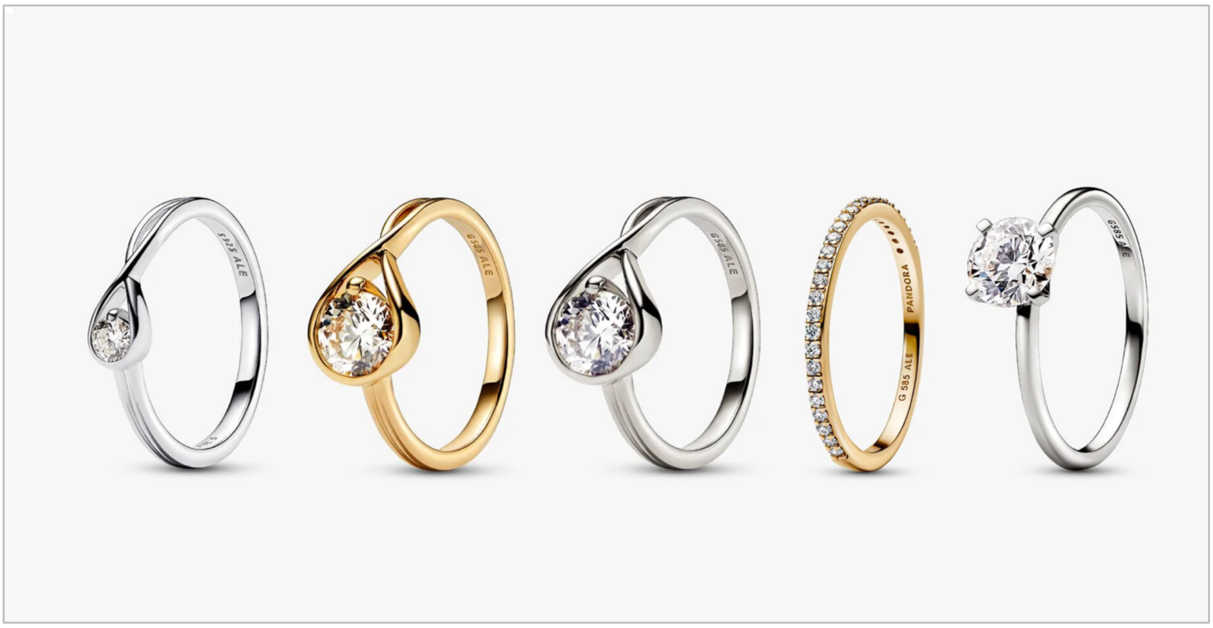
PANDORA

CARBON FOOTPRINT REPORT:
PANDORA LAB-GROWN DIAMOND JEWELLERY



Product Carbon Footprint of Pandora Lab-Grown Diamond Jewellery (Infinite & Era Collections): Cradle-to-Grave Assessment per Ring (ISO 14067:2018)

Prepared by Raison Consulting and Impact Business Modelling Systems™

Published by Pandora A/S

Version 1.0. May 2026

This study has been subject to independent third-party verification under limited assurance by EY (see page iii-v)

RAISON CONSULTING

IMPACT BUSINESS MODELING SYSTEM

Management Statement

This Product Carbon Footprint of Pandora Lab-Grown Diamond Jewellery (Infinite & Era Collections): Cradle-to-Grave Assessment per Ring (ISO 14067:2018) has been approved for publication by Pandora A/S (“Pandora”) and issued as Version 1.0 in May 2026.

The report presents the Product Carbon Footprint (PCF) of selected items in Pandora’s lab-grown diamond jewellery collection, providing a quantified cradle-to-grave assessment of greenhouse gas emissions associated with rings from the Infinite and Era collections. The assessment covers products supplied during the period 2022–2025 and is reported per the functional unit of one complete ring. The results are considered representative for the selected items supplied after 2025, subject to material changes in supply chain conditions and applicable regulatory requirements. In line with good practice, Pandora aims to periodically reassess and, as necessary, update the product carbon footprint, typically every three years. The assessment has been developed in accordance with ISO 14067:2018, supported by the life cycle assessment principles of ISO 14040:2006 and the methodological requirements of ISO 14044:2006, and is subject to the system boundaries, assumptions, and limitations described in this report.

To ensure alignment with internationally recognised standards and the application of transparent and reproducible methodologies, the PCF and its report have been developed with the support of external experts. Raison Consulting provided project oversight, expert challenge, and quality assurance, while Impact Business Modelling Systems™ acted as the technical specialist responsible for life cycle-based greenhouse gas modelling and calculations, including methodological design, data processing, and emissions quantification.

The study has been subject to independent third-party verification under limited assurance by EY – see page iii-v.

The management of Pandora A/S acknowledges its responsibility for the preparation, accuracy, and completeness of this PCF report. It is Pandora’s opinion that the results presented constitute a fair and representative estimate of the carbon footprint of the selected items in Pandora’s lab-grown diamond jewellery collection, based on the methodologies, data sources, and assumptions applied.

Approved on April 22, 2026

Mads Twomey-Madsen
SVP, Sustainability
Pandora A/S

Independent auditor's limited assurance report on the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections)

To the stakeholders of Pandora A/S

Limited assurance conclusion

We have conducted a limited assurance engagement on the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) as presented by Pandora A/S on page 16 in the report "Carbon footprint report: Pandora lab-grown diamond jewellery (Product Carbon Footprint of Pandora Lab-Grown Diamond Jewellery (Infinite & Era Collections): Cradle-to-Grave Assessment per Ring (ISO 14067:2018))" from May 2026 ("the report"), covering carbon footprints calculated in the period 1 January 2022-31 December 2025.

The carbon footprint of the selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) is listed below as presented on page 16 of the report:

- Infinite Sterling Silver Ring (0.15 ct): ≈ 3.24 kg CO_2e per ring
- Infinite 14K Gold Ring (1.00 ct): ≈ 14.44 kg CO_2e per ring
- Infinite 14K White Gold Ring (1.00 ct): ≈ 14.39 kg CO_2e per ring
- Era 14K Gold Ring (0.11 ct): ≈ 3.15 kg CO_2e per ring
- Era 14K White Gold Ring (0.90 ct): ≈ 13.08 kg CO_2e per ring

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) as presented by Pandora A/S on page 16 in the report is not prepared, in all material respects, in accordance with the applied criteria in section 2: "Goal and Scope Definition" and section 3: "Methodology and Data Sources", which has been prepared in accordance with ISO 14067 (pages 6-15 of the report).

Basis for conclusion

We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised), Assurance engagements other than audits or reviews of historical financial information ("ISAE 3000 (Revised)") and the additional requirements applicable in Denmark.

The procedures 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.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion. Our responsibilities under this standard are further described in the Auditor's responsibilities for the assurance engagement section of our report.

Our independence and quality management

We have complied with the independence and other ethical requirements of the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour as well as ethical requirements applicable in Denmark.

EY Godkendt Revisionspartnerselskab applies International Standard on Quality Management 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.

Emphasis of matter

We draw attention to the description of the purpose of the report in the section "Executive Summary" on page 1. As the report is prepared to support Pandora's external climate claims in line with ISO 14026, it may be unsuitable for other purpose.

Our conclusion is not modified in respect of this matter.

Management's responsibilities for the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections)

The management of Pandora A/S is responsible for:

- The preparation of the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) in accordance with the applied criteria in the section 2: "Goal and Scope Definition" and section 3: "Methodology and Data Sources" on pages 6-15 of the report,
- Designing, implementing and maintaining such internal control that management determines is necessary to enable the preparation of the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) in accordance with the applied criteria in section 2: "Goal and Scope Definition" and section 3: "Methodology and Data Sources" that is free from material misstatement, whether due to fraud or error; and
- The selection and application of appropriate methods and making assumptions and estimates that are reasonable in the circumstances.

Auditor's responsibilities for the assurance engagement

Our objectives are to plan and perform the assurance engagement to obtain limited assurance about whether the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) is free from material misstatement, whether due to fraud or error, and to issue a limited assurance report that includes our conclusion. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence decisions of users taken on the basis of the selected disclosure in the report.

As part of a limited assurance engagement in accordance with ISAE 3000 (Revised) we exercise professional judgement and maintain professional scepticism throughout the engagement.

Our responsibilities in respect of the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) include:

- Identification of disclosures where material misstatements are likely to arise, whether due to fraud or error; and
- Designing and performing procedures responsive to assessed risks of material misstatement at the disclosures level. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

Summary of the work performed

A limited assurance engagement involves performing procedures to obtain evidence about the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections).

The nature, timing and extent of procedures selected depend on professional judgement, including the identification of disclosures where material misstatements are likely to arise, whether due to fraud or error, in the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections).

In conducting our limited assurance engagement, we:

- Obtained an understanding of the Company's reporting processes relevant to the preparation of the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) by obtaining an understanding of the Company's control environment, processes and information systems relevant to the preparation of the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) but not evaluating the design of particular control activities, obtaining evidence about their implementation or testing their operating effectiveness;
- Performed inquiries of relevant personnel and analytical procedures on the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections);
- Performed substantive assurance procedures on the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections); and
- Evaluated whether the applied criteria align with criteria laid out in ISO 14067.

Other information

Management is responsible for other information. The other information comprises the remaining part of the information, which is included in the report and which is not included in the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) and our report thereon.

Our conclusion on the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) does not cover other information, and we do not express any form of assurance conclusion thereon.

In connection with our assurance engagement on the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections), our responsibility is to read other information and, in doing so, consider whether other information is materially inconsistent with the carbon footprint of selected rings in the Pandora Lab-Grown Diamonds collections (Infinite and Era Collections) or our knowledge obtained during the assurance engagement, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement in this other information, we are required to report that fact. We have nothing to report in this regard.

Copenhagen, Denmark, 22 April 2026
EY Godkendt Revisionspartnerselskab
CVR no. 30 70 02 28

Jens Thordahl Nøhr
State Authorised Public Accountant
mne32212

Moncia Mai Bak Larsen
Associate Partner, Climate change & Sustainability Services

Content outline

Executive Summary

This study presents updated product-level carbon footprint (PCF) results for selected rings (items) in the Pandora Lab-Grown Diamond Jewellery collections, comprising three items in the Infinite collection, and two items in the Era collection. All items are modelled using a framework and methodology aligned with the previously reported results published in the report prepared by Rambøll (2022). This report replaces the former study and includes a description of the methodology and the updated results.

