global Average Data, product model version 10) This reduction comes on top of Tetra Pak´s overall value chain climate impact reduction measures. Based on these measures, the carbon footprint of the aforementioned Tetra Brik® Aseptic Edge 1000ml with plant-based polymers and with plant-based LightCap 30 was reduced by 6% between the latest two yearly re-certified versions of the Carbon Trust certified Tetra Pak internal calculation model.

Carbon neutrality of Tetra Pak® packages in scope has been achieved through:

- Emissions reduction implementations across the Tetra Pak portfolio including the use of plant-based polymers, improved energy utilisation and efficiency, and decarbonising of remaining energy
- Off-setting of residual carbon emissions

The information provided in this document is in line with the requirements outlined in the PAS 2060:2014 'Specification for the demonstration of carbon neutrality'.

The Carbon Trust has verified the carbon neutrality of the packages in scope and the alignment with PAS 2060:2014.

2 General Information

PAS 2060 information requirement	Information as it relates to Tetra Pak
Entity responsible for making the declaration	Tetra Pak
Individual responsible for the evaluation and provision of data necessary for the substantiation of the declaration including that of preparing, substantiating, communicating and maintaining the declaration	Gilles Tisserand, Vice President Climate & Biodiversity, Tetra Pak
Subject of the declaration	Cradle-to-grave Carbon Footprint of selected beverage cartons with plant-based polymers in

[1] The inner plastic layer of the aseptic packaging is made from a polymer currently not available plant-based. These packages therefore contain around 8% regular polymers in the packaging material.

[2] https://www.tetrapak.com/sustainability/focus-areas/biodiversity-and-nature/responsible-sourcing/polymers

	packaging material and closures, carrying the Carbon Trust 'Carbon Neutral Packaging' label.
Function of the subject	To protect, preserve, handle, transport and present its contents.
Rationale for the selection of the subject	Beverage cartons have a lower climate impact than most alternatives on the markets. The beverage cartons with plant-based polymers in packaging material and closures in scope of this certification have a lower climate impact compared to the same packaging utilizing only regular, fossil-based polymers.
Boundary	Cradle-to-Grave (Lifecycle steps: Raw Material, Converting, Forming & Filling, End-of-Life)
Specify the type of conformity assessment	Independent third-party certification. Certificate available in Annex D.
Baseline date for PAS 2060 programme	First Carbon Neutral certification for Tetra Rex ® beverage cartons started on February 1st, 2020, based on the carbon footprint calculated with version 6 of the Carbon Trust certified Tetra Pak internal calculation model, which was certified on February 28th, 2019. First Carbon Neutral certification for other beverage cartons started on September 1st, 2022, based on the carbon footprint calculated with version 8 of the Carbon Trust certified Tetra Pak internal calculation model, which was certified on January 1st, 2022 (See chapter 4 for summary of the timeline).

3 Boundaries of the Subject

The calculated carbon footprint includes GHG emissions from the processes taking place in the following life cycle steps (i.e., a 'cradle-to-grave' approach) of Tetra Pak beverage cartons:

- Raw material
  - Raw material production including resource extraction and transports (for example forestry)
- Converting
  - Transport of raw materials to the converting site (for example paperboard)
  - Packaging material (PM) converting (at Tetra Pak factories)
  - Closure converting (at Tetra Pak factories)
  - Film extrusion
  - Strip production
- Forming & Filling
  - Transport of packaging materials to filler
  - Forming and filling at customer site
  - Transport from filler to distribution centre
- End-of-life

The system boundary of the subject is shown in the figure below.

The unit of measurement is carbon footprint per package (g CO_2e per package). The carbon footprint is calculated for specific packages based on their QSV (Quality-Size-Variant) identification and the opening used. The carbon neutral certification and the carbon footprint calculation only look at the package. The packaged good and it´s footprint are out of scope, as Tetra Pak has neither control, no transparency of the carbon footprint of the packaged good. Various beverages, with very different climate impact can be filled in beverage cartons, and typically, the value chain footprint of the beverage is significantly higher, than that of the packaging (e.g. Milk with a footprint between 1.1 and 1.7 kg CO2e/litre, Orange Juice with 0.7 kg CO2e/litre or Dairy Alternatives with 0.3-0.4 kg CO2e/litre according to a recent study (ifeu 2020)). Therefore, including the filled good would drastically reduce comparability and visibility of any reduction efforts Tetra Pak can make within it´s direct value chain.

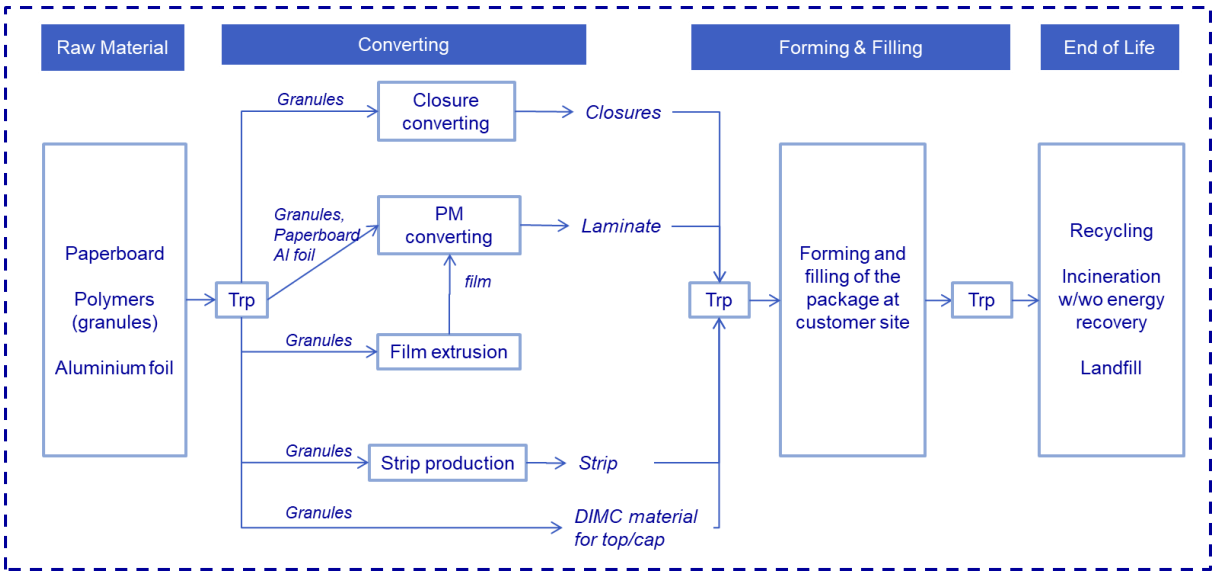


Figure 1: System boundaries and Lifecycle steps for Tetra Pak beverage carton carbon footprint calculation

4 PAS 2060 Carbon Neutrality Options

The entity demonstrates carbon neutrality for the subject as set out in PAS 2060:2014 for Period 4, starting January 1, 2023, and ending December 31, 2023.

A carbon management plan and offset strategy have been developed and these are summarised in Section 6 of this QES.

The baseline refers to when the carbon footprint for the subject was first determined in accordance with PAS 2060

This QES builds on two formerly separate QES, as previously separate Carbon Neutral certifications have been in place for the Tetra Rex® packaging range (Certification Letter CERT:13317) and the Tetra Pak® aseptic packaging range (Certification Letter CERT: 13352). The baseline for Tetra Rex® was February 2019, utilizing version 6 of the Product CO2 Model. For the aseptic range it was January 2022, utilizing version 8 of the Product CO2 Model. Beginning with Period 4, from January 2023 – December 2023, one shared certification was conducted for all Tetra Pak® beverage cartons utilizing plant-based polymers in packaging material and the closure Certification Letter CERT:13399. For the harmonized certification, it was decided to move to a yearly certification period (Jan-Dec) instead of the previously used February- January cycle. For simplification, the declaration of periods will remain in line with the previously established nomenclature from the Tetra Rex® range.

Table 1 gives an overview of the individual declaration periods. At the end of every period, a QES is prepared, and a declaration of achievement is prepared based on actual reduction and offset. The Carbon Trust verifies this declaration and the QES.

Table 1: Carbon neutrality declaration period overview

Period	Start Date	End Date	Comment
Baseline Period Tetra Rex	February 28 2019	January 31 2020	Tetra Rex only
Period 1	February 1 2020	January 31 2021	Tetra Rex only
Period 2	February 1 2021	January 31 2022	Tetra Rex only
Period 3	February 1 2022	December 31 2022	Tetra Rex only
Baseline Period Tetra Pak Aseptic range	*January 1 2022*	*December 31 2022*	*Tetra Pak Aseptic range only*
Period 1 Tetra Pak Aseptic range	*September 1 2022*	*December 31 2022*	*Tetra Pak Aseptic range only*
Period 4	January 1 2023	December 31 2023	Combined verification
Period 5	January 1 2024	December 31 2024	Combined verification

Carbon Trust has assessed carbon neutral compliance at the end of the declaration period 4 to ensure the correct amount of carbon offsets have been sourced. The process will be repeated at the end of declaration period 5.

