

To the Board of Directors of  
**Tetra Pak International SA, Switzerland**

Lausanne, 30 March 2026

## **Independent Assurance Report on selected indicators in the greenhouse gas emissions inventory report for 2025**

We have been engaged to perform assurance procedures to provide limited assurance on selected indicators (including GHG emissions) included in Tetra Pak International SA's and its consolidated subsidiaries' (the Group's) greenhouse gas inventory and methodology report for the years ended 31 December 2019 and 2025 (the Report).

Our limited assurance engagement focused on selected indicators (including GHG emissions) as presented on pages 1 and 2 in the Report.

We did not perform assurance procedures on other information included in the Report, other than as described in the preceding paragraph, and accordingly, we do not express a conclusion on that information.

### **Applicable criteria**

The Company defined as applicable criteria (the Applicable Criteria):

- Greenhouse Gas (GHG) Protocol: A Corporate Accounting and Reporting Standard

The GHG Protocol standard is available on the homepage of the Greenhouse Gas Protocol.

### **Inherent limitations**

The accuracy and completeness of selected indicators (including GHG emissions) are subject to inherent limitations given their nature and methods for determining, calculating and estimating such data. In addition, the quantification of the indicators is subject to inherent uncertainty because of incomplete scientific knowledge used to determine factors related to the emissions factors and the values needed to combine, e.g. emissions of different gases. Additionally, GHG procedures are subject to estimation (or measurement) uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge. Our assurance report should therefore be read in connection with the methodology section of the Report, its definitions and procedures on non-financial matters reporting therein.

### **Responsibility of the Board of Directors**

The Board of Directors is responsible for the selection of the Applicable Criteria and for the preparation and presentation, in all material respects, of the selected indicators (including GHG emissions) in accordance with the Applicable Criteria. This responsibility includes the design, implementation, and maintenance of internal control relevant to the preparation of the selected indicators and the Report that are free from material misstatement, whether due to fraud or error.



### **Independence and quality management**

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) of the International Ethics Standards Board for Accountants (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies ISQM 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### **Our responsibility**

Our responsibility is to express a conclusion on the selected indicators (including GHG emissions) based on the evidence we have obtained.

We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3410 *Assurance Engagements on Greenhouse Gas Statements*. This standard requires we plan and perform this engagement to obtain limited assurance about whether the selected indicators (including GHG emissions) are free from material misstatement, whether due to fraud or error.

### **Summary of work performed**

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

Our limited assurance procedures included, amongst others, the following work:

- Assessment of the suitability of the Applicable Criteria and their consistent application
- Interviews with relevant personnel to understand the business and reporting process, including the sustainability strategy, principles and management
- Interviews with the Company's key personnel to understand the sustainability reporting system during the reporting period, including the process for collecting, collating and reporting of the selected indicators
- Checking that the calculation criteria have been correctly applied in accordance with the methodologies outlined in the Applicable Criteria
- Analytical review procedures to support the reasonableness of the data
- Identifying and testing assumptions supporting calculations
- Testing, on a sample basis, underlying source information to check the accuracy of the data
- Recalculations, on a sample basis, of selected indicators underlying calculation documents



Shape the future  
with confidence

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our assurance conclusion.

**Conclusion**

Based on the procedures performed and the evidence obtained, nothing has come to our attention that causes us to believe that the selected indicators (including GHG emissions) in the Report of Tetra Pak have not been prepared, in all material respects, in accordance with the Applicable Criteria.