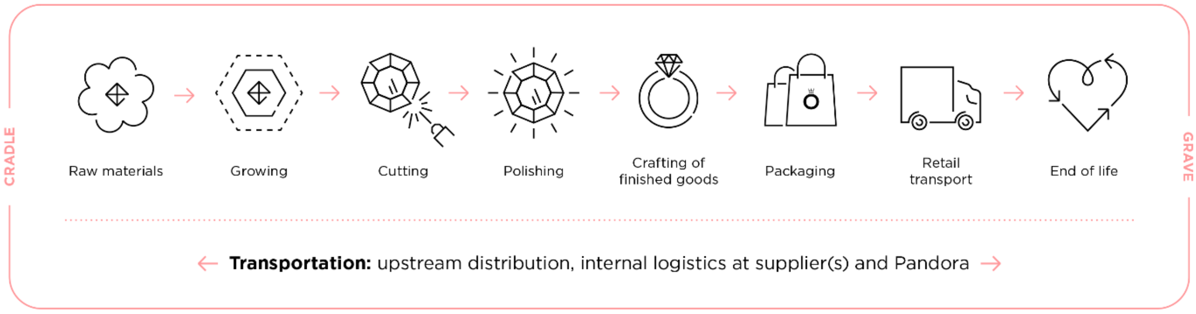


Figure A: Cradle-to-grave life cycle for Pandora Lab-Grown Diamonds Jewellery.

The study applies an updated 2025 emission-factor dataset for lab-grown diamonds (LGD) based on the Carbon Footprint Report: Pandora Lab-Grown Diamonds (2026) for all Pandora LGD suppliers. Furthermore, it updates other material and process factors to Ecoinvent 3.10.1, it integrates the revised Bill of Materials (BOM) for the three items in the Infinite collection, and it incorporates the inventory, production, and life-cycle processes of two new Era items. All calculations comply with ISO 14067:2018 and ISO 14044:2006 requirements for cradle-to-grave life-cycle assessment. The study is developed as a standalone PCF assessment, with no structural changes to the underlying modelling framework and methodology used in *Rambøll (2022) assessment.*

Key Results

The total cradle-to-grave emissions per ring are as follows:

- Infinite Sterling Silver Ring (0.15 ct): ≈ 3.24 kg CO_2e per ring
- Infinite 14K Gold Ring (1.00 ct): ≈ 14.44 kg CO_2e per ring
- Infinite 14K White Gold Ring (1.00 ct): ≈ 14.39 kg CO_2e per ring
- Era 14K Gold Ring (0.11 ct): ≈ 3.15 kg CO_2e per ring
- Era 14K White Gold Ring (0.90 ct): ≈ 13.08 kg CO_2e per ring
- LGD production is the dominant contributor (44–87% of total impacts).
- OEM processing is the second-largest stage, contributing 20-25% for small-carat rings and 5-7% for the larger designs.
- Downstream activities (transport, packaging, and end-of-life) each contribute between 0.1–15.4%, depending on the specific design and alloy composition.
- Under closed-loop allocation, total footprints increase significantly for all gold-bearing products and marginally for silver-bearing products.

The observed results are primarily driven by a small number of underlying parameters that explains the contribution patterns across life-cycle stages:

- Diamond carat: portfolio reference set at 12.58 kg CO_2e/ct (conservative, RE-baseline adjusted), applied consistently across items (Carbon Footprint Report: Pandora Lab-Grown Diamonds (2026).
- OEM energy use: Manufacturing impacts are driven by energy use per ring, which is relatively constant in absolute terms across items resulting in higher relative contributions for low-carat designs.
- Metal composition per item: Material-related impacts are driven by metal mass and alloy composition but remain limited under the applied cut-off approach for recycled materials.

Results are comparable to the previous assessment, as the underlying modelling framework remains unchanged. Identified limitations and uncertainties are consistent with the previous assessment and do not materially affect the comparative interpretation of results across items. The updated dataset constitutes Pandora's authoritative PCF reference for the Infinite and Era collections, providing a consistent methodological basis for ongoing reporting.

This carbon footprint study supports Pandora's external climate claims in line with ISO 14026 and provides a robust and consistent foundation for transparent, consumer-facing communication. While the result reflects current supply chain conditions, future updates may be needed as technologies and supplier processes evolve.

1 Introduction

This Product Carbon Footprint (PCF) study provides an updated Product Carbon Footprint (PCF) assessment for selected rings within the Pandora Lab-Grown Diamond Jewellery collections. The assessment is developed using a methodological framework in accordance with ISO 14067:2018 and ISO 14044:2006, including goal and scope definition, life cycle inventory, impact assessment, and interpretation phases. It is aligned with previous studies, including the Carbon Footprint of Diamonds by Pandora Collection (2022, version 4) prepared by Rambøll Sweden AB (*Rambøll (2022)*).

This report serves as Pandora's updated PCF reference for the assessed products.

1.1 Purpose of the study

The purpose of this study is to quantify and document Pandora's product-level carbon footprint for selected items in the Infinite and Era collections. The study consolidates new supplier data for Era items, an updated Bill of Materials (BOM) for Infinite items and uses updated material and process emission factors, primarily from Ecoinvent 3.10.1. Moreover, it applies a consistent and harmonised kgCO_2e/ct dataset for LGDs across the portfolio based on the Carbon Footprint Report: Pandora Lab-Grown Diamonds, 2026[1] . Together, these elements ensure that results remain robust, traceable, and aligned with ISO 14067:2028 and ISO 14044:2006 requirements. The study covers the selected items supplied during 2022-2025[2] to Pandora.

The methodological framework applied maintains consistency with earlier Pandora PCF studies, including alignment in goal and scope, system boundaries, functional unit, and allocation principles. No methodological deviations have been introduced beyond updated data inputs and emission factors. Parameter adjustments, including the harmonised dataset for lab-grown diamonds (LGDs), OEM distribution, and energy-mix factors, are implemented within the same modelling structure to ensure comparability.

The results represent Pandora's updated PCF reference set for the assessed products.

[1] Pandora (2026). Product Carbon Footprint of Pandora Lab-Grown Diamond Portfolio: Cradle-to-Gate Assessment per Carat (ISO 14067:2018). Copenhagen, May 2026: Pandora A/S.
[2] The results are considered representative for the selected items supplied after 2025, subject to material changes in supply chain conditions and applicable regulatory requirements. In line with good practice, Pandora aims to periodically reassess and, as necessary, update the product carbon footprint, typically every three years.

1.2 Scope of the update

The study reports cradle-to-grave results, covering raw material extraction and processing (metals and alloys), lab-grown diamond production (synthesis, cutting and polishing), auxiliary materials, and OEM manufacturing (casting, finishing, and stone setting), distribution to store, ring-box (production and transport), use phase (polishing/cleaning), and end-of-life. Retail operations (e.g., store energy) and consumer transport are excluded. The system boundaries are defined to ensure a consistent, transparent, and reproducible assessment of the product life cycle.

The study includes:

- new cradle-to-grave results for *Era* rings modelled on the same platform as Infinite;
- updated Infinite results based on a revised Bill of Materials, updated emission factors across all materials and processes, including the harmonised emission factors for LGD and;
- unified data architecture across materials, energy, transport, and waste handling.

The modelling framework ensures methodological consistency across the assessed items and alignment with Pandora's broader carbon-accounting framework.

Structure of the report
The report follows the reporting principles of ISO 14067:2018 and ISO 14044:2006. It is structured to provide a clear and transparent presentation of the Product Carbon Footprint results.

Section 2 defines the goal and scope of the study, including product systems, functional unit, and boundary conditions. Section 3 describes the applied methodology, data sources, and the harmonised 2025 emission factor set used across materials, energy, and transport. Section 4 presents the life cycle inventory, including key input data and modelling structure. Section 5 presents methodological consistency and comparability, including alignment with previous assessments. Section 6 presents limitations, data quality assessment, and interpretation of results, and section 7 provides the overall conclusions of the study. Page iii-v includes the limited assurance statement conducted by EY.

1.3 Work Limitations

This study is based on data and documentation available at the time of preparation. The following limitations apply:

- **Reliance on third-party verified data**
  The modelling framework is based on *Rambøll (2022)* verified by an independent third-party reviewer, and it draws on the updated LDG dataset (Carbon Footprint Report: Pandora Lab-Grown Diamonds (2026), and the underlying PCF supplier reports verified by independent third parties, including EY, Carbon Trust, Deloitte and DNV. This study does not independently re-perform verification of underlying datasets. Responsibility for the validity of such third-party verified materials remains with the original data owners and verifiers.
- **No independent process audits**
  Process data and activity information are sourced from supplier-reported datasets and underlying documentation. This assessment relies on these verified supplier inputs and has not included additional on-site audits or independent process-level verification.
- **Intended use**
  This report is prepared for internal decision-making, supplier engagement, and external environmental communication within Pandora's sustainability reporting framework, including support of public climate claims in accordance with ISO 14026. Any use in consumer-facing communication should be subject to appropriate legal and compliance review.

2 Goal and Scope Definition

2.1 Goal

The goal of this Product Carbon Footprint (PCF) study is to quantify the cradle-to-gate and gate-to-grave greenhouse-gas (GHG) emissions associated with select Pandora Lab-Grown Diamonds rings. The assessment supports internal decision-making, supplier engagement, and transparent environmental communication within Pandora's sustainability reporting framework.

The results provide quantified and harmonised carbon data (CO_2e) for the selected items in the Infinite and Era collections, ensuring methodological consistency and alignment across Pandora's jewellery portfolio and comparability with previous Pandora PCF studies.

The modelling framework remains consistent with previous Pandora PCF assessments, while updated data inputs and emission factors have been applied. This ensures that results are comparable, while reflecting the most recent and representative data available.

Intended applications include:

- Internal monitoring of product-level climate performance;
- Benchmarking of materials and production processes across suppliers; and
- Use in B2C disclosure and substantiation of compliant environmental claims.

The purpose is to transparently document public climate claims in accordance with ISO 14026. There are no comparative assertions in this study.

2.2 Scope

The study covers five representative ring items from the Infinite and Era collections.

Functional Unit

The functional unit is defined as *one complete ring*, referring to one finished Pandora lab-grown diamond ring including all materials, manufacturing, assembly, material transportation, product distribution and consumer packaging (ring box) and use fulfilling its adornment function over an assumed lifetime of 50 years, and representing the full cradle-to-grave life cycle modelled to represent the declared item configuration.

System Boundaries

The system boundaries follow a cradle-to-grave approach encompassing:

- **Cradle-to-gate**: raw-material extraction and processing, component manufacturing, OEM assembly, and packaging;
- **Gate-to-grave**: distribution to store, ring box production and transport, use phase (one polishing per year for gold and one polishing each five years for silver) and end-of-life treatment. Packaging (ring box) is included within the system boundary as part of the consumer product delivery stage.