5 Quantification of the Carbon Footprint

5.1 Methodology

The methodology as outlined in ISO 14040/14044, PAS 2050 and ISO 14067 have been followed for the GHG accounting. The methodology used was applied in accordance with provisions and principles of PAS 2060.

In addition, the guidance in the Product Category Rules (PCR) on beverage cartons (2015) have been followed when considered proper.

These accounting standards were chosen as they represent an internationally recognised approach to the calculation of product carbon footprints. Both PAS 2050 and ISO 14067 are specifically listed in PAS 2060 as 'standards and methodologies that can be presumed to meet the principles in this PAS'.

The Carbon Trust have verified that the carbon footprint of the packages in scope are meeting the requirements of the above-mentioned standards (ISO 14040/14044, PAS 2050 and ISO 14067). This verification happens every year, and the underlying calculation model ("CO_2 Product Model") is also updated every year. For period 4, the version of the CO_2 Product Model verified for 2023 was used ("version 9"), for period 5, version 10, which is verified by the Carbon Trust for 2024, will be used.

5.2 Included GHG emissions

The calculations are based on Global Warming Potential characterisation factors as published by the Intergovernmental Panel on Climate Change (IPCC) for a time horizon of 100 years.

These include (but are not limited to): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs).

All Scope 1, 2 and 3 emissions relevant to the product are included in the carbon footprint.

Also impact of land use change (LUC) is included in the modelling, as in line with ISO 14067 and PAS 2050.

Biogenic carbon and Land Use Change
For version 9: The biogenic carbon embedded in the material (based on the bio-based carbon content of the material) and its release at end of life is included in the modelling but reported separately.

Biogenic carbon is not included in the carbon footprint of the subject.

For version 10: For bio-based polymers, biogenic carbon uptake and emissions are included by applying -1 and +1 characterisation factors to these flows of biogenic CO_2 respectively In line with section 6.5.2 of ISO 14067 and PAS 2050. This makes transparent the intrinsic difference in the embodied carbon in bio-based and fossil-based polymers. Conversely for paperboard a more conservative approach of applying the so called 0/0 approach is applied.

The biogenic carbon embedded in the material (based on the bio-based carbon content of the material) is, in addition, reported separately (ISO 14067).

For both versions: The impact of LUC is included in the modelling, in line with ISO 14067 and PAS 2050.

5.3 Inventory data

The specific material composition of the respective package, defining the amount of paperboard, aluminium and polymers needed, is used for as the basis for the calculation.

In version 9 of the CO_2 Product Model, two different datasets for raw materials are deployed and combined with the most appropriate data for other life-cycle steps:

- **Dataset A: Focus on Tetra Pak supplier primary data (Global):** Tetra Pak global average of Tetra Pak supplier primary data for raw materials (Excl. fossil polymers data which is European industry data) – Global average Tetra Pak converting data – Global average transport data – Global average forming and filling data – Global Average end of life situation
- **Dataset B: Focus on publicly available industry data for raw materials (Europe):**EU industry data for raw materials – Global average Tetra Pak cconverting data – European average transport data – Global average forming and filling fata – European average end of life situation

The **raw material** inventory data for dataset B is based on latest available industry average data, which is only available from European industry associations (for liquid paperboard, aluminium, and polymers) and thus accompanied by European average data for other lifecycle steps where

appropriate. For production of liquid packaging board average data as presented by The Alliance for Beverage Cartons and the Environment (ACE, 2011a) is used in the baseline and until version 8 of the underlying product CO2 model. For the version 9 calculations, an updated dataset was used from the same source (ACE, 2020). For plastics data as presented by Plastics Europe is used (www.plasticseurope.org). Data for production of bio-based PE is sourced from the LCA made available by Braskem (Braskem, 2017). Data for virgin aluminium foil production is sourced from the European Aluminium Association (EAA, 2018). Data for non-bio-based polymers production is sourced from PlasticsEurope (PlasticsEurope 2014).

For dataset A, supplier specific data as collected for the Tetra Pak Scope 3 GHG reporting is used for liquid packaging board and aluminium. The Tetra Pak global average CO_2e emission factors for liquid packaging board and aluminium represent a weighted average of the cradle-to-paperboard mill-gate emissions and the cradle-to-aluminium foil producer-gate emissions. A rolling 3-year average is used in the CO_2e Product model. The data used for polymers is identical to dataset B due to lack of supplier specific data.

For the **converting** operations global average data from Tetra Pak's GHG reporting is used for both datasets, representing the performance in the last full reporting year at the time of each yearly revision of the calculation model. The impact of the transport of raw materials to the converting factory is included in the converting result. For Dataset A, inventory data for the inbound transport of raw materials represents the Tetra Pak global average, as included in the Scope 3 GHG Inventory under Category 4. For Dataset B, the transport distances and means are taken from the PCR (PCR, 2015).

Forming and filling represents Tetra Pak global average impact of the most recent version of the filling machine, relevant for the type and size of the package, in both datasets. Data is sourced from Tetra Pak's GHG reporting. The transport of packaging materials to the filler is included. For Dataset A, it is based on the inventory data for the outbound transport of packaging materials, representing the Tetra Pak global average, as included in the Scope 3 GHG Inventory. For Dataset B, the transport distances and means are taken from the PCR (PCR, 2015).

The **end-of-life** scenario used in dataset B represents the European average situation for cartons, based on ACE statistics[3]. For dataset A, a default global end-of-life scenario is defined based on recycling and end-of-life statistics as reported quarterly by each market. The recycling rate is publicly available on tetrapak.com[4], The 'cut-off' method has been used when modelling end-of-life: the GHG emissions from the recycling process have been allocated to the user of the recycled material and no environmental burdens nor credits have been included in the results for cartons going to recycling or incineration with energy recovery. This is line with the stipulated approach in PAS 2050, the PCR (2015) and Tetra Pak's scope 3 GHG accounting.

The latest available data at the time of the Product Carbon Footprint certification by the Carbon Trust are used.

With version 10, Dataset B was replaced with two new datasets, that will be relevant for period 5 of the carbon neutral verification.

- **Dataset C: Focus on Tetra Pak supplier primary data (Europe):** Tetra Pak European average of Tetra Pak supplier primary data for raw materials (Excl. fossil polymers data which is European industry data) – Global European Tetra Pak converting data – Global average transport data – Global average forming and filling data – European average end of life situation
- **Dataset D: Focus on Tetra Pak supplier primary data (Rest of the World):** Tetra Pak rest of the world average of Tetra Pak supplier primary data for raw materials (Excl. fossil polymers data which is European industry data) – Rest of the world average Tetra Pak converting data – Global average transport data – Global average forming and filling data – Rest of the world end of life situation

For these Europe and Rest of the World subsets, the supplier specific emission factors have been weighted based on the volumes supplied to the converting factories in the respective region by each

[3] http://www.ace.be/

[4] https://www.tetrapak.com/sustainability/planet/environmental-impact/a-value-chain-approach/sustainability-measuring-and-reporting/envir-performance-data

supplier. The converting lifecycle step is based on the weighted average of the converting factories in each region. For the lifecycle step end of life, the end-of-life split for the respective region was applied.

Within the Carbon Neutral certification, dataset B is used for packaging sold to Tetra Pak customers located in Europe until end of period 4. This dataset was the only one available as of baseline date in 2019 and is continued to be used with the European customers, as the initial Carbon Neutral certification was limited in scope to Europe. In the meantime, Tetra Pak has obtained more carbon footprint data from suppliers, enabling the use of Dataset A, C and D. Dataset A was applied to all packages sold to Tetra Pak customers outside Europe as with the Certification beginning in January 2023, the scope of the certification was expanded to all global regions. Beginning with period 5 in January 2024, Dataset C will be used to calculate the footprint for packages sold to customers in Europe and Dataset D for packages sold to customers outside Europe.

The use of the EU/Europe focussed dataset for customers in Europe is justified by internal analysis of the material flows: In 2021 and 2022, 99% of all Packaging sold in Europe was produced in a European Tetra Pak Factory, and more than 95% of the Aluminum and Paperboard used in these Factories were provided by European Suppliers.(For polymers and plant-based polymers, global industry emission factors are used in all datasets)

5.4 Cut off

Life cycle inventory data for a minimum of 99% of total in- and outflows (based on weight) to/from the converting process shall be included (PCR, 2015).

The following cut-offs have been made:

- Ink for printing and colours in caps has been excluded because of the small amounts (printing inks < 0.5% of a package according to ACE (2011)).
- Waste management of non-recovered waste generated in operations (<0.1% as described in the inventory section).

5.5 Data quality and uncertainty assessment of the results

Inventory data for raw material production is considered to be robust with a low uncertainty. The inventory data has been compared to other references where available, and comparisons to previous versions of the datasets have been made in order to understand the data and any uncertainties.

In addition, the data quality has been assessed int the underlying model, using the data quality requirements from PAS 2050 (2011). Each of the datasets with a material impact on the results have been evaluated against these criteria. Three levels of data quality have been used: ‘good’ meaning that the data matches the goal and scope of the study; ‘medium’ meaning that the data is good enough for the goal and scope of the study, but further action is needed to close the gaps. ‘Low’ data quality can be acceptable if the data set is non-material to the results.

