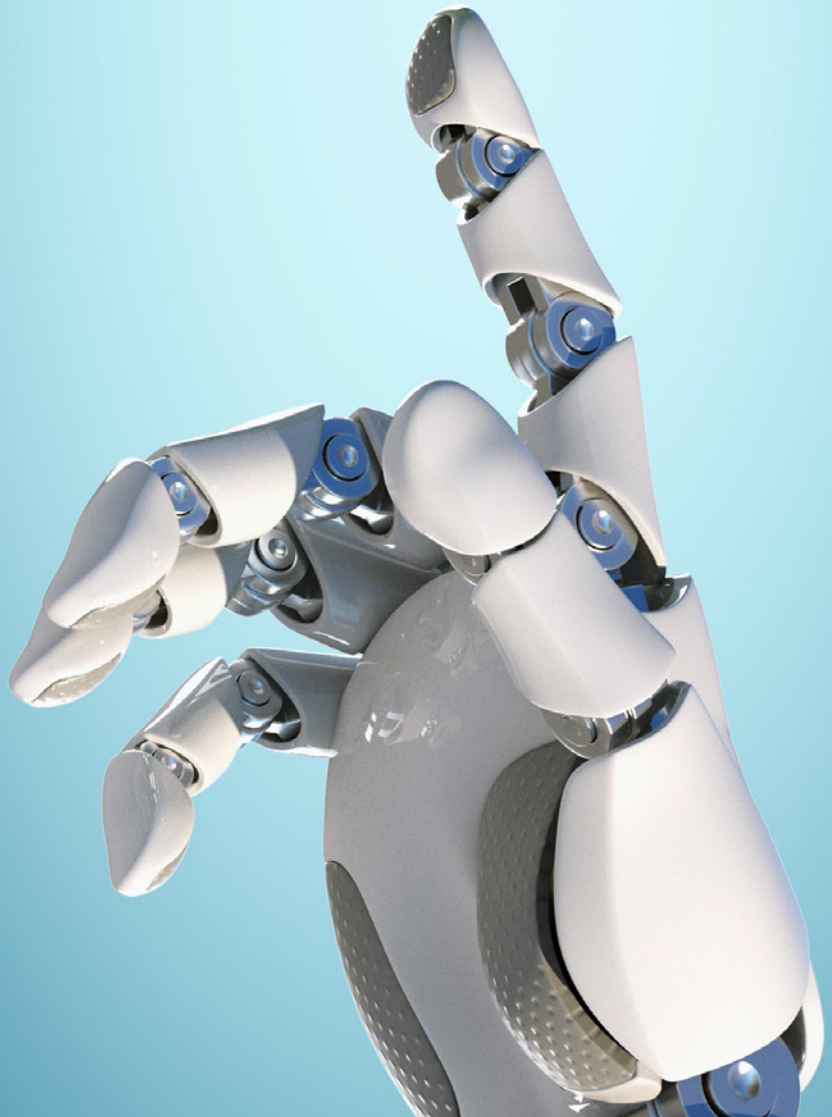
ESTAINIUM
Association

Verification of Product Carbon Footprint
Why it matters and how to prepare for it

July 2024



Highlights

- Concisely introduce product carbon footprint (PCF) and the significance of PCF verification.
- Specify PCF verification process to help minimize a company's effort of getting their products verified.
- Propose a lightweight method to determine the level of trust for those commonly encountered PCF assurance activities.
- Suggest a feasible roadmap for beginners to complete a PCF verification.

Abstract

In light of the Sustainable Development Goals (SDGs) proposed by the United Nations, it is an urgent need to slow down climate change by cutting greenhouse gas (GHG) emissions caused by anthropogenic activities. Herein, one of the main challenges is to accurately account GHG emissions per product, which requires a company to report the carbon footprint on the product level, i.e., Product Carbon Footprint (PCF). Recently, many companies have been criticized for greenwashing their products by choosing optimistic assumptions or leaving out impactful life-cycle stages, resulting that their reported PCFs are highly suspicious and hard to be directly adopted by receivers, which means it is necessary for the PCF claims to be verified by third-party experts or organizations. Considering this, it is imperative for beginners to understand the basic principle of verification so as to prepare themselves as early as possible. This whitepaper aims to provide a straightforward understanding of the entire process of PCF verification without requiring premised knowledge from beginners, and also proposes a lightweight method to determine the quality of verification based on a trust matrix. Lastly, we list the requirements of conducting PCF verification from the view of a verifier, which could be referred by a company to prepare the needed information with minimal effort.