Retail operations (e.g., in-store energy use) and consumer transport are excluded, consistent with *Rambøll (2022)*. All life-cycle stages are modelled using updated emission factors, primarily based on Ecoinvent 3.10.1 with supplementary datasets where required), and an emission-factor for lab-grown diamonds (LGD 12.58 kg CO_2e/ct).

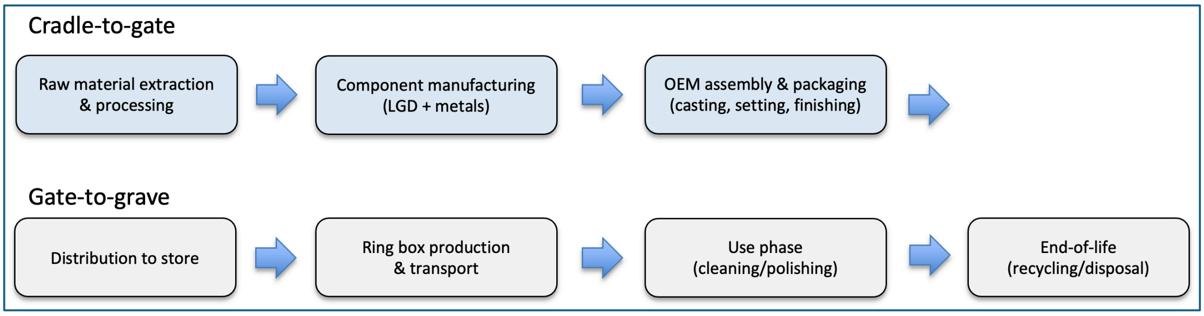


Figure 1. System Boundary. Cradle-to-Grave PCF.

Temporal, Geographical and Technological Representativeness

- **Temporal:** Data represent 2022–2025[3] production and supply-chain conditions.
- **Geographical:** Global system with production and assembly primarily in Thailand and India, and distribution to Pandora's global markets.
- **Technological:** Processes reflect current manufacturing practices, supplier energy configurations, and renewable electricity sourcing for lab-grown diamonds.

Allocation and Cut-off Criteria

Allocation between co-products follows the established LCA allocation principles:

- **Mass allocation** for metal and component manufacturing; and

[3] The results apply to the Infinite and Era items supplied after 2025 subject to material changes and regulatory requirements. In line with good practice, Pandora aims to assess and, as necessary, update the product carbon footprint every three years.

- **Cut-off criterion:** inputs below 1% of total mass or energy may be excluded if they are expected to contribute less than 1% to total GHG emissions.

Detailed application of allocation procedures and cut-off criteria is described in Section 3.6.

Impact Category and Reporting Metric

The study quantifies climate change impacts expressed as kg CO_2-equivalents, applying the IPCC AR6 Global Warming Potentials (GWP100, 100-year time horizon). The assessment includes all relevant greenhouse gases, including CO_2, CH_4, and N_2O, expressed as CO_2-equivalents. Other impact categories are outside the scope.

Limitations

The results are subject to the assumptions and limitations described in Section 6.2. The main limitations include:

- Portfolio level representation of LGD suppliers using a harmonised and conservative reference value (12.58 kg CO_2e/ct), which does not capture supplier-specific variation but ensures methodological consistency and avoids underestimation of impacts;
- Approximation of OEM distribution for Era items based on data from two OEM suppliers, included in the Rambøll (2022) assessment, applying an estimated 86%/14% allocation derived from the Infinite model. Since the initial assessment, an additional OEM supplier has been introduced; however, in the absence of supplier-specific data, the original OEM dataset is considered representative of the overall production setup.
- Use of item-level modelling, where ring sizes and metal weights vary slightly at item level; these item-level variations in ring sizes are not captured in the representative item data used; and
- Exclusion of retail-stage and consumer transport impacts, which are outside the defined system boundary (see Section 2.2).

3 Methodology and Data Sources

3.1 Methodological Framework

The study has been prepared in accordance with the principles and requirements of ISO 14067:2018 and ISO 14044:2006. The study applies a life cycle assessment (LCA) approach, using a process-based attributional modelling framework.

The modelling framework is consistent with previous Pandora PCF studies. The functional unit, system boundary, and impact category are defined in Section 2. Only selected data inputs and emission factors have been updated to reflect current and representative conditions.

The study applies a cradle-to-grave life-cycle perspective and includes the full set of upstream and downstream processes relevant to the assessed products. The study covers direct and indirect greenhouse-gas emissions (CO_2, CH_4, and N_2O) expressed as CO_2-equivalents based on the IPCC AR6 Global Warming Potentials (100-year horizon).

The model structure integrates material-level inventories, process-level energy use, packaging, logistics, and end-of-life treatment. Modelling was performed in Microsoft Excel using a transparent process-chain approach with direct traceability of inputs, factors, and assumptions.

3.2 Life Cycle Inventory (LCI)

The life cycle inventory covers the key processes contributing to the cradle-to-grave carbon footprint of the product system. These include lab-grown diamond production, metal production, OEM manufacturing and assembly, transport and distribution, packaging (including ring box production), use-phase activities (polishing), and end-of-life treatment. The modelling reflects the most relevant unit processes within each stage in accordance with the defined system boundaries and cut-off criteria.

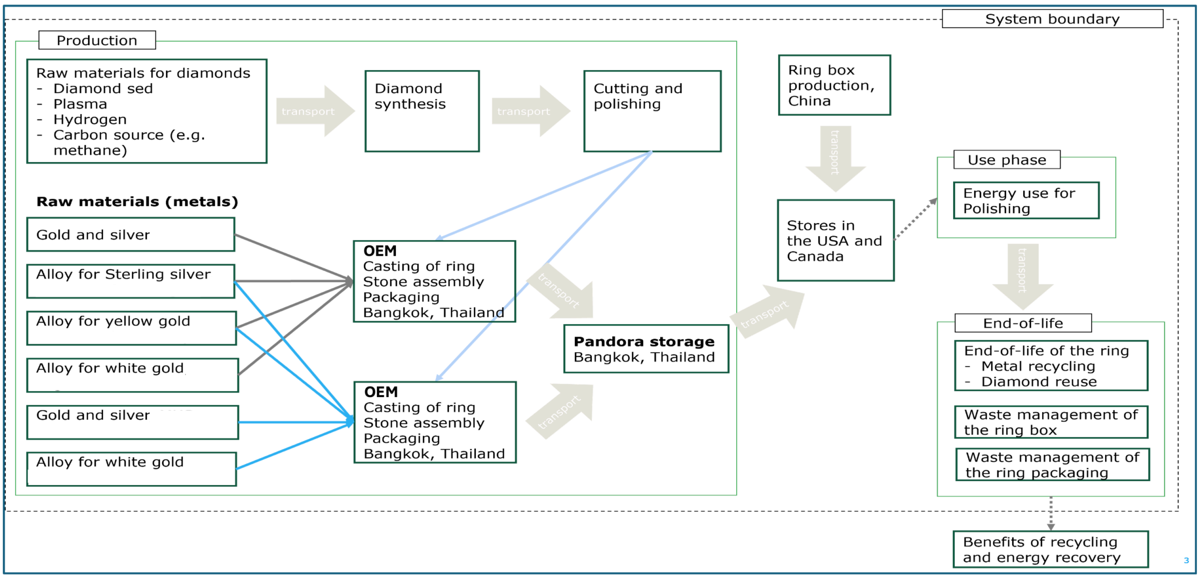


Figure 2. System flow architecture (Infinite and Era modelling). Source: Pandora Brilliance, Carbon Footprint, 2022.

3.2.1 Product System and Bill of Materials (BOM)

The product system reflects a global value chain, where lab-grown diamonds are produced, cut and polished across multiple locations before being transported to Thailand for ring manufacturing. Finished rings are distributed via regional distribution centres to end markets.

The product system is defined based on SKU-level Bill of Materials (BOM) data for the Infinite and Era collections (see Box 1 LCI overview). The BOM specifies material composition, component structure, and associated process steps for each product configuration.

The life cycle inventory (LCI) is structured into the following main components:

- **Materials:**
  Metal alloys (e.g. yellow and white gold metal alloys, silver), lab-grown diamonds, and auxiliary materials (e.g. wax, gypsum, rubber, and plastics).
- **Manufacturing processes:**
  Energy use and process inputs associated with OEM production, including casting, stone setting, finishing, and assembly.
- **Packaging:**
  Primary and secondary packaging materials, including plastics, paper, and cartons.
- **Transport:**
  Distribution of materials and finished products across the supply chain using representative transport modes.
- **Use phase:**
  Maintenance activities over the product lifetime, including polishing and cleaning over the product lifetime
- **End-of-life:**
  Recycling, recovery, and disposal pathways for metals, and packaging materials

Box 1: Life Cycle Inventory (LCI) Structure

SKU-level variation (e.g. ring size, alloy composition, and diamond size) is addressed using a representative value within the model, ensuring consistency across product categories. Some auxiliary materials are excluded where data availability is limited, and their contribution is assessed as negligible relative to total results.

Detailed BOM data and SKU-level inventory calculations are documented in the underlying calculation model and are available for verification upon request.

3.2.2 Mapping of BOM to LCI Datasets

Each material and process element in the BOM is mapped to the corresponding life-cycle inventory datasets.

- Primary data are applied where available, including supplier-specific data for lab-grown diamond production and OEM manufacturing processes;
- Secondary data are used for background processes such as material production, energy supply, packaging, and transport, primarily sourced from Ecoinvent 3.10.1 and supplemented by Sphera datasets (Sphera, 2020)[4] where required.

This mapping ensures full traceability between product composition, process inputs, and applied emission factors.

3.2.3 Data Sources and Hierarchy

Primary data were obtained from Pandora's suppliers and internal documentation, complemented by verified third-party PCF reports from Rambøll, Carbon Trust, Deloitte, EY, and DNV.

Secondary data were sourced from recognised LCA databases and literature as shown below:

- Ecoinvent 3.10.1 (primary background dataset);
- Sphera Life Cycle Inventory Database (2020); and
- IPCC AR6 (2021) Global Warming Potentials.

Data selection follows a hierarchical approach prioritising:

1. Primary data from suppliers or production-specific assessments;
2. Verified third-party datasets where available;
3. Standardised secondary data from recognised emission factor sets; and
4. Assumptions or proxy data where primary or secondary data are not available.

[4] Sphera (2020). Carbon Footprint of Specific Materials in the Supply Chain of Pandora. The study is conducted for Pandora by Sphera Solutions GmbH.