According to the Carbon Trust ‘Product Carbon Footprint Protocol, Part 1: Requirements for Certification’, the required data quality score for public communication and use of the Carbon Label is to have at least 70% of the cumulative contribution to the final footprint of ‘good’ data quality, 25% can be of ‘medium’ quality and 5% of ‘low’ quality.

The data quality assessment against these criteria shows that the underlying inventory data is in line with the PAS 2050 requirements.

Table 2: Data quality rules and preferences (PAS 2050:2011, Section 7.2)

Data quality rules:	Preferences:
Time related coverage	Data that are time-specific to the product being assessed shall be preferred.
Geographical coverage	Data that are geographically specific to the product being assessed shall be preferred.
Technology coverage	Data that are technology-specific to the product being assessed shall be preferred.

Precision	Data that are more precise (i.e., have the lowest statistical variance) shall be preferred.
Accuracy of the information (PAS 2050) (Uncertainty of the information (ISO))	Data that are most accurate shall be preferred; bias and uncertainty have been reduced as far as practical.

Table 3: Data quality rules that requires documentation (PAS 2050:2011, Section 7.2)

Data quality rules:	
Completeness	The percentage of data that are measured, and the degree to which the data represents the population of interest; is the sample size large enough, is the periodicity of measurement sufficient, etc.
Consistency	Qualitative assessment of whether the selection of data is carried out uniformly in the various components of the analysis.
Reproducibility	Qualitative assessment of the extent to which information about the method and data values would allow an independent practitioner to reproduce the results reported in the study.
Data source	With reference to the primary or secondary nature of the data. Definition of 'Primary data' as in ISO/TS 14067:2013: *'Quantified value of a process or an activity obtained from a direct measurement, or a calculation based on direct measurements. Primary data need not necessarily originate from the product system under study because primary data may relate to a different but comparable product system to that being studied.'*

5.6 Carbon footprint of the subject

The subject of certification are Tetra Pak beverage cartons with plant-based polymers in packaging material and closures carrying the Carbon Trust 'Carbon Neutral Packaging' label on request of our customers. The Carbon Footprint of each packaging is individually calculated based on the specification. The full list of packaging sold as Carbon Neutral, including the total calculated carbon footprint as a result of chosen specifications and total sales is provided for audit to a third party (The Carbon Trust) at the end of each period. Table 4 shows the version 9 footprint data for all packaging sold as Carbon Neutral verified in 2023, based on the respective region there were sold in. Only one QSV was sold outside Europe. The QSV (Quality Size Variant) is an internal identifier to differentiate between packages of the same package family but with different specifications (e.g., between a package suited for dairy packaging and one suited for juice packaging). All packages shown here have a significantly lower carbon footprint compared to a standard package with only fossil polymers. The results are presented with two value numbers. Rounding have not been made in the underlying calculations. All our customers placing Carbon Neutral certified packaging on the market receive a product carbon footprint report for the specific packaging they utilize.

Table 4: Carbon footprint of packages that have been sold as Carbon Neutral verified in 2023. Full life cycle scope. Based on latest available data (based on version 9 of the Tetra Pak CO_2 product model).

Package	QSV	Opening	Region of Sales	Cradle to Grave Footprint V9 (g CO2e/pkg)
TBA 1000 Edge	C494-799-D3	LightWing™ 30	Europe	39
TBA 1000 Edge	C491-799-D3	WingCap™ 30	Europe	40
TBA 1000 Edge	C492-799-D3	WingCap™ 30	Europe	40
TBA 1000 Slim	C496-813-49	HeliCap™ 23	Europe	40
TBA 1000 Slim	C496-813-49	HeliCap™ 23 Pro	Europe	39

Package	QSV	Opening	Region of Sales	Cradle to Grave Footprint V9 (g CO2e/pkg)
TBA 1500 Slim	C525-835-49	HeliCap™ 23	Europe	54
TBA 1500 Slim	C525-835-49	HeliCap™ 23 Pro	Europe	52
TGA 1500 Square	C497-843-B1	HeliCap™ 26 Pro	Europe	60
TR 1000 Base	B662-810-15	Easy Opening	Europe	26
TR 1000 Base	B748-810-15	Easy Opening	Global	35
TR 1000 Base	B616-810-75	TwistCap™ OSO 34	Europe	19
TR 1000 Base	B662-810-75	TwistCap™ OSO 34	Europe	26
TR 1000 Base	B717-810-75	TwistCap™ OSO 34	Europe	21
TR 1750 Mid	B616-847-91	TwistCap™ OSO 34	Europe	31
TR 2000 Mid	B616-856-91	TwistCap™ OSO 34	Europe	33
TR 300 Base	B616-580-75	TwistCap™ OSO 34	Europe	12
TR 500 Base	B616-700-75	TwistCap™ OSO 34	Europe	14
TR 500 Base	B662-700-75	TwistCap™ OSO 34	Europe	18
TR 500 Base	B748-700-75	TwistCap™ OSO 34	Europe	14
TSA 1000 Edge	C476-799-B3	LightWing™ 30	Europe	40
TSA 1000 Edge	C482-799-B3	LightWing™ 30	Europe	40
TSA 1000 Edge	C482-799-B3	WingCap™ 30	Europe	40
TBA 200 Base	C491-460-17	PullTab™	Europe	14
TBA 200 Slim Leaf	C689-B07-B8	Straw	Europe	7
TBA 330 Slim	C491-600-17	PullTab™	Europe	19
TPA 330 Square	C508-602-70	DreamCap™ 26 Pro	Europe	23
TPA 1000 Square	C508-811-B1	HeliCap™ 26 Pro	Europe	50
TPA 500 Edge	C632-588-70	DreamCap™ 26 Pro	Europe	29
TPA 330 Square	C548-602-70	DreamCap™ 26 Pro	Europe	18
TBA 1000 Slim	C568-813-49	HeliCap™ 23	Europe	40
TSA 1000 Edge	C645-799-B3	LightWing™ 30	Europe	40
TGA 1000 Square	C497-811-B1	HeliCap™ 26 Pro	Europe	46
TBA 1000 Edge	C490-799-B3	LightWing™ 30	Europe	40
TPA 300 Edge	C548-B55-70	DreamCap™ 26 Pro	Europe	17
TBA 1000 Ultra Edge	C490-B25-D3	WingCap™ 30	Europe	41
TBA 500 Edge	C491-588-D3	LightWing™ 30	Europe	26
TBA 500 Edge	C492-588-D3	LightWing™ 30	Europe	26
TR 250 Base	B662-560-D2	TwistCap™ OSO 30	Europe	15
TR 1000 Base	C458-810-15	Easy Opening	Europe	42
TR 1000 Base	C395-810-15	Easy Opening	Europe	18
TR 2000 Mid	C123-856-91	TwistCap™ OSO 34	Europe	64
TR 250 Base	B616-560-15	Easy Opening	Europe	19
GT 1000 B Base	B812-B06-43	TwistCap™ OSO 34	Europe	21
TR 1000 Base	B662-810-D2	TwistCap™ OSO 30	Europe	26

Indicative climate impact reduction trajectories for all these packages can be found in Annex C.

6 Carbon Management Plan

6.1 Timescale of Carbon Management plan

The Carbon Management Plan considers carbon neutrality for the packages in scope during the period January 1, 2024, to December 31, 2024.

6.2 GHG emission reduction targets during carbon neutrality achievement period

Tetra Pak is working on a continuous path towards decarbonising its operations and value chain. In 2011 Tetra Pak set a Climate Goal to cap value chain GHG emissions at 2010 levels through to 2020, despite business growth. This goal has been achieved, exceeding the ambition to cap emissions – in fact, total emissions have been reduced by 19% (2.54mio tonnes CO2e), see Figure 3. Tetra Pak has also been recognised as demonstrating Climate leadership being listed in the CDP's Leadership band for the fifth year running (2019-2023).

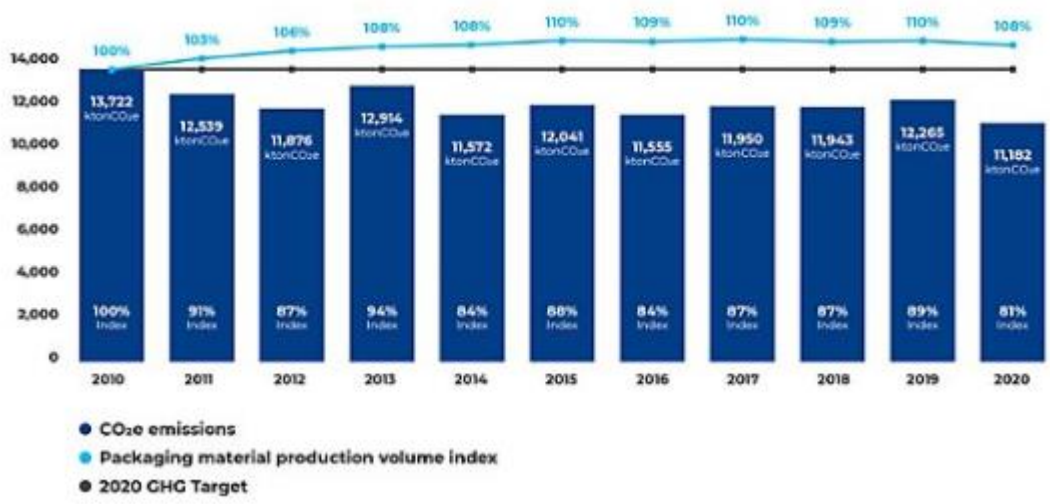


Figure 2 Tetra Pak progress towards achieving the 2020 Climate Goal[5]. GHG emissions across the value chain are shown in the figure.