1 Introduction

Reducing GHG emissions to slow down climate change is widely recognized as an urgent mission by many countries [1, 2]. The United Nations has introduced Sustainable Development Goals (SDGs) aiming to pave the way for a more sustainable future [3], where the 13th goal is directly addressing the need to slow the pace of global warming by cutting down GHG emissions [4]. To measure the amount of emitted GHG emissions per product, it needs to consider where and how products are produced along the global supply chains in the multi-scale economy [5]. In accordance, the methodology of Product Carbon Footprint (PCF) is commonly applied [6] [7] [8], which requires a company to report the carbon footprint on a granularity of product level [9]. However, many companies are being criticized for greenwashing their products' emissions [10], e.g., by choosing optimistic assumptions or leaving out impactful life-cycle stages in their PCF calculation and reporting, resulting that their reported PCF values are highly suspicious and hard to be directly adopted by receiving parties.

Obviously, companies can not verify every PCF claim by themselves due to tremendous workloads and also the issue of trustworthiness, implying that independent experts or organizations who can verify those PCF claims are in urgent demand. Moreover, with the upcoming Green Claims Directive [11], only substantiated environmental claims will be allowed to be communicated to outbound parties. Recently, the demand for insight into PCF verification dramatically increases as many parties need to get familiar with verification practices, in order to prepare themselves as early as possible. So far, only highly detailed standards on how to do a verification are available *from the perspective of a verifier*.

To our best knowledge, there is not much relevant literature dealing with the basic topic of informing PCF interested parties about verification itself as well as how to prepare for it. In other words, from the perspective of a client willing to acquire a verification of their PCF claim, it is not clear what needs to be prepared in advance before resorting to an external verifier. On consideration of these, this whitepaper aims to offer a comprehensive and easily understandable verification guideline to those beginners, who have already engaged in the journey of reporting GHG emissions but lack knowledge on verifying the PCF (either calculated by themselves or received from other stakeholders).

To this end, the contributions of this whitepaper are summarized as follows:

- First, we provide a straightforward understanding of PCF without requiring premised knowledge from beginners, and then point out the significance of verification towards a transparent and trustful PCF.
- Second, we propose a lightweight method to determine the *level of trust* for any given PCF verification based on a trust matrix, in which different *levels of trust* are distinguished based on the performed verification type and the applied PCF calculation & reporting standard.
- Third, to help a company easily embark on the verification process, we suggest a feasible roadmap to demonstrate the entire process of completing a PCF verification, i.e., from the pre-engagement stage to the final issuance of verification statement.
- Finally, we specify the general & minimal requirements of conducting PCF verification from the view of a verifier, which could be referred by a company to prepare the needed information with minimal effort.

Remark: The authors would like to point out that the contents of this whitepaper are purely for informational purposes. The Estainium Association does not intend to create rules, define processes or nomenclature with this document. The following of this whitepaper will frequently reference ISO standards and procedures when discussing the PCF verification, since these standards are widely used as baselines and are the most detailed for the case of PCF verification. Besides, other standards can also be referred during the verification process, e.g., the ISAE 3000 used by accountants.

The remainder of this whitepaper is structured as follows. Section 2 introduces the background of this study; Section 3 describes the method of PCF verification; Section 4 provides a discussion on how to prepare a PCF verification and also specifies the requirements of conducting a verification from the view of a verifier. Finally, this whitepaper is concluded in Section 5.

2 Background

In this section, we will first introduce the basic concept of PCF as well as the "definition of verification" to be used throughout this whitepaper. For readers interested in a general understanding of verification, the topic of PCF can be seen as a use-case example. For readers interested in another claim to be verified (other than PCF), please note that the procedure specified for PCF verification in this whitepaper also holds true for other claims to be verified. However, we would like to declare that the verification of claims other than PCF is out of the scope of this whitepaper and will not be discussed hereafter.

2.1 What is a PCF?

A product carbon footprint (PCF) refers to the total amount of greenhouse gas (GHG) emissions produced during the analysed life cycle of a product, as shown in Figure *1*, which includes the extraction and processing of raw materials, manufacturing, transportation, distribution, use, and disposal.