Ernst & Young Ltd

Executive in charge

Manager

**Enclosure**

- GHG Emissions Inventory & Methodology Report

2026-03-30

# Tetra Pak Greenhouse Gas Emissions Inventory & Methodology Report, January 1<sup>st</sup> to December 31<sup>st</sup>, 2025

## Inventory

	2019 base year <sup>1</sup>	2023 reference year	2024 reference year	2025 inventory year <sup>1</sup>
Scope 1 emissions, (ktCO <sub>2</sub> e)	80	64	58	54
Scope 2 emissions, location-based (ktCO <sub>2</sub> e)	347	353	357	344
Scope 2 emissions, market-based (ktCO <sub>2</sub> e)	113	43	28	23
Scope 3 emissions, (ktCO <sub>2</sub> e)				
1 Purchased goods & services	4311	3317	3628	3214
2 Capital goods	Excluded			
3 Fuel and energy-related activities (location-based)	105	103	106	105
3 Fuel and energy-related activities (market-based)	60	35	31	30
4 Upstream transportation and distribution	549	531	643	543
5 Waste generated in operations	3	2	2	2
6 Business travelling	43	22	31	27 <sup>2</sup>
7 Employee commuting	Excluded			
8 Upstream leased assets	Reported under scope 1 and scope 2			
9 Downstream transportation and distribution	36	27	47	38
10 Processing of sold equipment	Reported under category 11			
11 Use of sold equipment	6986	5655	4582	3988
12 End-of-life treatment of sold products	939	848	780	748 <sup>3</sup>
13 Downstream leased assets	Reported under category 11			
14 Franchises	Not applicable			
15 Investments	Not applicable			
Total Scope 3 emissions, location-based	12972	10515	9818	8666
Total Scope 3 emissions, market-based	12926	10447	9743	8590
Scope 1, scope 2 and scope 3 emissions, location-based (ktCO <sub>2</sub> e)	13399	10932	10233	9064
Scope 1, scope 2 and scope 3 emissions, market-based (ktCO <sub>2</sub> e)	13119	10555	9829	8667

<sup>1</sup> Assured by EY at a limited assurance level on FY2019 and FY2025 data.

<sup>2</sup> The air travel accounting approach has been updated, shifting from a distance-based to a fuel-based method and reducing the share of proxy data from 30% to 10%. Base year recalculation is not possible due insufficient data.

<sup>3</sup> Country-specific volumes of used beverage carton for the period 2025 October to December are not available at the time of reporting. Therefore, data from 2024 October to December is used as a proxy.

	2025 inventory year (ktCO <sub>2</sub> )
Direct biogenic CO <sub>2</sub> emissions from combustion of bio-based fuels <sup>1</sup>	2
Indirect biogenic CO <sub>2</sub> emissions from landfills and incineration without energy recovery <sup>1</sup>	134
Indirect biogenic CO <sub>2</sub> removals referring to the biogenic content of the raw materials purchased	2641

<sup>1</sup> Assured by EY at a limited assurance level on FY2025 data.

	2025 inventory year (%)
Renewable electricity <sup>1</sup>	96,9

<sup>1</sup> Assured by EY at a limited assurance level on FY2025 data.

## Data and methodology adjustments

Following adjustments have been made in 2025 affecting current and historic inventories:

Emissions from the use of company vehicles have been added to the inventory affecting scope 1, scope 2 and scope 3 category 3 emissions. The amendment increases 2019 emissions by 25% for scope 1 and 6% for scope 3 category 3 location-based. There is no change to 2019 scope 2 and scope 3 category 3 market-based emissions, as no electric vehicles were in use in 2019.

The air travel accounting approach has been updated, shifting from a distance-based to a fuel-based method and reducing the share of proxy data from 30% to 10%. These updates result in a 7% reduction in category 6 emissions when comparing data for reporting year 2024. Because of missing historical data, recalculation of base year emissions is not possible.

Supplier specific product-level GHG emissions data is provided by ink suppliers. The change from generic LCA data to supplier specific data decreases the 2019 scope 3 category 1 emissions by <0,5%.

Errors in data have been identified and corrected. This improves data quality and allows for more meaningful comparisons between years. Error corrected decreases 2019 scope 1 emissions by <0,1%. Errors corrected in Scope 3 category 1 and category 12 increase 2019 scope 3 emissions by <1%.