Tetra Pak´s GHG accounting methodology has been updated with a 2019 baseline. The updated figures from 2019 on are shown in Figure 4:

[5] http://tetrapak.com/sustainability/environmental-impact/a-value-chain-approach/sustainability-measuring-and-reporting/envir-performance-data#climate

Tetra Pak's GHG emissions inventory	2019 base year (metric kilotonnes CO_2e)	2020 reference year (metric kilotonnes CO_2e)	2021 reference year (metric kilotonnes CO_2e)	2022 inventory year (metric kilotonnes CO_2e)
Scope 1 emissions				
Total scope 1	64	62	62	60
Scope 2 emissions				
Total scope 2 (market-based, MB)	113	55	62	58
Total scope 2 (location-based, LB)	347	345	349	361
Scope 3 upstream emissions				
Category 1: Purchased goods and services	4,236	3,854	3,732	3,822*
Category 2: Capital goods	Excluded			
Category 3: Fuel- and energy-related activities (market-based, MB)	54	38	38	37
Category 3: Fuel- and energy-related activities (location-based, LB)	99	103	102	106
Category 4: Upstream transportation and distribution	540	562	641	649
Category 5: Waste generated in operations	3	2	2	2
Category 6: Business travel	40	17	9	14
Category 7: Employee commuting	Excluded			
Category 8: Upstream leased assets	Not applicable			
Scope 3 downstream emissions				
Category 9: Downstream transportation and distribution	36	37	32	41
Category 10: Processing of sold products	Included in category 11			
Category 11: Use of sold products	6,991	6,393	7,544	6,829
Category 12: End-of-life treatment of sold products	842	826	822	815
Category 13: Downstream leased assets	Included in category 11			
Category 14: Franchises	Not applicable			
Category 15: Investments	Not applicable			
Total scope 3 (includes MB approach for category 3)	12,741	11,729	12,821	12,210
Total GHG emissions Scope 1, 2 and 3 (includes MB approach for scope 2 and scope 3, category 3)**	**12,918**	**11,847**	**12,945**	**12,327**

**2022 paperboard and aluminium foil GHG emissions are based on 2021 supplier provided emission factors and 2022 purchased volumes. This change was necessary due to a shift in reporting cycles. **Due to rounding, numbers presented in the table may not add up precisely to the totals provided.*

Figure 4: Tetra Pak 2019-2022 climate impact summary.

In September 2020 Tetra Pak set a longer-term climate target approved by the Science Based Targets Initiative, which was updated to a Net Zero target in 2022[6]. The new Science Based Target is:

Long-Term targets:
Tetra Pak commits to reach net-zero greenhouse gas emissions across the value chain by 2050 from a 2019 base year.

[6] https://sciencebasedtargets.org/

Tetra Pak commits to reduce absolute scope 1, 2 and 3 GHG emissions 90% by 2050 from a 2019 base year.
Near-Term target:
Tetra Pak commits to reduce absolute scope 1, 2 and 3 GHG emissions 46% by 2030 from a 2019 base year.
The target boundary includes land related emissions and removals from bioenergy feedstocks.

The value chain near term target from 2019 to 2030 is equivalent to a yearly value chain climate impact reduction of 4.2% of the Baseline 2019 impact. In Annex C, we applied this yearly reduction target to all individual products in scope of this certification.

6.3 Emissions reduction implementations across our aseptic portfolio

Tetra Pak's overarching approach for delivering emission reductions is to:

- Drive GHG emission reductions across our supply chain
- Improve energy utilisation and efficiency
- Decarbonise remaining energy use

Drive GHG emission reductions across our supply chain
Tetra Pak's Science Based Targets require a strong emphasis on working across our value chain to reduce emissions. During 2020 Tetra Pak launched a new supplier sustainability initiative requiring our paperboard, aluminium and polymer suppliers to make sustainability commitments. Out of the 20 actions for 2030 of the initiative, the prioritised action is for our base material suppliers to reduce their greenhouse gas emissions by 50% versus a 2019 baseline. Of particular relevance to our packaging is driving emissions reductions from our paper board suppliers. Between 2021 and 2022 we saw an improvement in the emission intensity from 0.71 to 0.69 tCO2e/t paperboard. The aseptic beverage cartons additionally profit from the emission reduction efforts of our Aluminium suppliers. Here, we saw a recent improvement from 8.99 t to 7.4 t CO2e/t Aluminium. Further reducing the supplier specific emissions for Aluminium remains a key priority throughout 2023 and 2024.
A second lever is the use of renewable materials, increasing the share of paperboard and plant-based polymers. For e.g., a TBA 1000 Edge LightCap, a37% reduction was achieved based on respectively Global average data. The carbon footprint reduction was achieved by the use of plant-based polymers (based on version 10 of the Tetra Pak CO2 product model)

Improve energy utilisation and efficiency
Further steps to reduce absolute emissions are that Tetra Pak has had an energy efficiency programme in place for over 10 years. Under this programme energy audits are undertaken at Tetra Pak factories to identify emission reduction opportunities. Opportunity identification is followed up by investments to deliver GHG reductions. In conjunction with this Tetra Pak follows the World Class Manufacturing programme, manufacturing sites have energy efficiency KPIs, and they are continuously working to improve efficiency at their sites.

In 2021, we launched the Common Energy Monitoring Platform project to reduce energy demand across our manufacturing sites through proactive energy management. The project will enable further onsite energy optimisation by providing real time data and identifying areas where we can improve energy efficiency.

Decarbonise remaining energy
71% of Tetra Pak's operational emissions are linked to electricity. Significant emission reductions can be achieved through switching to renewable electricity. Tetra Pak has a 100% renewable electricity goal in place for the year 2030. At the end of 2022, 84% of electricity sourced by Tetra Pak came from renewable electricity. Tetra Pak follows the GHG protocol Scope 2 Quality Criteria for ensuring

credibility of renewable electricity sourcing. Furthermore, our GHG accounting numbers, including renewable electricity sourcing are annually audited by a 3rd party[7].

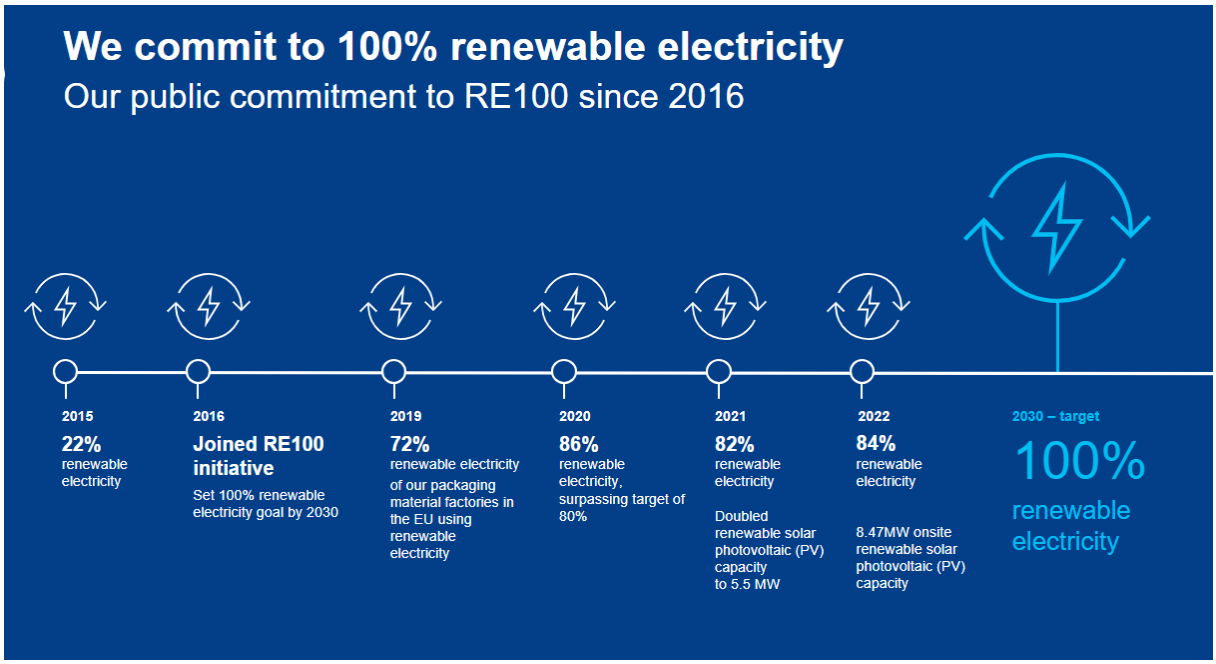


Figure 5: Tetra Pak Renewable Electricity Roadmap

As part of the 100% renewable electricity goal, it is being investigated how to maximise the self-production of renewable electricity across our operations. We have recently increased our solar photovoltaic capacity to 8.47 MW. Through to 2030 plans are in place to install further onsite solar thereby leading to further operational CO_2e emission reductions.