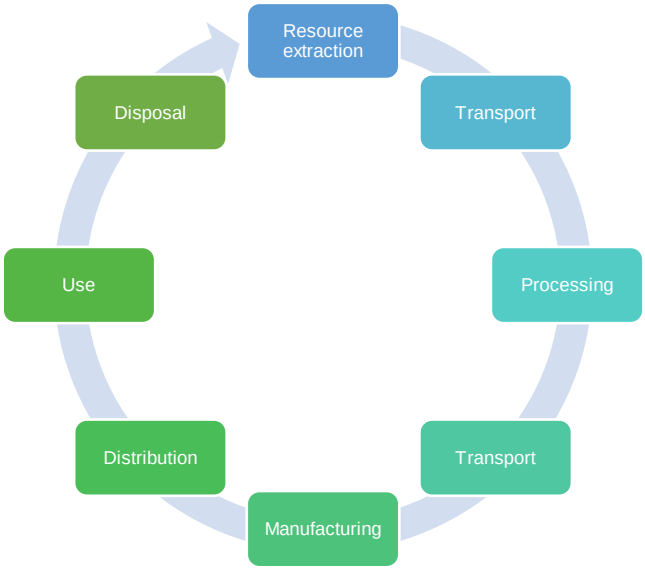


Figure 1: Illustration of a typical product life cycle

This includes emissions of carbon dioxide (CO_2), methane (CH_4), and other GHGs that are emitted directly or indirectly through the production and use of the product. The product carbon footprint is typically expressed in units of CO_2 equivalents (CO_2e) and is a key metric used to assess the global warming potential of products and inform efforts to reduce their carbon footprint. To give an example, methane is about 30 times more potent than CO_2 on a 100-year scale, and therefore 1 kg of methane can be converted to 27-30 kg CO_2e [12].

It is important to know that there are different standards and guidance documents available which define how to calculate and report a PCF. The most common ones are ISO 14067 [13], PAS 2050 from the British Standards Institution [14], the Product Environmental Footprint (PEF) Guide [15] from the European Union, the GHG protocol's Product Life Cycle Accounting and Reporting Standard [16] from the Worlds Resources Institute and the WBCSD (World Business Council for Sustainable Development), and the Pathfinder Framework from the WBCSD [17].

There are also sector-specific rules, for instance, the "Product Carbon Footprint Guideline for the Chemical Industry" from Together for Sustainability (TFS) [18], the "Catena-X PCF rulebook" for the automotive industry [19], or the Greenhouse Gas Rulebook of the Global Battery Alliance (GBA) for the battery industry [20].

Overarching environmental assessment in the form of Life Cycle Assessment (LCA) (ISO 14040 [21]& 14044 [22]) is the basis for all the PCF calculation and reporting standards, as well as for creating EPDs (Environmental Product Declarations, ISO 14025 [23]) for various industry application such as construction (ISO 21930 [24]) or electronics (IEC 63366 [25]).

Among the standards listed above, most of them focus on how to calculate and report a PCF, only a few dedicated standards also provide guidance on how to verify a PCF claim, which will be discussed in the next subsection.

2.2 What is a verification, and what isn't?

A verification is an independent assessment of a claim, based on historic data. The most profound basis for a verification process can be found in ISO 17029 [26] released in 2019, which defines how a verification process must be set up, which different roles and duties there are, which documents must be created, who must sign them and what contents must be included in the documents. To have a core understanding, only the most important aspects will be listed in this whitepaper.

An often-heard question is about the difference between certification, validation, and verification. According to the ISO definitions, there are subtle but detrimental differences. To sum it up, in a certification the object of assessment is the product itself, where the certifier confirms a claim; whereas in a validation/verification the object of assessment is the claim of a product made by the client, which is verified/validated by the verifier/validator.

In another way, certification always includes an evaluation of the object (e.g., a product) by the certifier, an assessment of the results and confirmation of conformity [27]. Validation and verification are the preferred methods when specific information (so-called "claim") of the client is the object of assessment for the verifier/validator [26]. It means that in a certification the certifier confirms that a product meets specific standards, however, a validation and/or verification simply confirms that the claims about a product made by the client are plausible and/or true. For example, a certification may confirm that a product is made from sustainable materials and is safe to use, while a verification confirms that the carbon footprint of a product has been accurately calculated and reported. Since a certification is an attestation of

conformity for a defined period it undergoes ongoing surveillance and must be regularly updated and reissued. Any deviation might result in the certification being withdrawn.

A verification is a conformation of truthfulness of historic data, while a validation is a conformation of plausibility of estimated data in the future. ISO 17029 [26] defines verification as a "confirmation of a claim, through the provision of objective evidence, that specified requirements have been fulfilled". As shown in Figure 2, the claim is based on historic data, such that there is no need for a re-verification per se, since the historic data is static. However, when data has been updated and the claim also changes, in this case a new verification can be executed. To some extent, the opposite to verification is validation, where the occurrence of what is claimed lies in the future and therefore only the plausibility of the claim can be confirmed and thereby validated.