As a result of these data and methodological adjustments, the figures previously reported for Scope 1, Scope 2, and Scope 3 categories 1, 3 and 12 will differ from those presented in this report.

**Tetra Pak International / AB Tetra Pak**

Ruben Rausingsgata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

## Calculation methodology for scopes 1, 2, and 3 and outside of scopes

Tetra Pak's value chain greenhouse gas (GHG) emissions, scope 1, scope 2 and scope 3, are calculated in accordance with the World Resource Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol: *A Corporate Accounting and Reporting Standard, Revised Edition* (2004) and *Corporate Value Chain (Scope 3), Accounting and Reporting Standard* (2011), and its guidance documents.

We apply the operational control approach when defining our organizational boundary. A total of 175 production and non-production sites are in scope, including converting factories, additional material factories, equipment production facilities, sales offices and support centers. When defining the operational boundary, we apply three criteria. The first is significance, informed by decades of Tetra Pak-commissioned Life Cycle Assessments that provide detailed insights into the climate impact of our value chain. The second is the degree of influence we hold over the activity. The third is the activity's business and customer value.

Given the varied characteristics of activities across our value chain, we use a combination of emissions calculation methods and supplier-specific product GHG emissions data. Both published general emission factors and supplier-specific emission factors calculated based on primary data are used. We consider the greenhouse gases covered by the UNFCCC/Kyoto protocol (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>) and use the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) Global Warming Potential (GWP) values on a 100-year period (GWP100). Further details on scope 1, scope 2 and scope 3 calculation methods are provided in the sections below.

We selected 2019 as our base year because it is representative of Tetra Pak's operations and value chain. To maintain consistency in our GHG accounting and reporting, and to support effective management of reduction initiatives, we apply the following base year recalculation policy. A base year emissions recalculation is triggered by structural changes (such as acquisition, divestment, merge), methodology changes, improvements in data accuracy or discovery of significant errors or several cumulative errors that are collectively significant. A recalculation is required if scope 1 and scope 2 emissions change by more than 5%, when scope 3 emissions change by more than 5%, or if the relevance of the comparison between reporting year and the base year is affected. Base year emissions are not recalculated due to organic growth or decline and changes to IPCC's GWP values.

We use an environmental data management system to periodically collect activity data from our production and non-production sites and from selected suppliers. The system is also used to calculate GHG emissions and compile our value chain GHG emissions inventory. Emissions are reported in carbon dioxide equivalents (ktCO<sub>2</sub>e) which is the common unit of measurement to indicate global warming potential of greenhouse gases.

**Tetra Pak International / AB Tetra Pak**

Ruben Rausingsgata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

## Scope 1

### Production sites and non-production sites

For Tetra Pak, Scope 1 includes emissions from combustion of fuels, unintentional releases of e.g. hydrofluorocarbon from refrigeration and air conditioning equipment, and incineration of Volatile Organic Compounds (VOCs).

Direct fuel combustion emissions are calculated using fuel consumption data and emission factors from the GHG Protocol calculation tool Stationary combustion v4.2. The impact of unintentional release of refrigerants is calculated based on the mass of refills. The composition of refrigerant blend is retrieved from United States Environmental Protection Agency, EPA, and GWP value from IPCC AR6. Emissions from the incineration of VOCs are calculated based on mass of incinerated VOCs and the carbon content of the organic solvent.

### Company vehicles

Emissions associated with the use of leased and owned vehicles, are calculated using reported fuel consumption and UK Government GHG Conversion Factors for Company Reporting 2025. For vehicles where no fuel consumption was reported, in 2025 40% of the fleet with combustion engine, emissions are estimated using a fuel-consumption proxy. This proxy is based on data from the portion of the fleet with available consumption data for the reporting year. Due to the absence of data prior to 2025, emissions for 2019 to 2024 are estimated, assuming the same number of vehicles as in 2025, all classified as petrol vehicles, with annual fuel consumption based on 2025 reported data.