All datasets were reviewed for temporal, geographical, and technological representativeness before integration into the applied modelling framework.

3.2.4 Data Quality

Data quality was assessed according to ISO 14044:2006 criteria for representativeness, completeness, consistency, and transparency. Each major dataset includes source documentation, reference, and emission factor origin.

An assessment of data quality, limitations, and associated uncertainties is provided in Section 6.

3.3 Data Collection and Sources

The assessment is based on a combination of supplier-specific primary data and secondary datasets. Primary data have been collected from Pandora and key suppliers where available, particularly for manufacturing processes and lab-grown diamond production.

Secondary data are primarily sourced from Ecoinvent 3.10.1 and other recognised databases and literature, ensuring consistency and completeness across the system.

Where primary data are not available, conservative assumptions and representative datasets have been applied to avoid underestimation of impacts.

3.4 Harmonised Emission Factor Set

A standardised emission factor framework is applied to ensure consistency, comparability, and methodological alignment of all model inputs. This includes the use of a harmonised dataset for LGD production (see Box 2 for definition and methodological basis), standardised and updated emission factors for all other materials, energy, and transport based on Ecoinvent 3.10.1, supplemented by Sphera (2020) datasets where required.

The updates include:

- Harmonised LGD emission factor (12.58 kg CO_2e/ct) representing a conservative, portfolio-level reference value applied consistently across suppliers, including upstream emissions associated with renewable energy generation.
- A full database update to Ecoinvent 3.10.1, encompassing all material and process datasets, including regional electricity-grid mixes for OEM production.
- Standardised logistics factors (air, sea, and road) harmonised across cradle-to-gate and gate-to-grave stages.

The factors and calculation for LGD references are documented in the *Pandora LGD PCF Report (2025)*.

Harmonised LGD emission factor

The harmonised LGD emission factor represents a consolidated and conservative reference value for the carbon footprint of lab-grown diamonds used across Pandora's product carbon footprint assessments. The value of 12.58 kg CO_2e per carat (kg CO_2e/ct) is derived from a cradle-to-gate product carbon footprint study of Pandora's lab-grown diamonds and reflects the following methodological principles:

Supplier-level consolidation:

The dataset is based on multiple supplier-specific PCF studies, all aligned with ISO 14067:2018 and independently third-party verified. Differences in methodologies have been harmonised to ensure consistency and comparability across suppliers.

Conservative reference approach:

The reported value corresponds to the highest supplier-average footprint, ensuring that the result represents an upper-bound, portfolio-level estimate and avoids underestimation of impacts.

Cradle-to-gate system boundary:

The dataset includes all relevant production stages, including raw material inputs, diamond synthesis (CVD), and cutting and polishing, up to the point where the polished diamond leaves the facility.

Electricity modelling and renewable energy treatment:

Electricity consumption is the dominant driver of emissions (≈70–85%). While suppliers operate on 100% renewable electricity (market-based), achieved through on-site renewable energy generation and the procurement of renewable energy certificates (RECs) and/or equivalent instruments. The dataset includes upstream emissions from renewable energy generation, in accordance with ISO 14067:2018, meaning renewable electricity is not treated as zero emissions.

Harmonisation of key methodological parameters:

Adjustments have been applied to ensure:

- consistent treatment of electricity emissions across suppliers
- alignment of system boundaries and cut-off criteria
- consistent use of GWP100 (IPCC AR5)
- inclusion of upstream emissions where missing

Representative but standardised value:

The emission factor is expressed per polished carat and does not differentiate between diamond size, cut, or clarity, as these variations are embedded within supplier-average results.

Interpretation and use in this study

The harmonised LGD emission factor is applied as a standardised input across all items, ensuring methodological consistency and comparability of results. It reflects current supply-chain conditions and is intended as a robust, conservative benchmark for product-level carbon footprint modelling.

Box 2: Harmonised LGD Emission Factors.

3.5 Data Verification and Quality Control

Primary and secondary datasets were evaluated prior to integration into the model, following the data hierarchy described in Section 3.2.

Where supplier PCF reports were verified by third parties, the study adopts those verified values directly. The study does not re-perform third-party verification of underlying datasets.

No additional independent verification or on-site audits were conducted as part of the study. Internal quality control was performed to ensure calculation traceability, consistency of applied emission factors, and documentation completeness.

An assessment of data quality, limitations, and uncertainties is provided in Section 6.

3.6 Allocation and Cut-off Criteria

Allocation and cut-off principles are defined in Section 2 and are consistently applied across the model.

The study applies a cut-off approach for recycled materials, where recycled inputs are treated as burden-free and no end-of-life credits are assigned. A closed-loop allocation approach is applied in the sensitivity analysis to assess the influence of material recovery and reuse on results. Minor auxiliary materials and processes with negligible contribution to total results are excluded where data is not available, in line with standard LCA practice. Capital goods (e.g. manufacturing equipment, infrastructure, and retail facilities) are not included.

These exclusions are not expected to materially influence the results.

3.7 Modelling Assumptions

Key modelling assumptions applied consistently across all items and life-cycle stages include:

Product and system assumptions

- Consistent allocation methods as defined in Section 2;
- Use of a representative item-level to account for variations in ring size and material composition;
- Assumed product lifetime of 50 years, consistent with the defined functional unit.

Supply chain and production assumptions

- Use of portfolio-average LGD footprint (12.58 kg CO_2e/ct) to ensure comparability across suppliers; and

- Key OEM datasets represent a defined and representative share of total production volumes and are considered representative of the broader product system, including the OEM distribution for Era items that are modelled using the current best-estimate of production data, based on the supplier representation applied in the Infinite model.

Downstream assumptions

- Transport (rings): Distribution from production sites in Thailand is modelled using representative logistics routes to key markets, including North America (e.g. Los Angeles, New York City, and Toronto), with a representative split between air and sea freight, based on available shipment patterns;
- Transport (packaging): Transportation of ring boxes is modelled based on supplier logistics data, including intercontinental transport from Asia to North America with a representative split between air and sea freight, followed by regional distribution;
- Use phase: A simplified use-phase scenario is applied, assuming periodic cleaning and polishing over the product lifetime, with frequency differing between material types (e.g. more frequent polishing for gold compared to silver);
- End-of-life: At end-of-life, metals are assumed to be recycled, while lab-grown diamonds are assumed to be discarded. No recycling credits are applied in the baseline assessment, consistent with the cut-off approach. Packaging materials are assumed to be disposed of through standard waste management pathways.

3.8 Conformance with Standards

This study conforms to ISO 14067 for product carbon-footprint quantification and reporting, and to ISO 14044 for life-cycle assessment procedures.

4 Results

This section presents the updated Product Carbon Footprint (PCF) results for the selected Pandora Lab-Grown Diamonds items. All results are reported in kg CO_2-equivalents per functional unit (one complete ring) and reflect results for cradle-to-grave system boundaries.

The study integrates new data for the Era collection, and an updated BOM and emission-factor inputs for the Infinite collection, replacing the numerical results for the Infinite collection resulting in updated numerical results for the Infinite collection items compared to *Rambøll (2022)*.

The modelling architecture and data flow are illustrated in *Figure 4-1*, showing the system logic from material extraction to end-of-life, including the harmonised background data and OEM allocation. The main model and results presented use cut-off, where recycled metals bear no mining burden, whereas the sensitivity analysis tests closed-loop, where recycled metal carries both burden of mining and benefit of recycling.

4.1 Cradle-to-Grave Results

The results for each item are summarised in Table 1. Values include all upstream and downstream stages except retail operations and consumer transport. The results show consistent patterns across the *Infinite* and *Era* collections, with impacts primarily driven by the lab-grown diamond production, followed by OEM manufacturing energy use, and with raw downstream processes and raw materials (excluding diamonds) contributing to a lesser extent.

The total cradle-to-grave emissions per ring are as follows:

- Infinite Sterling Silver Ring (0.15 ct): ≈ **3.24 kg** CO_2e per ring
- Infinite 14K Gold Ring (1.00 ct): ≈ **14.44 kg** CO_2e per ring
- Infinite 14K White Gold Ring (1.00 ct): ≈ **14.39** kg CO_2e per ring
- Era 14K Gold Ring (0.11 ct): ≈ **3.15 kg** CO_2e per ring
- Era 14K White Gold Ring (0.90 ct): ≈ **13.08 kg** CO_2e per ring

Main results KgCO₂e/ring	TOTAL	5. End-of-life	4. Use phase	3. Transport to store (ring + box)	2. Ring box	1.4 OEM Process	1.3 Transport of raw materials	1.2 Raw materials exl diamond	1.1 Production of diamond	1. Production
INFINITE STERLING SILVER 0.15 CT	3,24	0,019	0,097	0,382	0,041	0,7649	0,0041	0,0469	1,8870	2,703
INFINITE 14K GOLD 1.00 CT	14,44	0,019	0,485	0,401	0,041	0,7965	0,0233	0,0968	12,5800	13,497
INFINITE 14K WHITE GOLD 1.00 CT	14,39	0,019	0,485	0,402	0,041	0,7664	0,0041	0,0965	12,5800	13,447
ERA 14K GOLD 0.11 CT	3,15	0,019	0,485	0,378	0,041	0,7666	0,0233	0,0512	1,3838	2,225
ERA 14K WHITE GOLD 0.90 CT	13,08	0,019	0,485	0,385	0,041	0,7664	0,0041	0,0601	11,3220	12,153

Table 1. Main results per item (cradle-to-grave, kg CO_2e per ring). Note: Numbers are shown in European formatting (comma as decimal separator).

To support interpretation of the results, Table 2 presents the contribution analysis by life-cycle stage. The analysis expresses each stage's share of the total footprint and highlights the relative significance of diamond production, OEM processing, and downstream activities.

Contribution analysis Per life-cycle stage	TOTAL	5. End-of-life	4. Use phase	3. Transport to store (ring + box)	2. Ring box	1.4 OEM Process	1.3 Transport of raw materials	1.2 Raw materials exl diamond	1.1 Production of diamond	1. Production
INFINITE STERLING SILVER 0.15 CT	100%	0,6%	3,0%	12%	1,3%	23,6%	0,1%	1,4%	58%	83%
INFINITE 14K GOLD 1.00 CT	100%	0,1%	3,4%	3%	0,3%	5,5%	0,2%	0,7%	87%	93%
INFINITE 14K WHITE GOLD 1.00 CT	100%	0,1%	3,4%	3%	0,3%	5,3%	0,0%	0,7%	87%	93%
ERA 14K GOLD 0.11 CT	100%	0,6%	15,4%	12%	1,3%	24,4%	0,7%	1,6%	44%	71%
ERA 14K WHITE GOLD 0.90 CT	100%	0,1%	3,7%	3%	0,3%	5,9%	0,0%	0,5%	87%	93%

Table 2. Contribution analysis per life-cycle stage (%). Note: Numbers are shown in European formatting (comma as decimal separator).