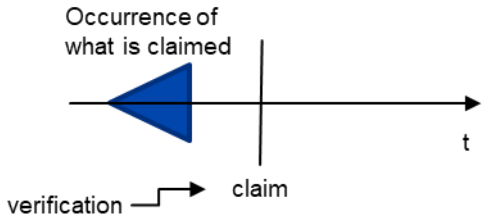


Figure 2: Verification of a claim according to ISO 17029

ISO 17029 summarizes this topic as follows [26]: "*By defining validation/verification as confirmation, these activities are differentiated from other conformity assessment tools as neither resulting in a characterization (testing) nor providing examination (inspection) or an attestation of conformity for a defined period (certification). However, validation/verification is intended to match applications of the conformity assessment system. Just as test reports from a laboratory can be included for inspection purposes or auditing the producer's management system can be used as an input for product certification, validation/verification statements can be used as an input for another conformity assessment activity. Likewise, results of other conformity assessment activities can be used as an input when performing validation/verification activities*."

2.3 Why is a verification important?

Verification is crucial in establishing the truthfulness of a claim to various stakeholders, including the downstream supply chain and consumers. To individually check the truthfulness of a claim, every stakeholder would need access to all the documents, production processes, inputs and outputs, etc., thereby compromising the core intellectual property of the company in question. Moreover, such kind of individual verification of a company's claim would be very time-consuming for each stakeholder.

Another option is to involve an independent party such as an independent and impartial third-party verifier, through which a verification without compromising the core intellectual property is possible. To do so, the verifier is presented with sufficient evidence and details to confirm the company's claim to every stakeholder by issuing a verification statement. This empowers each stakeholder to independently check the verification statement to ensure that the claim is truthfully stated, which in turn enables informed purchasing decisions based on reliable information. An example is given as follows for illustrating the significance of verification.

An Example for Illustrating the Significance of Verification

Assume that a piano manufacturer decides to build more climate-friendly pianos to differentiate its brand from the competition. To establish a status quo of the piano's carbon footprint, the manufacturer contacts all suppliers and asks for the individual PCF of the respective parts. In response, the piano string suppliers must deliver some kind of CO_2e data or must fear losing a valuable customer. Therefore, the piano string suppliers have to ask their own part or material suppliers (which then have to ask their supplier and so on...) about their individual PCFs in order to calculate the PCF including the contribution of the upstream supply chain.

After some time, the piano manufacturer gets all kinds of responses from the piano string suppliers, from none, over some short email with just one CO_2e value, to some CO_2e values with a verification statement attached. One of the suppliers also sent the manufacturer a complete 50-page PCF study report. How does the piano manufacturer know which data they can trust? Maybe they fear that some of their suppliers just guessed a number or looked up a literature value because the supplier wanted to avoid losing an important client. The piano manufacturer also may lack the time and the competence to read the 50-page PCF report and understand all the details to judge and evaluate the quality and trustworthiness of the PCF themselves.

The best and most efficient way for the manufacturer to trust the quality and truthfulness of a PCF of the suppliers resides with the CO_2e value being backed up by a verification statement. For the supply chain where the reported value is not sufficiently backed up, the piano manufacturer can decide to ask for additional insight or maybe also look out for another supplier of the product in question.

As the piano manufacturer now has clarity on its upstream PCF contributions from the piano strings, even with some uncertainty due to limited supply-chain data, the manufacturer can add its own PCF contributions and report the piano's PCF value.

This example shall give the reader some insight into the fact that some PCF information looks more trustworthy and is easier to assess than others. As suppliers are interested in providing trustworthy information to customers, they face the following options: A) communicate a single number without context information; B) send a detailed PCF report including description of balances and production processes; C) provide limited PCF information together with verification statement. While Option A) is insufficient for building trust on the customer side and Option B) discloses sensitive information potentially weakening negotiation power, Option C) makes use of an independent verification body assessing and substantiating one's PCF claim. The latter can be expected to achieve sufficient trust on the customer side while keeping the core intellectual property secret. In addition, during the verification process, any flaws in the calculation logic could be identified or low data quality could be found to be not compliant with the respective standards. After fixing these findings, the supplier also increases confidence in its own PCF calculation since it will engage in frequent PCF exchanges with customers.

3 How do companies get in contact with verification?

Normally, companies first get in contact with verification through the downstream supply chain, for instance, a customer requests a proof from a company stating that the declared claim is trustful. As this company does not want to expose its intellectual property to explicitly prove that the claim is correct, instead, an independent third party can be contracted who is granted to get access to the intellectual property but is not involved in the supply chain of the company or in creating the PCF. Therefore, this company can be assured that no core intellectual property will be made accessible to supply chain partners. The third-party verifier will assess the claim and the related evidence and issue a verification statement at the end of the assessment. In this statement, the verifier ensures the correctness of the claim without disclosing any secret information to the public.