As described above through Tetra Pak's energy efficiency and renewable electricity activities a key focus area remains on driving further absolute emission reductions.

6.4 Product level climate impact reduction achieved

We yearly update our CO_2 Product Model to reflect the climate impact reduction on product level achieved by the previously discussed measures. As described in chapter 5.3, we utilize Tetra Pak value chain specific data in various lifecycle steps. Table 5 shows the development of the key Tetra Pak value chain specific emission factors between version 9 of the CO_2 Product Model (used for period 4 of the Carbon Neutrality verification) and version 10 (which will be used for period 5).

Table 5: Comparison of Tetra Pak Global average emission factors and waste rate between version 9 and version 10

	Change between v9 and v10
Emission factors	**%**
Paperboard	-3%
Aluminium	-18%
Transport LPB to converter	1%
Transport polymer to converter	1%
Transport Al to converter	1%

[7] https://www.tetrapak.com/content/dam/tetrapak/media-box/global/en/documents/GHG-Inventory-Report.pdf

Transport to filler	23%
Converting	-12%
Average change materials EFs	-8%
Average change transport EFs	6%
Waste rate	**%**
Converting waste	0%
Top/cap/opening production waste	0%
Film production waste	-20%
Strip production waste	7%
Plastic straw production waste	26%
Paper straw production waste	-52%
Average deviation waste rate	-6%

There has been a reduction in the Tetra Pak specific raw material emissions factors for Aluminium and paperboard and in the converting emission factor. The waste rates show a mixed development and the transport emission factor increased. Raw materials have the biggest impact on the product lifecycle climate impact of beverage cartons. To demonstrate that the raw material related footprint reduction outweighs the other changes on packaging level, we have calculated a comparable footprint for a sample portfolio of packages, which is presented in Table 6.

To be able to compare the change in product level carbon footprint between the different versions without accounting for benefits resulting from methodological changes to the model or outside of Tetra Pak control we are using a modified version of version 10 of the product model for Table 6: Version 10 with Tetra Pak Global average emissions factors and waste rate from version 9. This modified version then shows the effect of the development of the Tetra Pak specific data only.

In this representative sample, the carbon footprint of each package has decreased, as a result of the raw material footprint reduction. The results in this table have been rounded to the first digit, to enable visibility of the differences between the two versions. The reduction values for the aseptic packages (TBA, TPA, TGA and TSA) is higher (between -6% and -9%), as our continuous work with our aluminium suppliers has resulted in a significantly lower emission factor for aluminium.

Table 6: Comparison of Cradle-to-grave carbon footprint between V9 (modified) and V10

				V10 with V9 EFs	V10	
Package type	**Shape**	**Size (ml)**	**Opening**	**Cradle to Grave Footprint (g CO2e/pkg)**	**Cradle to Grave Footprint (g CO2e/pkg)**	**Reduction**
Tetra Brik Biobased	Slim	200	Strawhole	10.1	10.0	-1%
Tetra Brik Aseptic Biobased	Edge	1000	LightCap 30 Biobased Lid and Neck	43.3	40.9	-6%
Tetra Prisma Aseptic Biobased	Edge	500	DreamCap 26 Biobased	33.5	31.4	-6%
Tetra Rex Biobased	Base	500	Easy Opening	23.3	23.2	-1%

Tetra Rex Biobased	Base	500	TwistCap OSO 34 Biobased	18.4	18.3	-1%
Tetra Top CB Biobased	Base	1000	Eifel C38 Biobased Cap and Top	19.5	19.5	-0.2%
Tetra Gemina Aseptic Biobased	Square	1000	HeliCap 27 Biobased	56.5	52.9	-6%
Tetra Fino Aseptic Biobased	Pillow-shape	1000	No opening	25.1	22.8	-9%
Tetra Stelo Aseptic Biobased	Edge	500	WingCap Bio-based Lid and Neck	24.5	23.0	-6%

6.5 Carbon offset strategy

All Tetra Pak® packages labelled as carbon neutral during the period 4 are supported by carbon offsets. During period 4 (January 2023 to December 2023) the total carbon footprint was 11669 tCO2e, consequently 11669 credits have been used. The offset strategy deployed has been to utilize 512 outstanding credits from the 1500 credits retired for period 3 and purchase and retire additional 26000 tCO_2e of which 11157 credits were utilised in Period 3. A balance of 14843 credits is carried forward to Period 5 (January 2024 - December 2024). We expect this balance to cover all offsets needed in Period 4, but might purchase offsets will be purchased through Period 4 following the speed of contracting additional customers to deploy labelled packages. This strategy will ensure we always have carbon offsets secured to allocate to our carbon neutral labelled packages.
Throughout the year, the number of packs labelled is tracked based on sales data and the associated carbon emissions and consumed offsets are traced. At the end of each annual qualification period, these values will be independently validated by a third party (Carbon Trust) to ensure that the volumes of offsets purchased match the number of packs labelled across the year.

The carbon offset standard selected is the Gold Standard[8]. All purchased credits were immediately retired and can be traced in the Gold Standard registry to ensure no double counting is happening.

Tetra Pak has chosen to support two Gold Standard certified projects during this qualifying period:

- Safe Community Water Supply, Gatsibo District Borehole Project[9] ,
- RwandaWater is Life, Madagascar[10]

The projects were selected, as on top of achieving verified emission reductions, they create positive social impact in line with the UN Sustainable Development Goals, specifically goal 6 “Clean Water and Sanitation”. For Tetra Pak, our brand promise “protects what´s good” refers to protecting food, people and the planet, and we see these projects supporting all three pillars. As we are operating a global supply chain, emissions occur at various places in the world. A geographical coherence between where compensation projects are carried out and where the emissions occur was thus not possible.

Table 7 summarizes all projects utilized including the registry links. The credits have been retired in batches, thus there are different vintage years and monitoring periods listed within each project.

In addition to selecting Gold Standard certified offsets, the Carbon Trust has also reviewed these projects to ensure that they meet PAS 2060 criteria and Carbon Trust’s own requirements for carrying their Carbon Neutral label.

[8] https://www.goldstandard.org/

[9] https://registry.goldstandard.org/projects/details/1503

[10] https://registry.goldstandard.org/projects/details/2649

Table 7: Summary of the carbon offsets retired for the qualifying period

Project Type	Country	Techno-logy	Standard & Type of credit	Vintage	Moni-toring Period	Volume (tCO_2e)	Date of retire-ment	Link to registry	Offset Price
Energy Efficiency	Rwanda	Safe Community Water Supply, Gatsibo District Borehole Project	Gold Standard VER	2020	6th Feb 2020 – 05th Feb, 2021	1500 (988 utilised in period 3, 512 utilised in period 4)	20th December 2022	https://registry.goldstandard.org/credit-blocks/details/313671	Between €10 and €40/tCO2
Energy Efficiency	Madagascar	Water is Life	Gold Standard VER	2020/ 2021	Oct 09, 2020 — Aug 30, 2021	7000 (7000 utilised in period 4)	3rd July 2023	https://registry.goldstandard.org/batch-retirements/details/144571 https://registry.goldstandard.org/batch-retirements/details/144572	Below €10/tCO2
Energy Efficiency	Rwanda	Safe Community Water Supply, Gatsibo District Borehole Project	Gold Standard VER	2020/ 2021	Oct 01, 2019 — Sep 30, 2020 / Feb 06, 2020 — Feb 05, 2021	19000 (4157 utilised in period 4)	3rd July 2023 / 30th August 2023	https://registry.goldstandard.org/batch-retirements/details/144573 https://registry.goldstandard.org/batch-retirements/details/144574 https://registry.goldstandard.org/batch-retirements/details/149957 https://registry.goldstandard.org/batch-retirements/details/149958	Below €10/tCO2
Carbon offsets retired						**27500**			
Carbon offsets utilized in Period 4						**11669**			
Carbon offsets available for Period 5						**14843**			

7 References

ACE 2011, LCI dataset for converting of beverage carton packaging material, The Alliance for Beverage Cartons and the Environment (ACE) and IFEU, Sept 2011.

ACE 2011a, LCI dataset for Liquid Packaging Board (LPB), The Alliance for Beverage Cartons and the Environment (ACE).

[ACE 2020] LCI dataset for Liquid Packaging Board (LPB) production, The Alliance for Beverage Cartons and the Environment (ACE) and IFEU, Dec 2020.