4.2 Interpretation of Results

The updated Product Carbon Footprint (PCF) results confirm the overall impact structure observed in *Rambøll (2022)*, while providing more consistent and updated values based on updated datasets, Infinite BOM data, and modelling assumptions.

Dominant impact sources

Across all items, diamond production remains the primary contributor to total greenhouse-gas emissions, representing 44–87% of the cradle-to-grave footprint. The contribution scales linearly with lab-grown diamond carat weight, as the same portfolio emission factor of 12.58 kg CO_2e/ct is applied across rings.

The OEM manufacturing process is the second-largest life-cycle stage. In absolute terms, OEM emissions are very similar for all five items (≈0.77-0.80 kg CO_2e per ring). As a result, their relative share varies with total footprint: around 24% for the lower-carat rings (Infinite 0.15 ct and Era 0.11 ct) and around 6% for the higher-carat (0.90–1.00 ct) gold and white-gold designs.

The contribution from transport varies across the assessed items, due to relative differences in total impacts. For the 0.90–1.00 ct gold and white-gold rings the contribution is approximately 3%, compared with around 12% for the Infinite Sterling Silver 0.15 ct and Era 14K Gold 0.11 ct rings.

Use-phase impacts also vary across items, contributing around 3-4% for most designs, but increasing to 15.4% for the Era 14K Gold 0.11 ct ring. This reflects the lower total footprint of this design and the relative significance of periodic polishing of gold over the assumed product lifetime.

Raw materials excluding diamonds (metals and alloys) account for a modest share of impacts, typically 1–2% of the total footprint, reflecting both the relatively small metal masses and the use of 100% secondary silver and gold in the modelled alloys.

Collection comparison

The Infinite collection shows the highest absolute footprints for the 1.00 ct gold and white-gold designs (≈14.39 kg CO_2e per ring), driven by the larger diamond carat weight. The Era 0.90 ct white-gold ring is somewhat lower (≈13.08 kg CO_2e), consistent with its smaller diamond, but remains in the same order of magnitude.

For the smaller carat rings (Infinite 0.15 ct silver and Era 0.11 ct gold), total footprints cluster around 3.2 kg CO_2e per ring, but the internal distribution differs: the Infinite silver ring has a higher relative diamond share (≈58%), while the Era 0.11 ct ring shows a more even split between diamond production (≈44%), OEM processes (≈24%) and use phase (≈15%). This reflects both the lower diamond carat weight and the inclusion of gold polishing in the use-phase model for gold rings.

Across the 1.00 ct designs, the variation between yellow and white gold remains marginal.

Upstream and downstream stages

Logistics, packaging and end-of-life remain comparatively small contributors. Transport to store is nearly constant across items (≈0.38–0.40 kg CO_2e per ring, corresponding to about 3–12% of the total), with the higher percentages for the low-footprint rings. Packaging and end-of-life each contribute below 1–2% of the cradle-to-grave results under the cut-off approach.

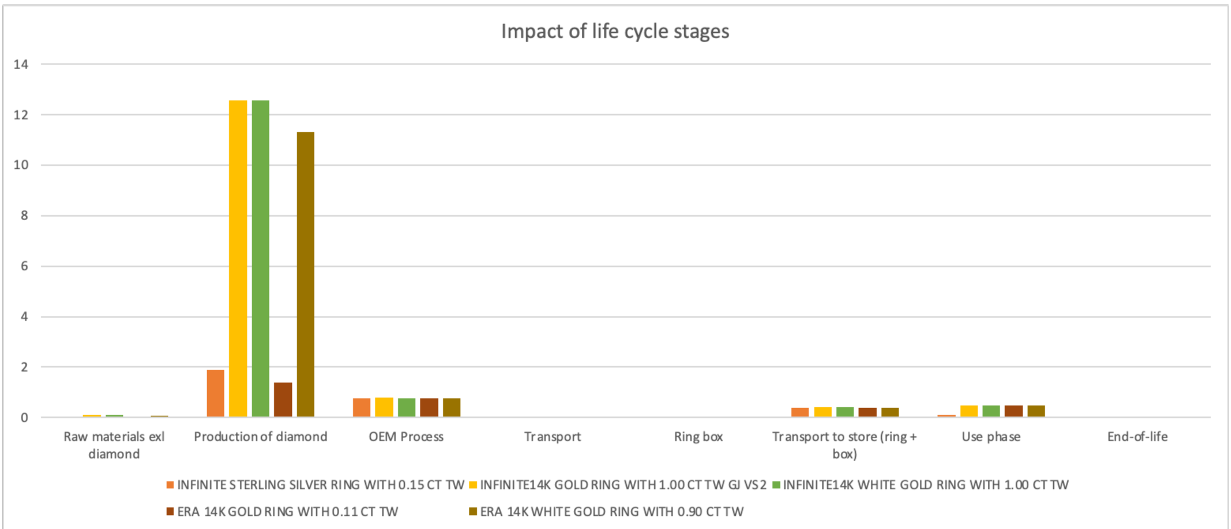
Use-phase impacts are low in absolute terms (≈0.10 kg CO_2e for the silver ring and ≈0.49 kg CO_2e for gold rings) but appear more prominent in relative terms for the Era 0.11 ct gold ring due to its lower overall footprint and the inclusion of gold polishing.

Overall, the results confirm that diamond production and OEM processes together explain the vast majority of impacts, while upstream metals, packaging, logistics, use phase and end-of-life contribute to a lesser extent within the current system boundaries. The end-of-life credit for precious-metal recycling partially offsets upstream burdens and is further explored in the sensitivity analysis (Section 4.3).

Figure 3 below clearly demonstrates that diamond production dominates total emissions for all items, followed by OEM manufacturing. When excluding diamonds (bottom figure), the profiles of Infinite and Era rings appear largely aligned, confirming that the underlying process structure and background data application are consistent across collections.

This comparison highlights that differences in total PCF results are primarily driven by variations in diamond carat weight.

The smaller-carat rings show slightly higher relative contributions from use phase and transport to store, reflecting their lower absolute footprints. This also explains the higher sensitivity of low-carat designs to allocation assumptions, as non-diamond life-cycle stages represent a larger share of total emissions.



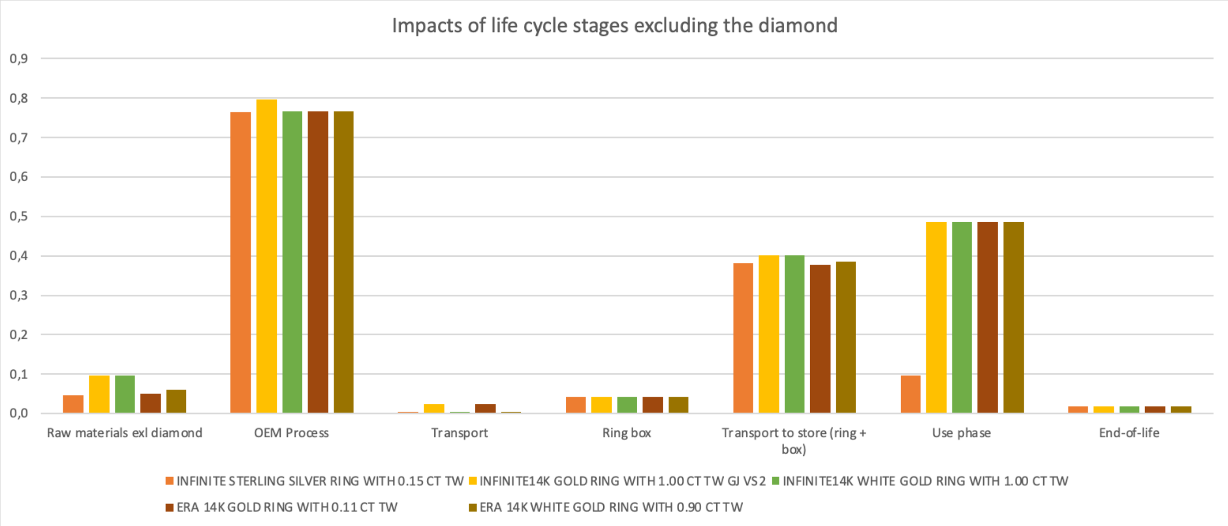


Figure 3. *Impacts of life-cycle stages, excluding and including diamond production (kg CO_2e per ring)*. The bottom chart isolates upstream and downstream stages to highlight structural differences across items, while the top chart presents the full cradle-to-grave profiles.

4.3 Sensitivity Assessment

This section evaluates the robustness of the PCF results by examining the influence of the end-of-life allocation method. The focus is on how alternative treatment of recycled precious metals (gold and silver) affects the cradle-to-grave emissions. The analysis follows ISO 14044:2006 and ISO 14067:2018 standards, ensuring methodological consistency and transparency.

In line with *Rambøll (2022)*, the study applies a *cut-off* allocation approach. In this method, recycled metals used as inputs are assumed to carry no upstream environmental burdens (e.g. mining and refining), and no credit is granted for materials recovered at end-of-life. Additionally, reuse of lab-grown diamonds is conservatively set to 0%. While there is evidence of reuse of lab-grown diamonds, there is limited large-scale data on reuse rates for lab-grown diamonds; hence to avoid overestimating the benefits of reuse in the end-of-life phase, the effect is assumed negligible.

To test model sensitivity, an alternative *closed-loop* allocation scenario was assessed. Under this approach, input metals are treated as primary (virgin) and thus include full upstream burdens. However, credits are applied at end-of-life for recovered metals. Following Rambøll's precedent, the model assumes a 90% recovery rate for precious metals and awards credits equivalent to the avoided burden of virgin gold and silver production, minus impacts from transport and reprocessing. No credit is given for lab-grown diamond reuse, to maintain methodological conservatism and consistency.

Table 3 below presents the comparative sensitivity analysis of both the cut-off and closed-loop allocation scenarios. It shows cradle-to-grave carbon footprints, broken down by life cycle stages, including cradle-to-gate production, transport, use phase, and end-of-life treatment. The analysis highlights how the choice of allocation method particularly the inclusion of recycling credits for precious metals influences total emissions across different product types. These values reflect the assumptions made, including 0% reuse credit for lab-grown diamonds and 90% recovery of gold and silver, in line with the *Rambøll (2022)* methodology.