Generally, it is advisable to contact an accredited third party. “Accredited” means that the third party must have gone through rigorous audits performed by a national accreditation body to check the quality of the processes and delivery.

Accredited verification bodies shall be listed online at the website of the respective national accreditation body, e.g., the DAKKS in Germany [28], the CNAS in China [29], and the JAB in Japan [30].

4 Method of evaluating a PCF Verification

4.1 How to determine the quality of a PCF?

A PCF verification ensures that the carbon footprint of a product has been accurately calculated and reported. The quality of a PCF depends on several factors, including the accuracy of the data used to calculate the carbon footprint and the completeness of the assessment. Companies should ensure that they are using the most up-to-date and accurate data, and also following standardized methods for calculating the carbon footprint.

To determine the quality of the assessment, one would need deep insight into the model, the data, and the PCF report, which is usually not possible or feasible for an interested party to do so. The reason is that a PCF report contains many kinds of sensitive information such as detailed production process inputs & outputs, which usually constitutes a competitive advantage for a company.

4.2 What types of PCF verifications are available?

The general ISO standard defining the verification process is ISO 17029 [26]. In the case of PCF verification there are even more standards which regulate how a verification of a claim must be performed. For instance, ISO 14065 [31] specifies about the verification of environmental claims and is heavily referencing the ISO 17029; ISO 14064-3 [32] deals with the verification of carbon footprints which was built on ISO 14065 and 17029 methodologies. In sum, the standards for PCF verification build on one another in a similar way as those standards for PCF calculation and reporting, i.e., from broadly applicable to case specific, which has been depicted in Figure *3*.

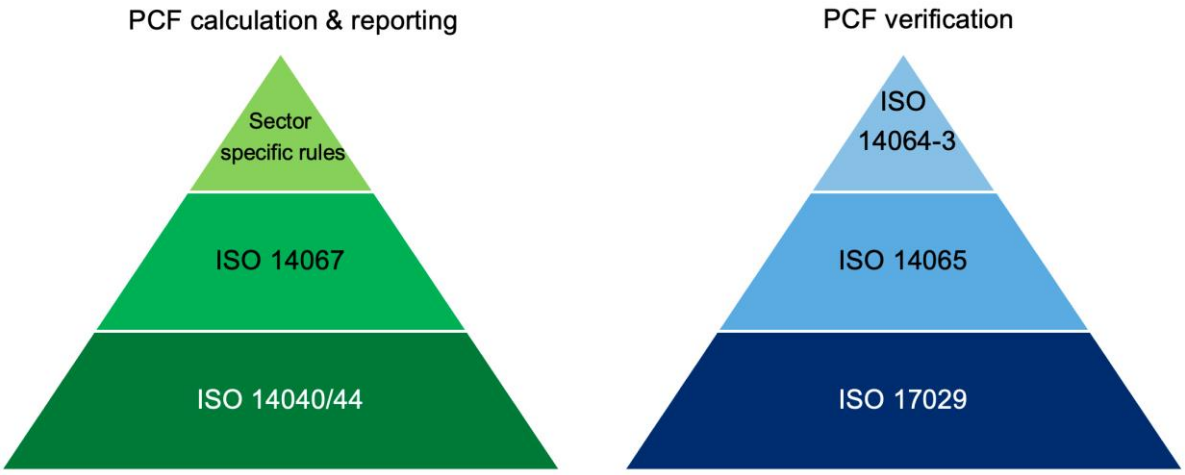


Figure 3: The pyramids of standards for PCF calculation (left) and verification (right), ranging from broadly applicable standards at the bottom to case-specific standards on the top

The process of verifying a claim can be complicated, as there are different types of verification bodies. According to the ISO 17029 standard [26], the claim can be verified by the organization itself who makes the claim (first party), or by a different organization that has an interest in the claim (second party). Alternatively, an independent organization that has no interest in the claim can also verify it as a third party.

Depending on which type of organization verifies the truthfulness of a claim, the reliability of the verification may differ. For example, if the organization that makes the claim verifies it themselves, there may be a potential conflict of interest, which could make the verification less reliable and trustworthy. On the other hand, if an independent organization with no interest in the claim verifies it, the verification may be considered more trustworthy. Depending on who assesses the truthfulness of a claim, the trustworthiness (i.e., the level of trust) of the declared assessment may vary significantly, which will be extensively discussed in the following subsection.