## Scope 2

### Production sites, non-production sites and company vehicles

For Tetra Pak, Scope 2 emissions include those generated from purchased electricity, including electricity used by company vehicles, as well as district heating, steam and cooling. We account and report scope 2 emissions both based on the location-based method and the market-based method.

For location-based accounting, we use country-specific electricity emission factors, except for our production sites in the United States, where regional factors are applied. The emission factors are sourced primarily from Sphera LCA Managed Content and secondarily from the International Energy Agency (IEA).

The market-based scope 2 emissions reflects the use of renewable electricity across Tetra Pak operations. For our own operations, the purchased renewable electricity must meet the Climate Group's RE100 criteria, which are stricter than the GHG Protocol Scope 2 Quality Criteria. Where contractual instruments are unavailable or do not meet RE100 criteria, a residual mix emission factor is used; if this is not available, a country average factor is used.

For district heating, steam and cooling supplier-specific emission factors are used whenever available. Otherwise, it is assumed that district heating is produced through natural gas

[Tetra Pak International / AB Tetra Pak](#)

Ruben Rausings gata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

combustion with 90% efficiency, steam with 96% efficiency, and cooling via an absorption chiller operating on natural gas.

If an office doesn't report its electricity consumption, GHG emissions are estimated using the median electricity consumption reported by other offices. For vehicles where no electricity consumption was reported, in 2025 72% of the electric vehicles, emissions are estimated using an electricity-consumption proxy. This proxy is based on data from the portion of the fleet with available consumption data for the reporting year

### **Scope 3**

#### **Category 1: Purchased goods and services**

This category includes upstream emissions from the production of liquid packaging board, aluminium foil, polymer granulates and films, and inks used in Tetra Pak's production of packaging material and additional material. The climate impact of these materials is based entirely on the physical flow of materials, as the GHG Protocol standards do not provide explicit support for accounting emissions based on a mass balance model or a book and claim model.

For category 1, approximately 65% of emissions are calculated using primary activity data or product GHG emissions data. Unless otherwise specified in the descriptions below, calculations are based on the invoiced volume of material.

As per our operational boundary criteria, emissions associated with purchase of goods for production of processing and filling line solutions are excluded from reporting. Work is underway to investigate data collection and emission calculation approaches for goods considered to be of business or customer value.

#### Aluminum foil

The minimum scope of the aluminium foil emissions calculation includes bauxite mining, alumina production, anode production, primary smelting, casting, hot rolling, foil stock production and foil rolling. Other activities may be included by the supplier in their product-level GHG emissions data.

Suppliers are requested to report annually either product-level GHG emissions data or activity data, such as quantities of electricity and natural gas consumed. If data isn't reported, secondary data is used to close gaps and obtain complete cradle-to-gate data. Secondary data for bauxite mining, alumina production, anode production, smelting and casting are sourced from the latest LCI report by the International Aluminium Institute (IAI) and if data is available based on geography.

Primarily country or region-specific life cycle electricity emission factors obtained from Sphera Managed LCA Content are used. In case the supplier provides reliable emissions data including underlying documentation from their electricity supplier, this data may be used. Any claim for using renewable electricity must be supported by documentation such as GoO (Guarantees of Origin), RECs (renewable electricity certificates), International RECs, contracts or similar.

**Tetra Pak International / AB Tetra Pak**

Ruben Rausings gata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

### Liquid packaging board and paper

The minimum scope of the liquid packaging board and paper production includes forestry operation, transport of wood, chemical pre-chains and mill operations, and if relevant purchase and transport of external pulp. Other activities may be included by the supplier in their product level GHG emissions data.

Suppliers are requested to report annually either product-level GHG emissions data or activity data such as quantity of purchased electricity, fossil fuels, chemicals and pulp. If data isn't reported, secondary data is used to close gaps and obtain complete cradle-to-gate data. Secondary data for forest operation, transport of wood, production of chemicals is obtained from Ecoinvent.