Sensitivity analysis										
Allocation	INFINITE STERLING SILVER RING WITH 0.15 CT TW		INFINITE 14K GOLD RING WITH 1.00 CT TW GJ VS2		INTINITE 14K WHITE GOLD RING WITH 1.00 CT TW		ERA 14K GOLD RING WITH 0.11 CT TW		ERA 14K WHITE GOLD RING WITH 0.90 CT TW	
	Cut-off approach	Closed-loop allocation	Cut-off approach	Closed-loop allocation	Cut-off approach	Closed-loop allocation	Cut-off approach	Closed-loop allocation	Cut-off approach	Closed-loop allocation
Cradle-to-gate	2,702	2,935	13,491	39,075	13,446	38,782	2,219	14,620	12,150	27,962
Transport to customer	0,423	0,423	0,442	0,442	0,443	0,443	0,419	0,419	0,427	0,427
Use phase	0,097	0,097	0,485	0,485	0,485	0,485	0,485	0,485	0,485	0,485
End-of--life	0,019	-0,142	0,019	-0,260	0,019	-0,240	0,019	-0,067	0,019	-0,055
Total	**3,242**	**3,313**	**14,437**	**39,743**	**14,393**	**39,470**	**3,142**	**15,457**	**13,081**	**28,818**

Table 3. Sensitivity analysis – allocation approach (cradle-to-grave, kg CO_2e per ring). Note: Numbers are shown in European formatting (comma as decimal separator).

Key Observations from the Sensitivity Results

- **Low impact of silver recycling**: For the *Infinite Sterling Silver Ring (0.15 ct)*, the shift from cut-off (3,242 kg CO_2e) to closed-loop (3.313 kg CO_2e) results in only a modest increase of approximately 2%. This limited difference is primarily due to the relative low emission factor for virgin silver and the limited influence of metal-related impacts in the total footprint. These findings align with *Rambøll (2022)*, which also reported marginal changes when switching allocation methods for silver-dominant products.
- **High sensitivity for gold-intensive products**: The largest change is observed for gold rings with low diamond content. The *Era 14K Gold Ring (0.11 ct)* sees an increase from 3.142 kg CO_2e under cut-off to 15.457 kg CO_2e under closed-loop, an approximately fivefold increase. This amplification is explained by two factors:
    1. **High virgin gold emissions**: Virgin gold is associated with substantial upstream emissions. Including these under the closed-loop model significantly increases the cradle-to-gate footprint.
    2. **Constant diamond contribution**: The diamond contribution remains unchanged across allocation scenarios, as no reuse credit is applied. For low-carat designs (e.g. 0.11 ct), this results in a relatively smaller diamond contribution, increasing the relative influence of metal-related assumptions on total emissions.

- **Variation among 1.00 ct gold rings**: For both the *Infinite 14K Gold Ring with 1.00 ct* and *Infinite 14K White Gold Ring with 1.00 ct*, PCFs increase by roughly 177% when shifting from cut-off (≈14.4 kg CO_2e) to closed-loop (≈39.6 kg CO_2e). The substantial increase reflects the heavy influence of virgin gold in the closed-loop model, partially moderated by the dominant contribution of the lab-grown diamond in the total PCF.
- **Relative vs. absolute differences**: While all rings show an increase in PCF under closed-loop allocation, the relative change varies. Products with smaller diamonds and higher metal content exhibit the largest percentage increases, whereas rings where diamond production dominates (e.g., 1 ct rings) show lower relative variation due to the fixed contribution of the diamond impact across scenarios.

This analysis underscores the importance of allocation assumptions in LCA. While the cut-off approach minimizes the role of upstream metal production, the closed-loop model shows the potentially large carbon burden associated with virgin metal use. Consistent with the *Rambøll (2022)* interpretation, the differences in PCF outcomes depend significantly on material composition, diamond size, and recycling credit assumptions.

Given the sensitivity of results to these factors, transparent documentation of assumptions and the inclusion of sensitivity scenarios are essential for robust interpretation and comparability of results.

4.4 Product Specific Results

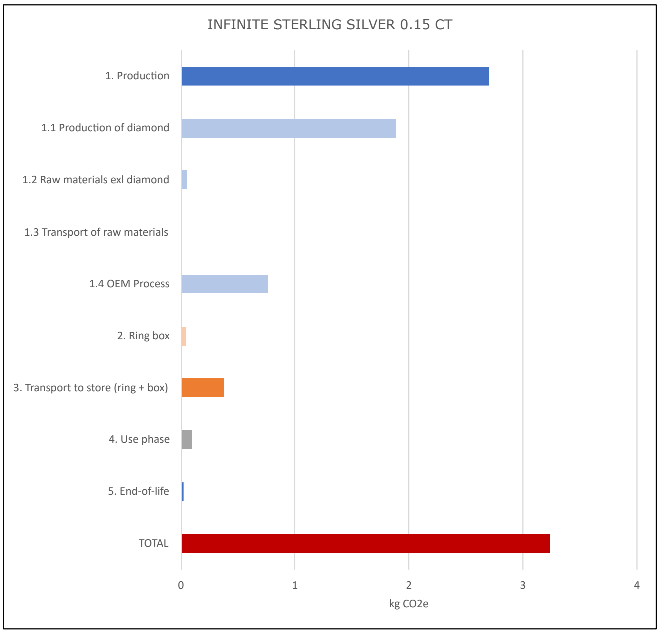
The following sub-sections present detailed results for each assessed item, including contribution analysis and allocation sensitivity charts. Each profile summarises the dominant life-cycle stages, total cradle-to-grave footprint, and sensitivity to end-of-life modelling assumptions.

Infinite Sterling Silver Ring (0.15 ct TW)

Total cradle-to-grave impact: ≈ 3.24 kg CO_2e per ring (cut-off allocation).

The footprint is primarily driven by diamond production (58%), followed by OEM processing (24%) and transport to store (12%). Remaining stages, including packaging, use phase, and end-of-life together contribute less than 6% of the total.

Under closed-loop allocation, the total footprint increases to approximately 3.3 kg CO_2e per ring, reflecting the additional upstream burden assigned to virgin silver. However, the net effect is relatively small (+2%), due to both the low carbon intensity of silver and the limited recovery yield modelled for silver at end-of-life. This outcome confirms the low sensitivity of silver-intensive products to allocation choices.



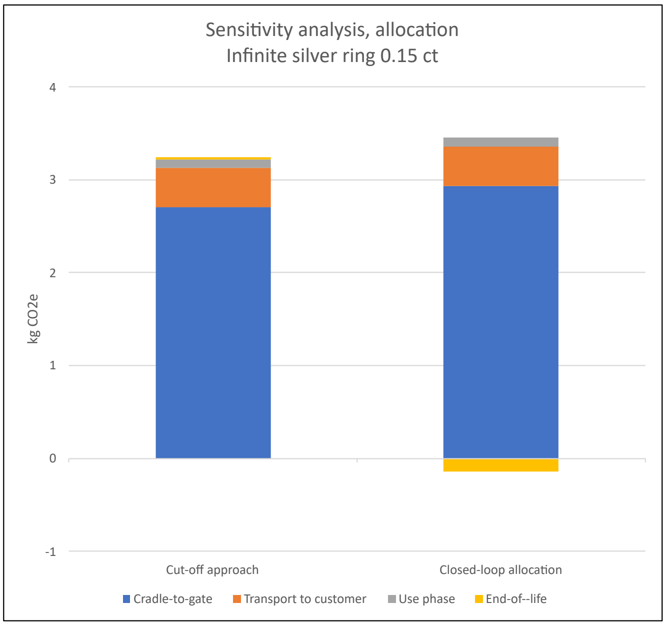


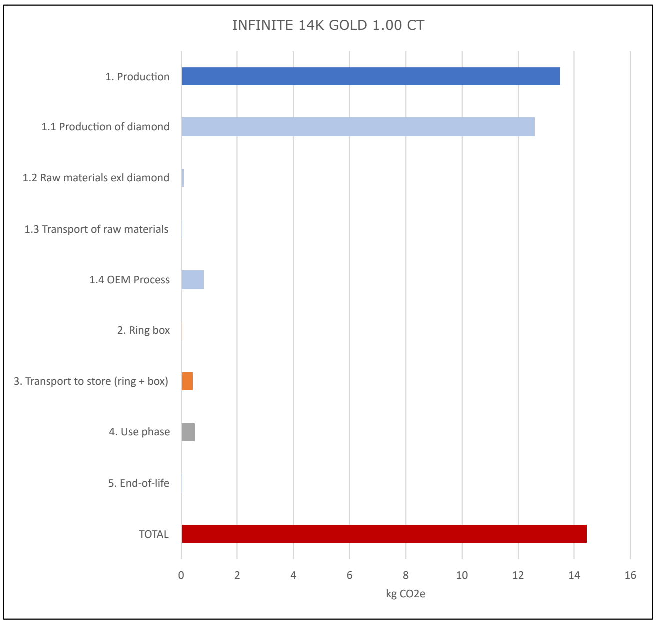
Figure 4. Life-cycle stage contributions and sensitivity allocation: Infinite sterling silver ring 0.15 ct

Infinite 14K Gold Ring (1.00 ct TW GJ VS2)

Total cradle-to-grave impact: ≈ 14.44 kgCO_2e per ring under the cut-off allocation method.

The footprint is dominated by diamond production (87%), with OEM processing accounting for approximately 6%. Transport to store and use phase each contribute around 3%, while end-of-life and packaging have minimal impact.

Under closed-loop allocation, the footprint increases to 39.7 kg CO_2e per ring. This rise of 177% is primarily due to the upstream emissions from virgin gold production assigned under the closed-loop model. Although recycling credits are applied at end-of-life, they only partially offset the substantial burden of use of virgin gold.