4.3 How to determine the level of trust for a PCF verification result?

In general, the level of trust of a PCF verification depends on the competence and impartiality of the verifier as well as the applied verification approach and standards used for the calculation & reporting of the PCF claim. It is generally advised that companies should choose a verifier who has been accredited and has experience in PCF verifications. Such a verifier can either be internal or external.

Review the piano string supplier introduced in subsection 2.3, who has asked suppliers for their PCF data. The ideal case is that every supplier sends their verified PCF data, otherwise, it is necessary to conduct an assessment, i.e., up to which level one can trust the supplier's data.

Figure 4 assesses different levels of trust with regard to the type of verification and the standard applied for PCF calculation and reporting, where 0 represents the lowest level and 4 is highest. To maintain an international understanding, ISO standards are referred in Figure 4. However, other standards can also be referred that have the same granularity. Note that the levels shown in the figure intend to give a general overview of which PCF could be more trustworthy. In practice, due to case-specific circumstances this evaluation could change from case to case, and more scenarios can be added. To sum up, the assessment shown Figure 4 is merely an initial guideline aiming to reduce the difficulty of interpreting different levels of trust.

In the following, five different levels of trust will be introduced, depending on how a PCF is calculated and verified. Afterward, they will be reflected in Figure 4 for a better understanding.

Level 0: Least level of trust:

In this scenario, a supplier provides a PCF, however, the PCF is neither verified, nor calculated according to any standard. The receiver knows from experience that there is a lot to consider when calculating the PCF according to a standard, and briefly knows that transparency is in particular an important aspect. However, the receiver has no information on how the supplier has calculated the CO_2e value. Potentially, the supplier could have included untrue data or omitted important aspects in the calculation. Since the receiver might be concerned that the value is not of good quality, they could decide to not use the provided PCF values.

Level 1: Low level of trust:

Supplier has provided the receiver with a PCF calculated according to an ISO standard. Thus, the receiver could trust this value more than the one without referring to any standard. However, this value has not been verified, so the receiver cannot make sure whether the supplier has applied the standard correctly. The receiver could decide to use the value with a certain degree of hesitation.

Level 2: Decreased level of trust:

In this scenario, a supplier provides the receiver with a value that was calculated according to a standard based on an ISO norm, and also specifies product category rules (PCR) or product-specific rules (PSR) such as how exactly the PCF during the usage phase is to be calculated. In addition, the supplier informs the receiver that they have performed their internal process for calculating the PCF, which was also audited and certified by an independent third party. However, not every calculation step was audited in detail, but at least the supplier follows a detailed set of rules and has an audited internal process for the calculation. In this case, the receiver might consider the value to be reasonably trustworthy.

Level 3: Increased level of trust:

Compared with the scenario above, herein a supplier not only has calculated PCF according to an ISO compliant standard with product category rules (PCR) or product specific rules (PSR) following an externally verified internal process, but in addition, each calculation is also checked individually in a shortened form by a qualified internal verifier. The receiver of such a PCF might therefore trust this value more than the value of the supplier who does not carry out this internal individual case verification.

Level 4: High level of trust:

In this scenario with the highest level of trust, a supplier provides the receiver with a value calculated according to a product specific rule with very detailed calculation rules. In addition, the supplier also had this calculation verified in detail by a third party. The supplier not only followed a specific set of rules, but also the calculation was checked in detail. Therefore, such a PCF value has the highest level of trust compared to the other scenarios.