Primarily country or region-specific life cycle electricity emission factors obtained from the Sphera Managed LCA Content are used. In case the supplier provides reliable emissions data including underlying documentation from their electricity supplier, this data may be used. Any claim for using renewable electricity must be supported by documentation such as GoO (Guarantees of Origin), RECs (renewable electricity certificates), International RECs, contracts or similar.

### Polymer granules, adhesives and masterbatches

The minimum scope of the polymer granules and adhesives emissions calculation includes raw material extraction, refinery, cracker, and polymerization. The minimum scope of the masterbatch emissions calculation includes polymer granulate production, titanium dioxide production and masterbatch production. Other activities may be included by the supplier in their product-level GHG emissions data.

The emissions are calculated using product-level emissions GHG data provided by the supplier or public LCA data. Polymer specific LCA data is obtained from Plastics Europe, adhesive specific LCA data from Sphera Managed LCA Content and LCA data for titanium dioxide from Ecoinvent.

### Polymer films

The minimum scope of the polymer films emissions calculation includes polymer granulate production and film production. The emissions are calculated using LCA data for polypropylene, polyethylene and PET granulates from Plastics Europe and film production data from a Tetra Pak owned film production site in combination with global electricity emission factor obtained from Sphera Managed LCA Content.

### Inks

Emissions are calculated using product-level GHG emissions data provided by suppliers, covering at least raw material production, ingredient grinding and mixing and product packaging. If suppliers do not provide data LCA data for a generic ink product from the European Printing Ink Association (EuPIA) is used.

## **Category 2: Capital goods**

As per our operational boundary criteria, emissions associated with capital goods purchased by Tetra Pak are excluded from reporting.

**Tetra Pak International / AB Tetra Pak**

Ruben Rausing's gata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

### **Category 3: Fuel and energy activities not included in Scope 1 or Scope 2**

This category includes emissions related to production of fuels, district heating, steam, cooling and electricity purchased by Tetra Pak and not included in scope 1 and scope 2. We report category 3 emissions both based on location-based accounting and on market-based accounting.

The GHG emissions are calculated using activity data reported by the sites in combination with emission factors obtained from Sphera Managed LCA Content representing indirect emissions.

### **Category 4: Upstream transportation and distribution**

This category includes emissions from inbound and outbound transports (air, rail, road and sea) contracted by Tetra Pak. Inbound transports include inbound transports of raw materials, spare parts, and air freights of all supply chains. Outbound transport includes outbound transport of packaging material, additional material, processing and filling line solutions and spare parts.

The distance-based methodology is applied to calculate emissions associated with inbound (rail, road and sea) transport of raw materials and outbound (rail, road and sea) transport of packaging material and additional material. For transport of raw materials, the calculation is based on the distance between the supplier and the production site and includes pre-carriage, main carriage, and on-carriage and the weight of invoiced volumes. For transport of packaging material and additional material, the calculation is based on the distance between the production site and the customer and weight of sold or produced volume of material. Distance data is mainly obtained from online distance measuring apps. The emissions are calculated using emission factors from The Network for Transport and Environment (NTM). Emissions generated by air transport of base materials and packaging and additional materials are retrieved from logistics providers.

As per our operational boundary criteria, emissions associated with inbound transport of parts and modules for processing and filling line solutions are excluded from reporting. Emissions data for outbound (air, rail, road and sea) transports of processing and filling line solutions is obtained from logistics providers.

### **Category 5: Waste generated in operations**

This category includes emissions from the treatment of solid waste generated at Tetra Pak production sites. Sites report the volumes of waste sent to recycling, incineration with energy recovery, incineration without energy recovery and landfill. Nearly all factory waste is recycled, and the associated emissions are excluded in accordance with the recycled content method outlined in the GHG Protocol Scope 3 Calculation Guidance. Waste from offices, canteens, construction activities, and other non-production sources sent to incineration without energy recovery or to landfill is calculated using emission factors representing municipal solid waste in the EU. These factors are sourced from Sphera Managed LCA Content and Ecoinvent.