Braskem, 2017: I'm green™ PE Life Cycle Assessment. Available on: http://plasticoverde.braskem.com.br/Portal/Principal/Arquivos/Download/Upload/GreenPE-LCASummary2017-CarbonTrust_v.2_230.pdf

[EAA 2018] European Aluminium Association: Environmental Profile Report for the European Aluminium Industry. EAA, Brussels, February 2018. https://www.european-aluminium.eu/resource-hub/environmental-profile-report-2018/

Ifeu, 2020: Ökologischer Fußabdruck von Lebensmitteln und Gerichten in Deutschland, Available on:https://www.ifeu.de/fileadmin/uploads/Reinhardt-Gaertner-Wagner-2020-Oekologische-Fu%C3%9Fabdruecke-von-Lebensmitteln-und-Gerichten-in-Deutschland-ifeu-2020.pdf

PCR, 2015: Product Category Rules, BEVERAGE CARTONS, VERSION 2.0, International EPD® System

PlasticsEurope 2014, Eco-profiles and Environmental Product Declarations of the European Plastics Manufacturers: High-density Polyethylene (HDPE), Low-density Polyethylene (LDPE), Linear Low-density Polyethylene (LLDPE), April 2014

Annex A: QES Checklist – Declaration of Commitment

Table 6 provides a checklist of the required information that should be included in the declaration of commitment to carbon neutrality according to PAS 2060:2014, as well as identification of where the information is located in this QES.

Table 6: Checklist for QES supporting declaration of commitment to carbon neutrality

PAS 2060: QES checklist	Section in this QES
1) Identify the individual responsible for the evaluation and provision of data necessary for the substantiation of the declaration including that of preparing, substantiating, communicating and maintaining the declaration.	2
2) Identify the entity responsible for making the declaration.	2
3) Identify the subject of the declaration.	2
4) Explain the rationale for the selection of the subject. (The selection of the subject should ideally be based on a broader understanding of the entire carbon footprint of the entity so that the carbon footprint of the selected subject can be seen in context; entities need to be able to demonstrate that they are not intentionally excluding their most significant GHG emissions (or alternatively can explain why they have done so)).	2
5) Define the boundaries of the subject.	3
6) Identify all characteristics (purposes, objectives or functionality) inherent to that subject.	2
7) Identify and take into consideration all activities material to the fulfilment, achievement or delivery of the purposes, objectives or functionality of the subject.	3
8) Select which of the 3 options within PAS 2060 you intend to follow.	4
9) Identify the date by which the entity plans to achieve the status of ”carbon neutrality” of the subject and specify the period for which the entity intends to maintain that status.	4
10) Select an appropriate standard and methodology for defining the subject, the GHG emissions associated with that subject and the calculation of the carbon footprint for the defined subject.	5
11) Provide justification for the selection of the methodology chosen. (The methodology employed shall minimize uncertainly and yield accurate, consistent and reproducible results.	5
12) Confirm that the selected methodology was applied in accordance with its provisions and the principles set out in PAS 2060.	5
13) Describe the actual types of GHG emissions, classification of emissions (Scope 1, 2 or 3) and size of carbon footprint of the subject exclusive of any purchases of carbon offsets.	5
a) All greenhouse gases shall be included and converted into tCO_2e.	5
b) 100% Scope 1 (direct) emissions relevant to the subject shall be included when determining the carbon footprint.	5
c) 100% Scope 2 (indirect) emissions relevant to the subject shall be included when determining the carbon footprint.	5

d) Where estimates of GHG emissions are used in the quantification of the subject carbon footprint (particularly when associated with scope 3 emissions) these shall be determined in a manner that precludes underestimation.	5
e) Scope 1, 2 or 3 emission sources estimated to be more that 1% of the total carbon footprint shall be taken into consideration unless evidence can be provided to demonstrate that such quantification would not be technically feasible or cost effective. (Emission sources estimated to constitute less than 1% may be excluded on that basis alone.)	5
f) The quantified carbon footprint shall cover at least 95% of the emissions from the subject.	5
g) Where a single source contributes more than 50% of the total emissions, the 95% threshold applies to the remaining sources of emissions.	5
h) Any exclusion and the reason for that exclusion shall be documented.	5
14) Where the subject is an organization/company or part thereof, ensure that:	Not applicable
a) Boundaries are a true and fair representation of the organization's GHG emissions (i.e., shall include all GHG emissions relating to core operations including subsidiaries owned and operated by the organization). It will be important to ensure claims are credible – so if an entity chooses a very narrow subject and excludes its carbon intensive activities or if it outsources its carbon intensive activities, then this needs to be documented.	Not applicable
b) Either the equity share or control approach has been used to define which GHG emissions are included. Under the equity share approach, the entity accounts for GHG emissions from the subject according to its share of equity in the subject. Under the control approach, the entity shall account for 100% of the GHG emissions over which it has financial and/or operational control.	Not applicable
15) Identify if the subject is part of an organization or a specific site or location, and treat as a discrete operation with its own purpose, objectives and functionality.	Not applicable
16) Where the subject is a product or service, include all Scope 3 emissions (as the lifecycle of the product/service needs to be taken into consideration).	5
17) Describe the actual methods used to quantify GHG emissions (e.g., use of primary or secondary data), the measurement unit(s) applied, the period of application and the size of the resulting carbon footprint. (The carbon footprint shall be based as far as possible on primary activity data.) Where quantification is based on calculations (e.g., GHG activity data multiplied by greenhouse gas emission factors or the use of mass balance/lifecycle models) then GHG emissions shall be calculated using emission factors from national (Government) publications. Where such factors are not available, international or industry guidelines shall be used. In all cases the sources of such data shall be identified.	5
18) Provide details of, and explanation for, the exclusion of any Scope 3 emissions.	5
19) Document all assumptions and calculations made in quantifying GHG emissions and in the selection or development of greenhouse gas emission factors. (Emission factors used shall be appropriate to the activity concerned and current at the time of quantification.)	5
20) Document your assessments of uncertainty and variability associated with defining boundaries and quantifying GHG emissions including the	5

positive tolerances adopted in association with emission estimates. (The statement could take the form of a qualitative description regarding the uncertainty of the results, or a quantitative assessment of uncertainty if available (e.g., carbon footprint based on 95% of likely greenhouse gas emissions; primary sources are subject to variation over time; footprint is best estimate based on reasonable costs of evaluation)).	
21) Document Carbon footing management plan:	
a) Make a statement of commitment to carbon neutrality for the defined subject.	Page 1
b) Set timescales for achieving carbon neutrality for the defined subject.	6
c) Specify targets for GHG reduction for the defined subject appropriate to the timescale for achieving carbon neutrality including the baseline date, the first qualification date and the first application period.	6
d) Document the planned means of achieving and maintaining GHG emissions reductions including assumptions made and any justification of the techniques and measures to be employed to reduce GHG emissions.	6
e) Specify the offset strategy including an estimate of the quantity of GHG emissions to be offset, the nature of the offsets and the likely number and type of credits.	6
22) Implement a process for undertaking periodic assessments of performance against the Plan and for implementing corrective action to ensure targets are achieved. The frequency of assessing performance against the Plan should be commensurate with the timescale for achieving carbon neutrality.	6
23) Where the subject is a non-recurring event such as weddings or concert, identify ways of reducing GHG emissions to the maximum extent commensurate with enabling the event to meet its intended objectives before the event takes place and include post event review to determine whether or not the expected minimisation in emissions has been achieved.	Not applicable
24) For any reductions in the GHG emissions from the defined subject delivered in the period immediately prior to the baseline date and not otherwise taken into account in any GHG emissions quantification (historic reductions), confirm:	Not applicable
• the period from which these reductions are to be included;	Not applicable
• that the required data is available and that calculations have been undertaken using the same methodology throughout;	Not applicable
• that assessment of historic reduction has been made in accordance with this PAS, reporting the quantity of historic reductions claimed in parallel with the report of total reduction.	Not applicable
25) Record the number of times that the declaration of commitment has been renewed without declaration of achievement.	Not applicable
26) Specify the type of conformity assessment:	2
a) independent third-party certification;	
b) other party validation;	
c) self-validation.	
27) Include statements of validation where declarations of commitment to carbon neutrality are validated by a third-party certifier or second party organizations.	Annex D
28) Date the QES and have it signed by the senior representative of the entity concerned (e.g., CEO of a corporation; Divisional Director, where	Page 1

the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group).	
29) Make QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g., via websites).	Page 1
30) Update the QES to reflect changes and actions that could affect the validity of the declaration of commitment to carbon neutrality.	Page 1

Annex B: QES Checklist – Declaration of Achievement

Table provides a checklist of the required information that should be included in the achievement of carbon neutrality according to PAS 2060:2014, as well as identification of where the information is located in this QES.