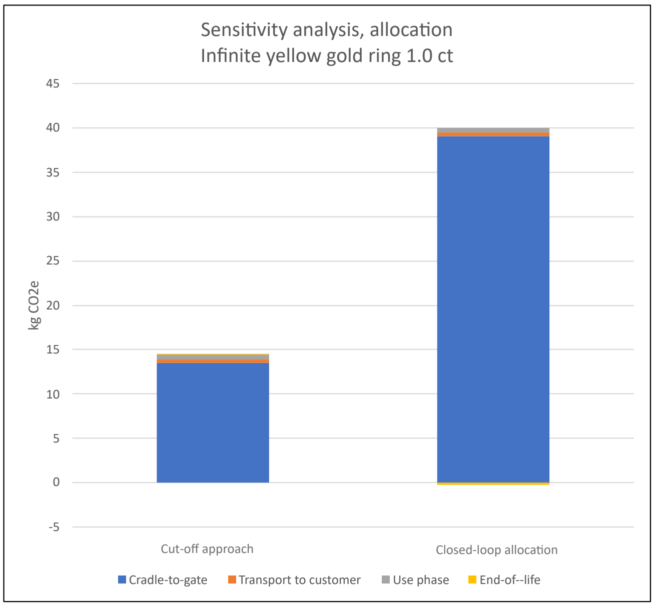


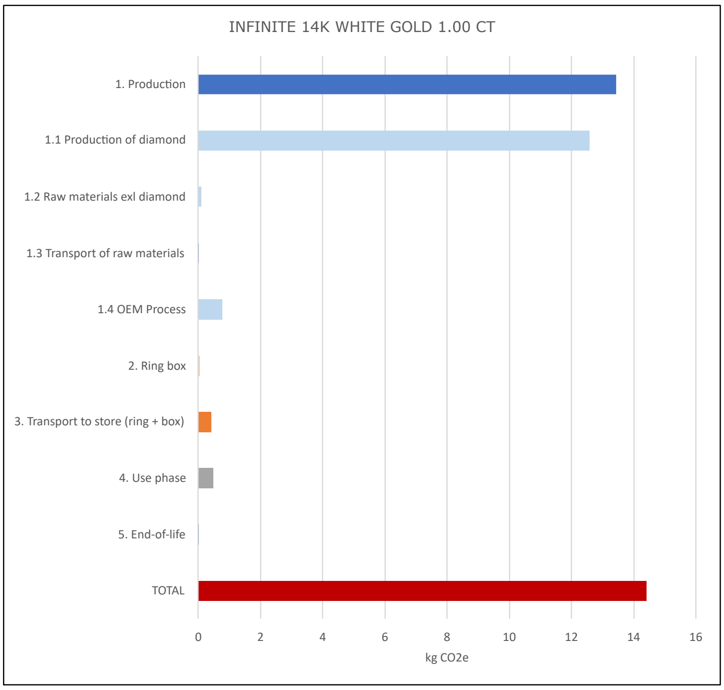
Figure 5. Life-cycle stage contributions and sensitivity allocation: Infinite 14K gold ring 1.00 ct.

Infinite 14K White Gold Ring (1.00 ct TW)

Total cradle-to-grave impact: ≈14.39 kg CO_2e per ring under the cut-off allocation model.

Emissions are primarily driven by diamond production (87%), followed by OEM processing (5%), use-phase (3%) and transport and packaging (3%).

Under the closed-loop allocation, the total PCF increases significantly to ≈39.5 kg CO_2e per ring, driven by the full inclusion of virgin gold's upstream emissions in the cradle-to-gate inventory. Similar to the gold ring above, the recycling credits only partially offset the substantial burden of use of virgin white gold.



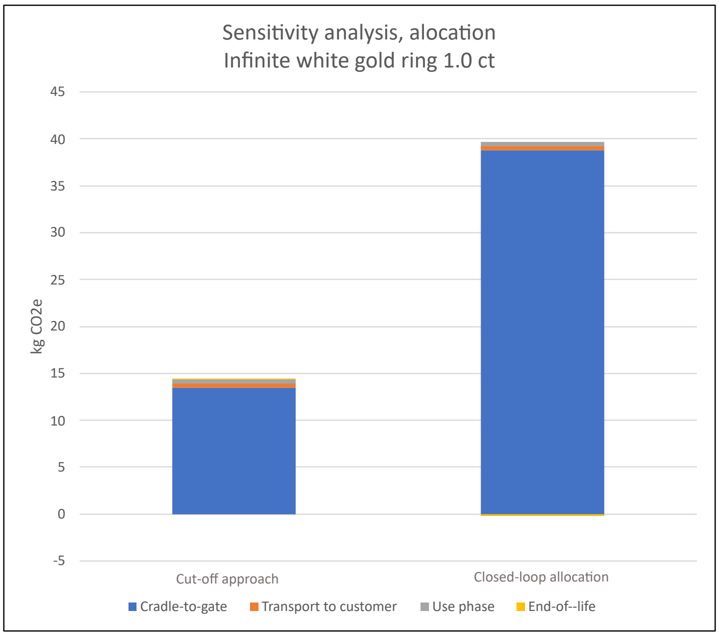


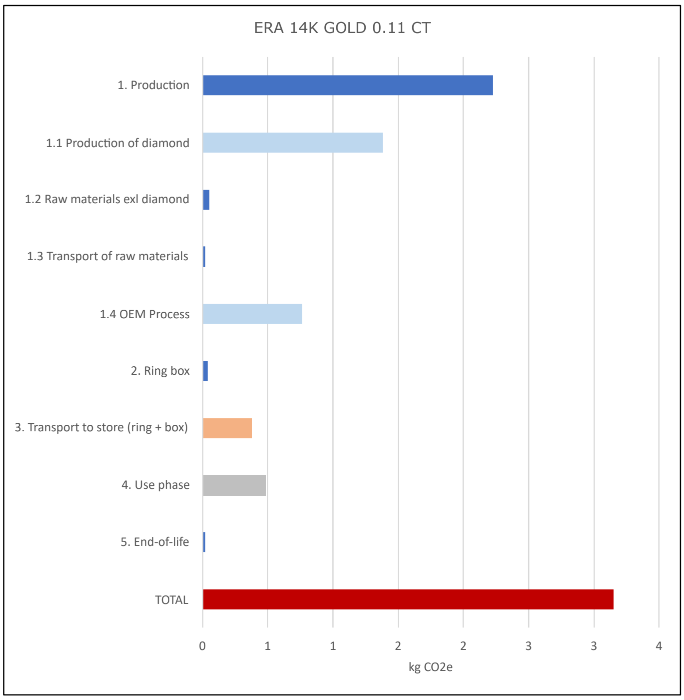
Figure 6. Life-cycle stage contributions and sensitivity allocation – Infinite 14K white gold ring 1.00 ct

Era 14K Gold Ring (0.11 ct TW)

Total cradle-to-grave impact: ≈ 3.15 kg CO_2e per ring under the cut-off allocation approach.

Emissions are primarily driven by diamond production (44%), followed by OEM processing (24%), transport to store (12%), and use phase (15%). The remaining life-cycle stages, including packaging and end-of-life, contribute marginally to the total footprint.

Under the closed-loop allocation scenario, the total PCF rises to ≈15.5 kg CO_2e per ring, which is more than five times higher than under the cut-off model. This significant increase is attributable to the inclusion of upstream emissions from virgin gold. As the diamond contribution remains constant across both scenarios, the relative influence of metal assumptions becomes more pronounced in this low-carat design. This case demonstrates that rings with low diamond content and gold-intensive materials are particularly sensitive to allocation method assumptions, especially regarding metal recycling treatment.



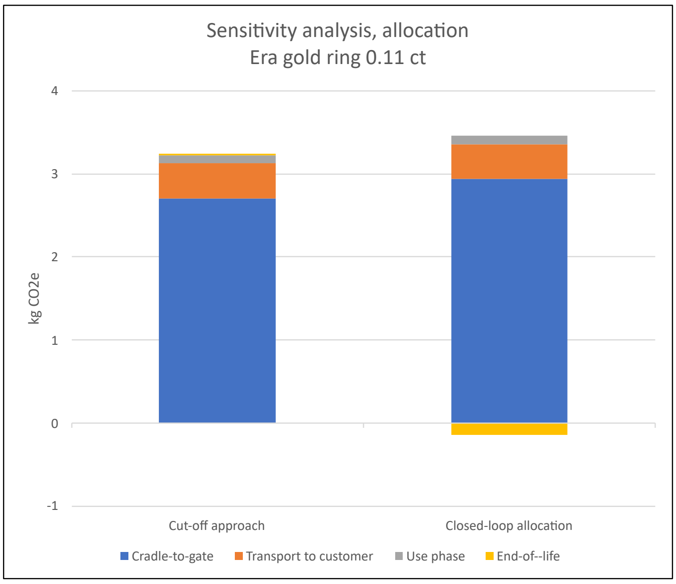


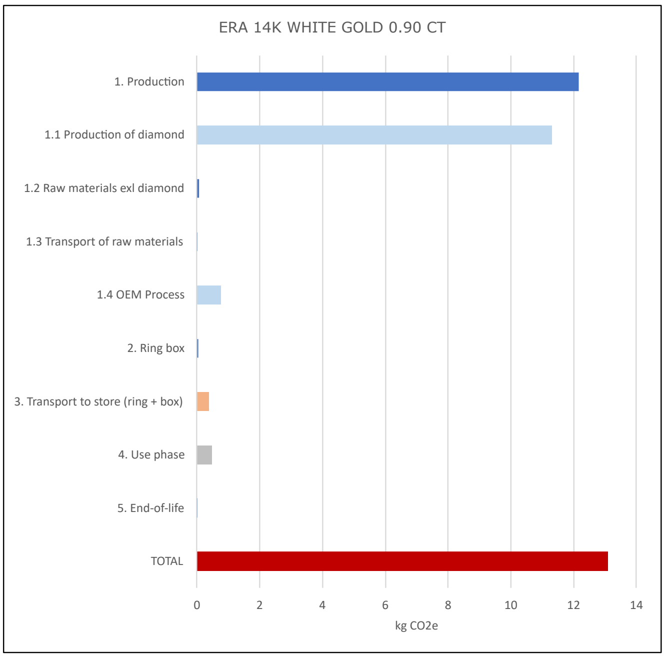
Figure 7. Life-cycle stage contributions and sensitivity allocation – Era 14K gold ring 0.11 ct

Era 14K White Gold Ring (0.90 ct TW)

Total cradle-to-grave impact: ≈13.08 kg CO_2e per ring under the cut-off allocation approach.

The footprint is dominated by diamond production (87%), with secondary contributions from OEM processing (6%). Transport to store including packaging contributes a combined 3%, while use phase contributes approximately (4%).

Under the closed-loop allocation, the total PCF increases to ≈28.8 kg CO_2e per ring. This rise is attributed to the upstream burden of virgin gold being included in the model, which outweighs the end-of-life recycling credits granted for recovered gold. This result highlights the sensitivity of high-gold content items to allocation assumptions.