### **Category 6: Business travel**

This category includes emissions from air travel and rental cars. Air travel emissions data is obtained from Tetra Pak's travel agency. The emissions are calculated according to the IATA CO2 Connect model without radiative forcing. Rental car emissions data is obtained from our global mobility service providers and calculated using either fuel-based method or distance-based

[Tetra Pak International / AB Tetra Pak](#)

Ruben Rausings gata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

method. The third parties' emission data do not fully represent the business travel of Tetra Pak employees. Therefore, expenditure-based proportional factors are used to scale the third parties' emission data to represent all business travels. The factor applied for air travel is 90% and the factor for car rentals is 66%. Emissions from train travel are excluded due to their limited impact and emissions from hotel nights are excluded as they are optional to report under the GHG Protocol.

#### **Category 7: Employee commuting**

As per our operational boundary criteria, emissions associated with employee commuting are excluded from reporting.

#### **Category 8: Upstream leased assets**

Emissions from upstream leased assets are reported in scope 1 and scope 2, as the operational control approach is applied.

#### **Category 9: Downstream transportation and distribution**

This category includes emissions from non-contracted transport of packaging material to customers. These transports are assumed to have similar emissions profile as contracted outbound transports. Emissions are estimated using contracted transport data transport (reported in category 4) and the proportion of contracted versus non-contracted transport.

#### **Category 10: Processing of sold products**

For Tetra Pak the 'Processing of sold products' would include the forming and filling of the package, at the customers' sites. In order not to double count between category 10 and category 11, the forming and filling of the package is included in category 11, where the impact of the dispatched filling machines is captured.

#### **Category 11: Use of sold products**

This category includes emissions from the use of processing and filling line solutions dispatched to customers in the reporting year.

Tetra Pak processing portfolio includes a large variety of equipment such as direct UHT units, indirect UHT units, pasteurizer, homogenizers, and aseptic tanks. The performance of these units is affected by the production line set-up. Hence, a 'line perspective' is used to model the lifetime emissions associated with the use of processing solutions. There are two main reasons for using a line perspective instead of modelling the GHG impact of the processing solutions unit by unit:

- The units work in a line, and the performance of the units are affected by the line set-up. A line perspective captures both the performance of the units in an actual production scenario, and it captures the synergies between the units in a line (such as heat recovery). Also, the indirect usage of energy is captured.
- A line perspective is likely to generate a higher absolute GHG impact than if the processing equipment was modelled unit by unit. However, a key focus when developing and selling processing solutions is to reduce the operational cost of the customer, which includes energy

**Tetra Pak International / AB Tetra Pak**

Rubens Rausingsgata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

savings and minimized waste from the line. By using a line perspective in the modelling, the improvements relating to line performance will be included.

The GHG calculation considers electricity and heat consumption, number of lines dispatched in the reporting year, and lifetime production volume. Each line's electricity and heat consumption is modelled for pre-defined production scenario in Tetra Pak Global TCO tool.

For each line, a unit of equipment has been selected as key energy intensive unit. When that unit is dispatched to the customer, it is assumed that the full line is dispatched, meaning that the full line is included in the GHG inventory of the reporting year. This means that the number of non-key energy intensive units included in the GHG inventory in some cases may be overrepresented and in other cases underrepresented compared to the number of dispatched units.

This approach gives an estimation based on available data. It has the advantages listed but also inherent limitations. We acknowledge that this approach brings a level of uncertainty regarding completeness and accuracy. However, it provides the possibility to measure the progress of climate impact on a line level giving a more representative estimate than a unit approach.

The filling line solutions lifetime emissions are calculated based on number of new and refurbished units dispatched in the reporting year, technical data i.e., electricity, steam, compressed air and hydrogen peroxide consumption per unit and the expected lifetime.