Table 7: Checklist for QES supporting declaration of achievement of carbon neutrality

PAS 2060 checklist	Section in this QES
1) Define standard and methodology use to determine its GHG emissions reduction.	5
2) Confirm that the methodology used was applied in accordance with its provisions and the principles set out in PAS 2060 were met.	5
3) Provide justification for the selection of the methodologies chosen to quantify reductions in the carbon footprint, including all assumptions and calculations made and any assessments of uncertainty. *(The methodology employed to quantify reductions shall be the same as that used to quantify the original carbon footprint. Should an alternative methodology be available that would reduce uncertainty and yield more accurate, consistent and reproducible results, then this may be used provided the original carbon footprint is re-quantified to the same methodology, for comparison purposes. Recalculated carbon footprints shall use the most recently available emission factors, ensuring that for purposes of comparison with the original calculation, any change in the factors used is taken into account).*	5
4) Describe the means by which reductions have been achieved and any applicable assumptions or justifications.	6.3
5) Ensure that there has been no change to the definition of the subject. *(The entity shall ensure that the definition of the subject remains unchanged through each and every stage of the methodology. In the event that material change to the subject occurs, the sequence shall be re-started on the basis of a newly defined subject.)*	2
6) Describe the actual reductions achieved in absolute and intensity terms and as a percentage of the original carbon footprint. *(Quantified GHG emissions reductions shall be expressed in absolute terms and shall relate to the application period selected and/or shall be expressed in emission intensity terms (e.g., per specified unit of product or instance of service)).*	6.3
7) State the baseline/qualification date.	4
8) Record the percentage economic growth rate for the given application period used as a threshold for recognising reductions in intensity terms.	Not applicable
9) Provide an explanation for circumstances where a GHG reduction in intensity terms is accompanied by an increase in absolute terms for the determined subject.	Not applicable
10) Select and document the standard and methodology used to achieve carbon offset.	6
11) Confirm that:	6

a) Offsets generated or allowance credits surrendered represent genuine, additional GHG emission reductions elsewhere.	6
b) Projects involved in delivering offsets meet the criteria of additionality, permanence, leakage and double counting. (See the WRI Greenhouse Gas Protocol for definitions of additionality, permanence, leakage and double counting).	6
c) Carbon offsets are verified by an independent third-party verifier.	6
d) Credits from Carbon offset projects are only issued after the emission reduction has taken place.	6
e) Credits from Carbon offset projects are retired within 4 months from the date of the declaration of achievement.	6
f) Provision for event related option of 36 months to be added here.	Not applicable
g) Credits from Carbon offset projects are supported by public ally available project documentation on a registry which shall provide information about the offset project, quantification methodology and validation and verification procedures.	6
h) Credits from Carbon offset projects are stored and retired in an independent and credible registry.	6
12) Document the quantity of GHG emissions credits and the type and nature of credits actually purchased including the number and type of credits used and the time period over which credits were generated including:	6
a) Which GHG emissions have been offset.	6
b) The actual amount of carbon offset.	6
c) The type of credits and projects involved.	6
d) The number and type of carbon credits used and the time period over which the credits have been generated.	6
e) For events, a rationale to support any retirement of credits in excess of 4 months including details of any legacy emission savings, taken into account.	6
f) Information regarding the retirement/cancellation of carbon credits to prevent their use by others including a link to the registry or equivalent publicly available record, where the credit has been retired.	6
13) Specify the type of conformity assessment: a) independent third-party certification. b) other party validation. c) self-validation.	2
14) Include statements of validation where declarations of achievement of carbon neutrality are validated by a third-party certifier or second party organizations.	Annex D
15) Date the QES and have it signed by the senior representative of the entity concerned (e.g., CEO of a corporation; Divisional Director, where the subject is a division of a larger entity; the Chairman of a town council or the head of the household for a family group).	Page 1
16) Make QES publicly available and provide a reference to any freely accessible information upon which substantiation depends (e.g., via websites).	Page 1

Annex C: Greenhouse gas emissions reduction trajectory

The below tables show an indicative target trajectory for reducing the carbon footprint of the beverage cartons listed in chapter 5.6. The trajectory includes quantified annual progress targets, covering at least the ten years following the publication of the report as requested by the French Environmental Code.

These indicative trajectories are built by applying our near-term Science Based Target of reducing value chain greenhouse gas emissions by 46% until 2030. To illustrate this target, we model a steady absolute yearly reduction of our value chain greenhouse gas emissions by 4.2% of the 2019 baseline value chain emissions every year, resulting in 46% over the 11-year timeframe 2019-2030. This yearly reduction is listed as a percentage reduction target based on the previous year in the table below. Our commitment to the science-based targets initiative refers to the 2030 target, not the illustrative, linear interim targets.

The Product CO2 Model is always certified at the beginning of the year, using the latest available value chain greenhouse gas emissions data. E.g., version 8, certified in January 2022 is based on the value chain data from 2020. Thus, the reduction trajectory follows two years after the GHG target, starting with the baseline 4.2% for Period 3. The carbon footprint values shown for 2022 and 2023 are based on the respectively latest version of the Product CO2 Model, all upcoming values are calculated based on the percentage reduction target.

As described in section 5, two major changes were applied to the Product CO2 Model between version 9 and version 10: The way biogenic carbon uptake is modelled for bio-based polymers as well as the use of global and regional datasets. To keep consistency in the trajectories shown here, we decided to keep these based on the model version previously used, and did not update the period values per version 10.

Table 8 shows the indicative trajectories based on Dataset A (see chapter 5.3).

Table 8: Carbon footprint reduction target trajectories per product (Dataset A)

Package	Unit	Requirement	2022 (Period 3) – V8 Data	2023 (Period 4) V9 Data	2024 (Period 5)	2025 (Period 6)	2026 (Period 7)	2027 (Period 8)	2028 (Period 9)	2029 (Period 10)	2030 (Period 11)	2031 (Period 12)	2032 (Period 13)
Percentage reduction target (vs. Previous year, = 4.2% vs. 2019 Baseline)			*-4,2%*	*-4,4%*	*-4,6%*	*-4,8%*	*-5,0%*	*-5,3%*	*-5,6%*	*-5,9%*	*-6,3%*	*-6,8%*	*-7,2%*
TBA 1000 Edge LightWing™ 30 (C494-799-D3)	gCO2e / package	Carbon footprint per functional unit	56	54	51	49	47	44	42	39	37	34	32
TBA 1000 Edge WingCap™ 30 (C491-799-D3)	gCO2e / package	Carbon footprint per functional unit	59	56	54	51	49	46	43	41	38	36	33
TBA 1000 EdgeWingCap™ 30 (C492-799-D3)	gCO2e / package	Carbon footprint per functional unit	59	56	54	51	49	46	43	41	38	36	33
TBA 1000 SlimHeliCap™ 23 (C496-813-49)	gCO2e / package	Carbon footprint per functional unit	60	57	54	52	49	47	44	41	39	36	34
TBA 1000 SlimHeliCap™ 23 Pro (C496-813-49)	gCO2e / package	Carbon footprint per functional unit	58	55	53	50	48	45	43	40	38	35	33
TBA 1500 Slim HeliCap™ 23 (C525-835-49)	gCO2e / package	Carbon footprint per functional unit	81	77	74	70	67	63	60	56	53	49	45
TBA 1500 SlimHeliCap™ 23 Pro (C525-835-49)	gCO2e / package	Carbon footprint per functional unit	79	76	72	69	65	62	58	55	51	48	44
TGA 1500 Square HeliCap™ 26 Pro (C497-843-B1)	gCO2e / package	Carbon footprint per functional unit	89	84	80	76	72	68	65	61	57	53	49
TR 1000 Base Easy Opening (B662-810-15)	gCO2e / package	Carbon footprint per functional unit	44	44	42	40	38	36	34	32	30	28	26