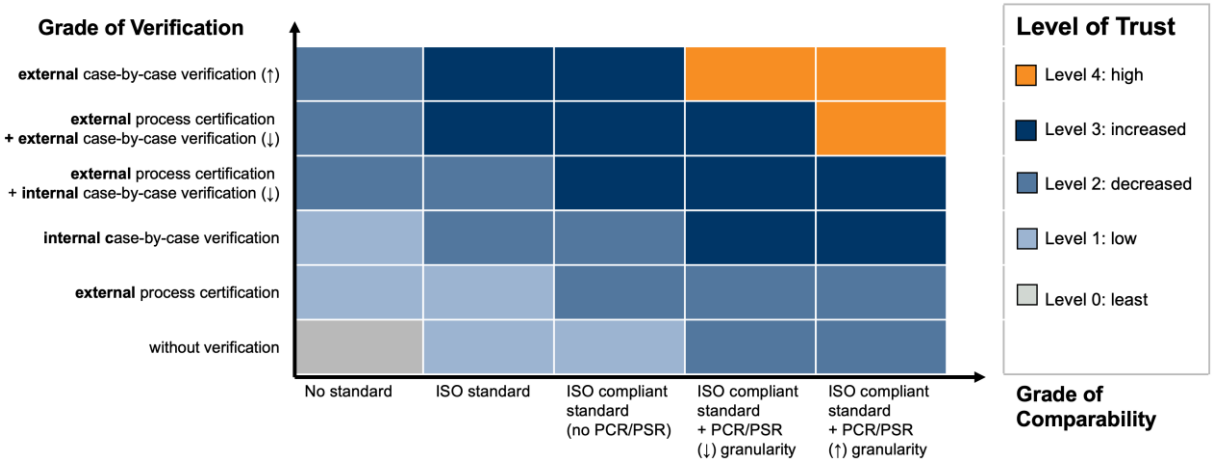


Figure 4: Estainium PCF trust matrix - illustrating how the four levels of trust depend on the performed verification/certification type and the specificity of the applied PCF calculation and reporting standard, where (↑) means higher grade while (↓) means lower grade

Grade of Verification	Explanations
external case-by-case verification (↑)	The value has been checked in detail by a qualified and independent external third party.
external process certification **+ external** case-by-case verification (↓)	There is a certified process for the calculation and the calculation of the value was checked in detail in an abridged form. Both by an independent, qualified third party.
external process certification + **internal** case-by-case verification (↓)	There is a calculation process certified by an independent third party and the calculation of the value was checked by a qualified internal certifier in an abridged form.
internal case-by-case verification	The value was checked by a qualified internal certifier.
external process certification	The value was calculated using a defined internal process that has been audited and certified by an independent external third party.
without verification	Without any kind of verification.

Table 1: Explanations on the Grade of Verification

Grade of Comparability	Explanations on the adopted standard for PCF calculation and reporting
ISO compliant standard + PCR/PSR ↑ Granularity	The standard is based on an ISO standard, which has defined more specific rules and defined very detailed product category rules (PCR)/product-specific rules (PSR). For example, how a device will be utilized in the usage phase is well assumed.
ISO compliant standard + PCR/PSR ↓ Granularity	The standard is based on an ISO standard, which has defined more specific general rules and defined general product category rules (PCR)/product-specific rules (PSR).
ISO compliant Standard (no PCR/PSR)	The rules of a standard were followed, which is based on an ISO standard, but has not defined specific or general rules.
ISO standard	Only general standards were referred, e.g., ISO 14067, or other independent standards with same level of granularity.
without standard	The calculation was performed without following any rules of any standard.

Table 2: Explanations on the Grade of Comparability

5 Discussion on the preparation of a PCF verification

Before launching a PCF verification, a company needs to ensure that they already have accurate and up-to-date data about the product's carbon footprint. This may involve conducting a Life Cycle Assessment (LCA) or using data from a previous LCA. Usually, an external consultant specialized in LCA and PCF can help set up everything from scratch as well as do the modelling and report writing.

In reality, multiple assessments might need to be performed in parallel. In this case, it is more desirable to have a dedicated internal employee to support and learn from the external consultant regarding how to build up the needed knowledge to enable time and cost-optimized future projects.

Once the PCF is available, the next step is to choose a verifier and agree on the scope and objectives of the verification. In the following subsections, we will provide specific guidelines regarding how to prepare a PCF verification.

5.1 How does a verification process work and what preliminary work has to be done?

The entire process of completing a PCF verification can be divided into two phases, i.e., the phase of preparing preliminary work and the phase of processing verification.

As shown in Figure 5, the preparation of preliminary work typically starts with pre-engagement, where the verifier and the client (with PCF claim to be verified) agree on the scope and objectives of the verification. Next, in the engagement stage, the client needs to provide the verifier with relevant data and information about the assessed product (i.e., PCF claim) based on a non-disclosure agreement or a formal contract. In the planning stage, the verifier will review the data first, and then determine verification activities and evidence that need to be gathered. Moreover, on-site visits might also be conducted, if necessary.

In the phase of processing verification, the verifier starts to execute the verification by conducting verification activities, gathering evidence, and conducting on-site visit, meanwhile writing an initial PCF verification report. In the stage of enhancement, the verifier will further enhance the report in case any non-conformities are found. The verification process ends with the verifier issuing a verification statement to the client, which contains the final opinion about the accuracy of the PCF claims made by the company.