A global electricity factor is used in all calculations to enable meaningful comparisons of GHG emissions over time, and to serve internal decision-making needs. This factor is obtained from the International Energy Agency. The factor for heat and steam is obtained from the Sphera Managed LCA Content and the hydrogen peroxide factor from Ecoinvent. The expected lifetime is assumed to be 30000h for all units in processing and filling line solutions.

### **Category 12: End-of-life treatment of sold products**

This category covers emissions associated with the end-of-life treatment of Tetra Pak carton packages. The emissions are calculated based on volume of used beverage cartons (UBC) per market and per disposal route. The disposal routes include recycling, incineration with energy recovery and incineration without energy recovery and landfill. Any UBC volume not allocated to a disposal route is assumed to be sent to landfill.

UBC data includes volumes from both Tetra Pak and other companies and is adjusted using Tetra Pak's country-specific market share. UBC data is reported by Tetra Pak market companies following an Internal Carton Recycling Reporting Guideline.

In line with the GHG Protocol Scope 3 Calculation Guidance, the recycled content method is applied. This means emissions from recycling and incineration with energy recovery are excluded from category 12. polyAl is a mixture of aluminium foil and polymers remaining after fiber recovery in the beverage carton recycling process.

Material-specific emission factors (liquid paperboard, polymer, aluminium) for incineration without energy recovery and landfill are obtained from Sphera Managed LCA Content and Ecoinvent.

**Tetra Pak International / AB Tetra Pak**

Ruben Rausings gata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)

These factors are combined with the average material composition of a beverage carton to calculate a UBC factor per disposal route.

Country-specific volumes of used beverage carton for the period October to December are not available at the time of reporting. Therefore, data from October to December of the previous year is used as a proxy.

Emissions from the end-of-life treatment of processing and filling line solutions dispatched to customers are excluded, as these solutions primarily comprise recyclable and reusable high-quality steel. Customers are advised in the equipment manuals on the importance of separating, recycling, and disposing of all materials and components safely and in an environmentally responsible manner, in accordance with local and national regulations

### **Category 13: Downstream leased assets**

Tetra Pak leases processing equipment, filling machines and distribution equipment to customers. Emissions associated with the use of these are, in line with Scope 3 Calculation Guideline, reported in category 11 (Use of sold products).

### **Category 14: Franchises**

This category is not applicable to Tetra Pak.

### **Category 15: Investments**

This category is not applicable to Tetra Pak.

## **Outside of Scopes**

We report 'outside of scope' emissions associated with use of biogas and HVO (Hydrotreated Vegetable Oil) diesel. Both are used to a limited extent. The direct biogenic CO<sub>2</sub> emissions generated at combustion of biogas and HVO diesel are calculated based on the energy content of the gas/fuel. It is assumed that the direct CO<sub>2</sub> emissions from biogas are the same as those from natural gas (per energy unit) and from HVO diesel are the same as those from light fuel oil/diesel (per energy unit). The emission factors for combustion of natural gas and combustion of light fuel oil are both obtained from the GHG Protocol tool for stationary combustion (version 4.2). The estimated CO<sub>2</sub> removal related to the use of biogas and HVO refers to the mass of biogenic carbon in the gas/fuel.

We also report the indirect biogenic CO<sub>2</sub> emissions from landfills and incineration without energy recovery and indirect biogenic CO<sub>2</sub> removals referring to the biogenic content of the raw materials purchased. We recognize that it is a requirement in the GHG Protocol Scope 3 Standard to include emissions of biogenic CO<sub>2</sub> as they occur in the value chain and make a report for each category. However, when looking at the databases supporting our GHG accounting, comprehensive information on biogenic emissions is often missing. Also, it is difficult to model biogenic carbon flows in an appropriate way, properly capturing the balance between uptake and release.

**Tetra Pak International / AB Tetra Pak**

Ruben Rausingsgata, SE-221 86, Lund, Sweden, Telephone: +46 46 36 10 00, [www.tetrapak.com](http://www.tetrapak.com)