Package	Unit	Requirement	2022 (Period 3) – V8 Data	2023 (Period 4) V9 Data	2024 (Period 5)	2025 (Period 6)	2026 (Period 7)	2027 (Period 8)	2028 (Period 9)	2029 (Period 10)	2030 (Period 11)	2031 (Period 12)	2032 (Period 13)
TR 1000 Base Easy Opening (B748-810-15)	gCO2e / package	Carbon footprint per functional unit	35	35	33	32	30	29	27	25	24	22	21
TR 1000 BaseTwistCap™ OSO 34 (B616-810-75)	gCO2e / package	Carbon footprint per functional unit	37	37	35	34	32	30	28	27	25	23	22
TR 1000 BaseTwistCap™ OSO 34 (B662-810-75)	gCO2e / package	Carbon footprint per functional unit	44	44	42	40	38	36	34	32	30	28	26
TR 1000 BaseTwistCap™ OSO 34 (B717-810-75)	gCO2e / package	Carbon footprint per functional unit	41	41	39	37	35	33	31	29	28	26	24
TR 1750 MidTwistCap™ OSO 34 (B616-847-91)	gCO2e / package	Carbon footprint per functional unit	63	63	60	57	54	52	49	46	43	40	37
TR 2000 Mid TwistCap™ OSO 34 (B616-856-91)	gCO2e / package	Carbon footprint per functional unit	68	68	65	62	59	56	53	49	46	43	40
TR 300 BaseTwistCap™ OSO 34 (B616-580-75)	gCO2e / package	Carbon footprint per functional unit	22	22	21	20	19	18	17	16	15	14	13
TR 500 BaseTwistCap™ OSO 34 (B616-700-75)	gCO2e / package	Carbon footprint per functional unit	22	22	21	20	19	18	17	16	15	14	13
TR 500 BaseTwistCap™ OSO 34 (B662-700-75)	gCO2e / package	Carbon footprint per functional unit	27	27	26	25	23	22	21	20	18	17	16
TR 500 BaseTwistCap™ OSO 34 (B748-700-75)	gCO2e / package	Carbon footprint per functional unit	25	25	24	23	22	20	19	18	17	16	15
TSA 1000 Edge LightWing™ 30 (C476-799-B3)	gCO2e / package	Carbon footprint per functional unit	60	58	55	52	50	47	44	42	39	36	34
TSA 1000 EdgeLightWing™ 30 (C482-799-B3)	gCO2e / package	Carbon footprint per functional unit	60	58	55	52	50	47	44	42	39	36	34
TSA 1000 Edge WingCap™ 30 (C482-799-B3)	gCO2e / package	Carbon footprint per functional unit	60	58	55	53	50	47	45	42	39	37	34
TBA 200 BasePullTab™ (C491-460-17)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	18	17	16	15	15	14	13	12	11	10
TBA 200 Slim Leaf Straw (C689-B07-B8)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	16	16	15	14	13	13	12	11	10	10
TBA 330 Slim PullTab™ (C491-600-17)	gCO2e / package	Carbon footprint per functional unit	27	26	24	23	22	21	20	19	17	16	15
TPA 330 Square DreamCap™ 26 Pro (C508-602-70)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	30	28	27	25	24	23	21	20	19	17
TPA 1000 Square HeliCap™ 26 Pro (C508-811-B1)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	69	66	63	60	57	53	50	47	44	41
TPA 500 Edge DreamCap™ 26 Pro (C632-588-70)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	39	37	36	34	32	30	28	27	25	23
TPA 330 Square DreamCap™ 26 Pro (C548-602-70)	gCO2e / package	Carbon footprint per functional unit	26	25	24	23	22	20	19	18	17	16	15
TBA 1000 Slim HeliCap™ 23 (C568-813-49)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	55	53	50	48	45	43	40	37	35	32
TSA 1000 Edge LightWing™ 30 (C645-799-B3)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	58	55	52	50	47	44	42	39	36	34
TGA 1000 Square HeliCap™ 26 Pro (C497-811-B1)	gCO2e / package	Carbon footprint per functional unit	67	63	60	57	54	51	48	46	43	40	37
TBA 1000 Edge LightWing™ 30 (C490-799-B3)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	57	54	52	49	47	44	41	39	36	34
TPA 300 Edge DreamCap™ 26 Pro (C548-B55-70)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	24	22	21	20	19	18	17	16	15	14
TBA 1000 Ultra Edge WingCap™ 30 (C490-B25-D3)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	58	55	52	50	47	44	42	39	36	34

Package	Unit	Requirement	2022 (Period 3) – V8 Data	2023 (Period 4) V9 Data	2024 (Period 5)	2025 (Period 6)	2026 (Period 7)	2027 (Period 8)	2028 (Period 9)	2029 (Period 10)	2030 (Period 11)	2031 (Period 12)	2032 (Period 13)
TBA 500 Edge LightWing™ 30 (C491-588-D3)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	38	36	34	32	31	29	27	26	24	22
TBA 500 EdgeLightWing™ 30 (C492-588-D3)	gCO2e / package	Carbon footprint per functional unit	Package Introduced in Period 4	38	36	34	32	31	29	27	26	24	22
TR 250 BaseTwistCap™ OSO 30 (B662-560-D2)	gCO2e / package	Carbon footprint per functional unit	24	24	23	22	21	19	18	17	16	15	14
TR 1000 BaseEasy Opening (C458-810-15)	gCO2e / package	Carbon footprint per functional unit	62	59	56	54	51	48	46	43	40	37	35
TR 1000 BaseEasy Opening (C395-810-15)	gCO2e / package	Carbon footprint per functional unit	35	35	33	32	30	28	27	25	24	22	20
TR 2000 MidTwistCap™ OSO 34 (C123-856-91)	gCO2e / package	Carbon footprint per functional unit	64	64	61	58	55	52	49	46	43	40	38
TR 250 BaseEasy Opening (B616-560-15)	gCO2e / package	Carbon footprint per functional unit	20	19	19	18	17	16	15	14	13	12	11
GT 1000 B BaseTwistCap™ OSO 34 (B812-B06-43)	gCO2e / package	Carbon footprint per functional unit	41	41	39	37	35	33	31	30	28	26	24
TR 1000 BaseTwistCap™ OSO 30 (B662-810-D2)	gCO2e / package	Carbon footprint per functional unit	44	44	42	40	38	36	34	32	30	28	26

Annex D: Carbon Neutrality Certification Letter

CARBON TRUST

Certificate of Achievement

AB Tetra Pak

has achieved carbon neutrality and is committed to on-going carbon neutrality of the total carbon footprint of its

Beverage Cartons with Plant-based Polymers in Packaging and Closures

Carbon Trust Assurance Limited certifies that AB Tetra Pak has calculated the carbon footprint representing all Beverage Cartons with Plant-based Polymers in Packaging and Closures products Cradle-to-Grave (Business-to-Consumer) and marketed in Globally, in accordance with:

- PAS 2060:2014 – Specification for the demonstration of carbon neutrality

A detailed list of certified results can be found in the associated Certification Letter CERT-13653.

Awarded: 1 January 2024 Valid Until: 31 December 2024

for and on behalf of Carbon Trust Assurance Ltd,

Martin Hockaday,
Head of Assurance

This certificate is for presentation purposes only. Please do not copy or circulate this certificate without the Certification Letter and associated Annexes where full details on the scope of the certification are documented. This certificate remains the property of Carbon Trust Assurance Limited and is bound by the conditions of the contract. Information and Contact: Carbon Trust Assurance Limited is registered in England and Wales under Company number 06547658 with its Registered Office at Level 5, Arbor, 255 Blackfriars Road, London SE1 9AX, UK. Telephone: +44 (0) 20 7 170 7000. Carbon Trust Assurance Limited is a fully owned subsidiary of the Carbon Trust.

Annex E: Offset certificates and retirement confirmation

south pole

Gold Standard

This certificate verifies that

Tetra Pak

has compensated

26,000 tonnes of greenhouse gas emissions

by investing in South Pole's climate protection projects:
Safe Community Water Supply, Rwanda
Water is Life, Madagascar

Renat Heuberger
CEO, South Pole

Thank you for committing to bold climate action. Your contribution is not only a meaningful step towards mitigating climate change globally, but also changes lives for the better by contributing to the Sustainable Development Goals set out by the UN.

Retirement ID	GS1-1-RW-GS6789-16-2021-25009-1-72
Retirement ID	GS1-1-RW-GS4203-16-2021-25001-1-233
Retirement ID	GS1-1-RW-GS6786-16-2021-25003-1-233
Retirement ID	GS1-1-RW-GS4202-16-2021-24999-1-272
Retirement ID	GS1-1-RW-GS4202-16-2020-24998-1-2197
Retirement ID	GS1-1-RW-GS6786-16-2020-25002-1-2132
Retirement ID	GS1-1-RW-GS4203-16-2020-25000-282-2132
Retirement ID	GS1-1-RW-GS6790-16-2020-25010-1-1776
Retirement ID	GS1-1-RW-GS6789-16-2020-25008-1-1776
Retirement ID	GS1-1-RW-GS6788-16-2020-25006-1-1756
Retirement ID	GS1-1-RW-GS4202-16-2020-21348-1483-2919
Retirement ID	GS1-1-RW-GS4900-16-2020-23217-1-265
Retirement ID	GS1-1-RW-GS5035-16-2020-23225-1-1039
Retirement ID	GS1-1-RW-GS5036-16-2020-23227-1-1262
Retirement ID	GS1-1-RW-GS5392-16-2020-23229-786-1262
Retirement ID	GS1-1-RW-GS5393-16-2020-23231-53-1262
Retirement ID	GS1-1-RW-GS5394-16-2020-23233-1-70
Retirement ID	GS1-1-RW-GS3306-16-2021-23267-9-194
Retirement ID	GS1-1-RW-GS3430-16-2021-23269-1-194
Retirement ID	GS1-1-RW-GS3431-16-2021-23271-1-194
Retirement ID	GS1-1-RW-GS3432-16-2021-23273-1-194
Retirement ID	GS1-1-RW-GS3433-16-2021-23275-1-174
Retirement ID	GS1-1-MG-GS10659-16-2021-23029-135-6712
Retirement ID	GS1-1-MG-GS10659-16-2021-23029-13-134
Retirement ID	GS1-1-MG-GS10659-16-2020-23028-47-321
Retirement ID	GS1-1-MG-GS7566-16-2020-23020-752-775
Retirement ID	GS1-1-MG-GS7566-16-2020-23020-776-776
Certificate date	C2834EN, 08.2023
Date	30/08/2023

This certificate is issued by South Pole. For more information about our services and more than 700 climate protection projects, please visit: southpole.com/projects.
The CO_2 emissions indicated on the certificate are compensated through investments in the above mentioned carbon offset projects based on international standards.