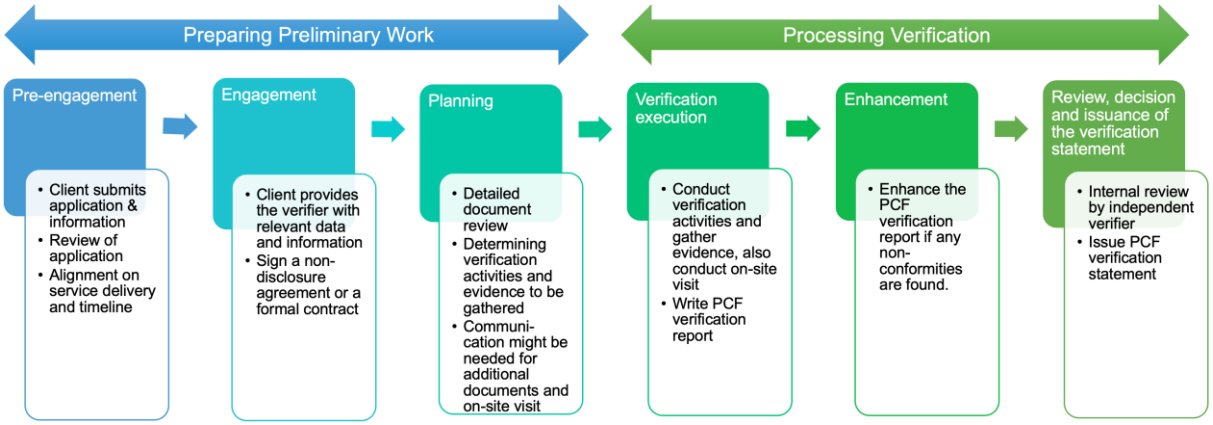


Figure 5. PCF verification process

5.2 What information does the verifier need from the customer?

In general, the verifier needs access to the data feeding the PCF calculation, including data along the entire supply chain. Moreover, access to relevant product documentation such as technical specifications and manufacturing processes is also needed. In addition, it might also be necessary to conduct an on-site visit of the manufacturing processes, get to know data-gathering techniques, and check on PCF-relevant organizational processes in place.

Therefore, it is advisable to prepare the items according to the following list when looking for verification. Note that almost all the information has already been collected when creating a PCF. However, the structure, comprehensibility and presentability of the information usually need to be improved for the verifying party to efficiently support the verification process.

- PCF study report (refer to ISO 14067 [13] Chapter 7.3 specifying information on what shall be included in the PCF study report)
- Process flow diagram if it is not already present in the PCF study report
- Bill of contributors (e.g., bill of materials and energies, list of raw materials, list of auxiliary materials)
  - This is a summary of the inputs & outputs often available through production-management systems or ERP-Systems (e.g. SAP) and specific for the analyzed production process
- List of measuring instruments, measuring records of relevant input & output flows (energy, material, emissions)
  - These are individual and non-aggregated evidence backing up the summary of inputs & outputs
- Time-resolved production statistics report of the respective product
  - Evidence of the backup of the inputs & outputs

- Invoice vouchers of purchasing energy and auxiliary materials including details such as their PCF (if possible)
- Statement of already reviewed/validated/verified components/materials/processes by a third party
- Addresses and transportation information of each supplier of raw materials for the product
- Map of the production site (with description of involved locations) to plan an on-site visit
- Customer's address and shipping method information of the product (when applicable)
- Description of the product use phase including evidence or data of backup assumptions (when applicable)
- Description of product recycling or disposal data, including evidence or data of backup assumptions (when applicable)

5.3 What are the minimal requirements for verification?

To ensure a smooth PCF verification process, companies should prepare at least the following information:

- Accurate and up-to-date data about the product's carbon footprint, including data on the entire supply chain
- A PCF report prepared according to the agreed-upon standards (e.g., ISO 14067 [13], GHG protocol [16], pathfinder framework [17], etc)
- A clear understanding of the scope and objectives of the verification, including which environmental claims will be verified
- A plan for addressing any issues or concerns raised during the verification process
- Approaching a verifier with sector-specific experience in PCF verifications

6 Conclusion

A PCF verification is an important tool for companies to demonstrate their commitment to environmental sustainability, and also provide consumers with reliable and trustworthy information about the environmental impact of products. The steps outlined in this whitepaper can serve as a starting point for companies to prepare for a successful PCF verification. Based on the presented approach of a verification process, companies can be guided towards creating environmental claims that are accurate and trustworthy. Any findings or non-conformities pointed out by a verifier can be fed back to companies to help improve internal processes and data quality, leading to increased internal know-how as well as decreasing efforts and costs for future PCF preparation and verification. Moreover, this whitepaper also provided a feasible methodology on how to assess the level of trust of a PCF depending on the chosen verification options and standards used for the PCF calculation. In a nutshell, through informing beginners about how to assess the level of trust upon a received PCF, as well as how to appropriately prepare for a PCF verification, the topic of PCF verification is elaborated pragmatically, which will enable players across all industries and supply-chains to take the most vital step towards efficiently and effectively reporting and assessing a PCF.

Acknowledgments

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