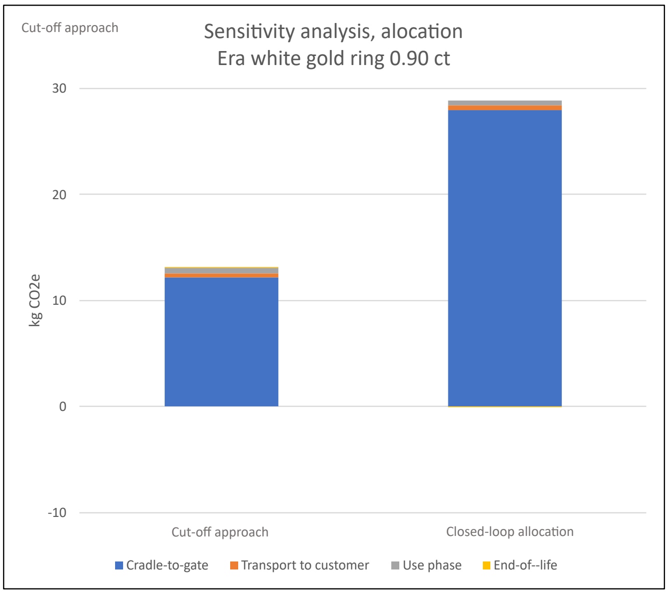


Figure 8. Life-cycle stage contributions and sensitivity allocation – Era 14K white gold ring 0.90 ct

5 Methodological Consistency and Comparability

The study is developed as a standalone Product Carbon Footprint (PCF) assessment in accordance with ISO 14067:2018 and ISO 14044:2006.

The modelling framework applied is unchanged compared to previous assessments, with no structural modifications to the model. Functional unit (one complete ring), system boundaries, allocation principles, and life-cycle structure are applied consistently across all assessed items.

Updates are limited to input data including emission factors, Bill of Materials, and supplier-specific datasets. Methodological choices remain aligned with established industry practice and previously applied approaches.

As a result, the reported results are directly comparable to previous assessments.

5.1 Boundary and Allocation Consistency

System boundaries and allocation rules follow ISO 14067 and ISO 14044 guidance.

Two allocation approaches are applied to assess sensitivity:

- **Cut-off:** recycled inputs are treated as burden-free, with no end-of-life credits
- **Closed-loop:** upstream burdens of virgin materials are included, with credits assigned for recovered materials at end-of-life

These approaches are applied consistently across all items to ensure comparability of results.

5.2 OEM Representativeness and Inbound-Stock Treatment

The model integrates OEM-specific production data where available (for Infinite) and applies representative supplier shares (for Era) across items.

Inbound stock and component transport are modelled using standardised assumptions for transport distance and mode (air, sea, and road). The influence of OEM-allocation, referring to the weighting and distribution of OEM-specific production impacts across items (including energy use and inbound logistics) based on supplier shares and per-unit production assumptions, remains limited on the total cradle-to-grave results.

5.3 Functional Unit and Reference Consistency

All results are expressed per functional unit defined as one complete ring, including specified material composition and diamond carat weight, ensuring comparability across all items.

5.4 Methodological Traceability

The modelling approach is transparent and traceable, with assumptions, data sources, and calculation steps documented in the underlying model.

These factors of methodological consistency and comparability support reproducibility and independent review and verification.

6 Limitations and Data Quality

This section provides an assessment of data quality, key assumptions, and limitations relevant to the interpretation of results, in accordance with ISO 14044:2006 and ISO 14067:2018 guidance. While the underlying modelling framework is consistent and robust, certain limitations and uncertainties are inherent to life-cycle assessment and are described below.

6.1 Data Quality Assessment

Data quality has been assessed based on the criteria of temporal, geographical, and technological representativeness, as well as completeness and consistency.

Temporal representativeness

The assessment reflects the most recent available data, including supplier-specific inputs and emission factors from Ecoinvent 3.10.1. Background datasets are primarily based on data from the period 2022–2025 and are considered representative of current production conditions. Minor temporal mismatches may occur in background datasets but are not expected to materially influence results.

Geographical representativeness

Supplier-specific data have been applied where available. For background processes, global or regional datasets (e.g. RoW, RER) from Ecoinvent have been used where country-specific data is not available. Electricity consumption for OEM manufacturing is modelled using Thailand-specific electricity grid emission factors based on Ecoinvent datasets, including upstream emissions associated with electricity generation.

A key limitation relates to the use of generic datasets for upstream material processes and logistics, which may not fully capture supplier-specific or site-level variations.

Technological representativeness

The modelling reflects current production technologies for lab-grown diamonds, metal processing, and jewellery manufacturing. Background datasets on material inputs are based on industry-average technologies as represented in Ecoinvent 3.10.1. These may not fully reflect supplier-specific process efficiencies, wherefore, a conservative modelling approach is applied.

Completeness and consistency

The system model includes all relevant life-cycle stages from cradle-to-grave, excluding retail operations and consumer transport, in line with the defined system boundary. Data sources, modelling assumptions, and allocation approaches have been applied consistently across all items. Uncertainties relate primarily to supplier-reported data, allocation choices, and assumptions related to energy sourcing and upstream modelling.

Overall, while uncertainties are present in specific model components, these are not considered to materially affect the robustness or comparability of the results. The data quality is considered robust and fit for purpose to support a robust and comparable assessment of product carbon footprints. Key uncertainties are concentrated in upstream emission factors (including electricity modelling), supplier-specific data granularity, and the use of generic background datasets.

6.2 Key Assumptions and Limitations

The following limitations and assumptions should be considered when interpreting the results:

Use of secondary datasets

Upstream processes related to material and energy inputs (e.g. metal production and electricity supply) are modelled using Ecoinvent datasets, which represent industry-average conditions and may not fully capture supplier-specific variations.

Supplier-specific processes are based on available supplier data and supporting PCF documentation, which are standardised across all items to ensure consistency in modelling.

Lab-grown diamond (LGD) modelling

The modelling applies a portfolio-level reference emission factor for LGD production (12.58 kg CO_2e/ct), reflecting a conservative and comparable estimate across suppliers. This factor incorporates upstream emissions from electricity generation, including renewable energy sources, in line with ISO 14067 requirements.

Variability may exist across suppliers, production batches, and facilities, particularly due to differences in energy sourcing, process efficiency, and technological configuration. However, the use of a harmonised and conservative emission factor ensures that results remain robust and comparable across all assessed items.

OEM manufacturing data

OEM energy use and production modelling are based on supplier-specific data, with impacts allocated per item based on the updated Bill of Materials (BOM) and in accordance with the *Rambøll (2022)* methodology.

The applied OEM dataset is based on two suppliers included in the Rambøll (2022) assessment, which form the basis for the representative OEM distribution used in this study. Since the initial assessment, an additional OEM supplier has been introduced into the supply chain. While no supplier-specific data for this additional OEM have been included in the model, the BOM data indicate that material inputs are consistent across suppliers, and no material differences in core production processes are expected. The original OEM dataset is therefore considered a reasonable proxy for the purposes of this assessment.

Where detailed production data are not available for all suppliers, representative OEM shares are applied to ensure consistent modelling across the items.

While the absolute contribution of OEM processing to total cradle-to-grave results is limited, some uncertainty remains due to simplified allocation of production volumes and the exclusion or approximation of minor process inputs.

Downstream modelling assumptions

Transport, packaging, and use phase are modelled using standardised assumptions regarding distances, transport modes, and use phase configurations. These stages are inherently more generic due to limited primary data availability.

The downstream life-cycle stages contribute a relatively small share of total emissions, with the exception of the relative higher impact from transport and use-phase on the low carat items, particular Era Gold 0.11 CT. However, uncertainties associated with these stages are not expected to materially influence the overall results or conclusions. The product carbon footprint is primarily driven by upstream processes, in particular lab-grown diamond production.

The identified limitations and uncertainties are consistent with those of the previous assessment and are not expected to materially affect the comparability or interpretation of results across studies.

End-of-life modelling and allocation

Results are sensitive to allocation assumptions for recycled metals, particularly gold. The applied recovery rates and allocation approaches (cut-off and closed-loop) reflect standard practice but introduce variability in results, as demonstrated in the sensitivity analysis.

Summary

In summary, the uncertainty arises from emission factor selection, supplier data variability, and modelling assumptions. Sensitivity analyses have been conducted to assess the influence of key parameters. The primary sources of uncertainty relate to electricity modelling for LGD production, allocation of recycled metal impacts, and allocation assumptions applied in end-of-life stage.

Only climate change impacts are assessed; other environmental impact categories are outside the scope, which may result in burden shifting not captured in this study. The identified limitations and uncertainties are consistent with those of the previous assessment and are not expected to materially affect the comparability or interpretation of results across studies.

7 Conclusion

This study presents a Product Carbon Footprint of Pandora lab-grown diamond jewellery of selected Infinite & Era collections as a Cradle-to-Grave Assessment per Ring, developed in accordance with ISO 14067:2018 and ISO 14044:2006.

The results demonstrate that the carbon footprint of all assessed items is primarily driven by lab-grown diamond (LGD) production, which constitutes the dominant share of total cradle-to-grave emissions. This is consistent with previous assessments and reflects the high energy intensity of diamond synthesis and processing.

OEM manufacturing contributes a secondary share of emissions, while other life-cycle stages including transport, packaging, use phase, and end-of-life have a comparatively limited impact on overall results.

The sensitivity analysis confirms that allocation assumptions for precious metals, particularly gold, can significantly influence total results under alternative modelling approaches. In contrast, the influence of allocation choices for silver is limited, and downstream stages remain limited to the overall footprint.

The study applies a harmonised and standardised modelling framework across all items, ensuring consistency in system boundaries, functional unit, allocation rules, and life-cycle structure. Updates introduced in this study are limited to input data, including emission factors, supplier datasets, and Bill of Materials, without changes to the underlying model structure.

As a result, the findings are comparable to previous assessments, and observed differences in results are attributable to updated data rather than methodological changes.

The modelling of LGD production incorporates a harmonised and conservative emission factor reflecting supplier-specific data and aligned treatment of electricity-related emissions. This approach addresses previously identified inconsistencies in supplier methodologies and supports the development of a consistent and comparable baseline across products.

While uncertainties remain, particularly related to electricity modelling, supplier data completeness, and allocation assumptions, these have been transparently documented and assessed. The identified limitations are consistent with those of previous assessments and are not expected to materially affect the robustness, interpretation, or comparability of the results.

Overall, the results are considered robust, consistent, and suitable for substantiating Pandora’s external climate claims in line with ISO 14026 and provides a robust foundation for transparent, consumer-facing communication, , subject to the stated assumptions and limitations. The study provides a credible and transparent basis for understanding the carbon footprint of Pandora’s lab-grown diamond products and supports further development of comparable and verifiable PCF reporting across the product portfolio.

END