Harmonised PCF data: Addressing the complexity of Scope-3 accounting

Most transition pathways, including that for the chemical industry, aim to reach net-zero emissions by 2050. Organisations looking to reduce their carbon footprint must not only focus on reducing direct greenhouse gas (GHG) emissions but also **indirect emissions**, which are more challenging to account for.

Case in point, the **scope 3 emissions**, which are particularly complex to track and trace as the reporting company needs to internalise many of the indirect processes along its value chain.

These include upstream and downstream sources, which are essential for assessing a company's carbon impact at both, organisational-level and product-level. Product-level accounting is an integral part of assessing the corporate-level carbon impact and **Product Carbon Footprint (PCF)** is one of the most established methods available today.

The Product Carbon Footprint (PCF) sums up the total greenhouse gas emissions generated by a product over the various stages of its life cycle.

Enabling compliance with upcoming EU regulations

Achieving carbon-neutrality by 2050 is one of the key objectives of the European Green Deal. During the transition, supporting **environmental claims** with hard data will be a necessity to comply with upcoming EU regulations.

An interesting example is that of the EU Battery Regulation. To quote the official page European Platform on LCA, the Joint Research Centre (JRC) of the European Commission "*is currently working on the definition of **carbon footprint rules for rechargeable Industrial Batteries** except those with exclusively external storage (CFB-IND)*"

The EU commission, with the goal of establishing a common methodology of measuring environmental performance, proposed the **Product Environmental Footprint (PEF)** and Organisation Environmental Footprint (OEF) methods.

While both, PCF and PEF focus on GHG emissions, the latter goes beyond to include more environmental impact categories (such as resource use, ecological- and social-factors), adding further complexity. Though PEF reporting is currently voluntary, it is expected to be legally required as part of the **Digital Product Passports** (DPPs) in the upcoming **Eco-design for Sustainable Products Regulation** (ESPR).

	Carbon Footprint GHG emissions	Environmental Footprint GHG emissions + other impact categories
Product-level	**PCF** Product Carbon Footprint	**PEF** Product Environmental Footprint
Organisational-level	**CCF** Corporate Carbon Footprint	**OEF** Organisational Environmental Footprint

Table 1. Product- and organisational-level accounting of carbon footprint and environmental footprint

The less extensive scope of PCF, in comparison to PEF, makes it a good starting approach to assess product-level impact.

The need of the hour is the availability of **harmonised PCF data across the supply chain.** This will enable companies and their B2B customers to track their scope 3 emissions and reduce GHG emissions.

Harmonising PCF data: Industry standards and initiatives

In case of the chemical companies, products developed by them are inputs to a large number of downstream sectors. This places the chemical and materials industry in a unique position where it can play an instrumental role in **managing GHG emissions along the supply chain**.

The different **product-level carbon accounting standards**, which provide information on how to conduct PCF measurements, include:

- ISO 14067
- PAS 2050
- GHG Protocol Product Standard

Based on these standards, various collaborative industry initiatives have developed guidance for PCF calculations. Prominent examples include:

- **Partnership for Carbon Transparency (PACT):** The World Business Council for Sustainable Development (WBCSD) launched this initiative to provide guidance for accounting and exchange of product-level primary emissions data across the value chain. To further harmonise existing standards and provide a network for exchanging data, PACT has developed the Pathfinder Framework.

- **Together for Sustainability (TfS) PCF Guidelines**: With this goal of making chemical supply chains more sustainable, TfS – an industry-led initiative driven by chemical procurement specialists – has designed **upstream scope 3 guidance** for PCF calculation, reporting, and auditing.

How is the European adhesive tape industry contributing to PCF data harmonisation?

Tape is the unseen green partner, enabling sustainable solutions in other industries and ensuring the continuity of entire industry value chains.

As enablers of material efficiency, durability, repairability, upgradability, recycling and CO_2 reduction, the products of the **adhesive tapes industry** make an important contribution to achieving the goals of the European Green Deal and at the same time must show themselves to be CO_2-neutral by 2050 at the latest.

To achieve this, **European adhesive tape manufacturers** need a uniform, recognised standard for measuring the sustainability of adhesive tapes for product designers, engineers and everyone else in the adhesive tape value chain, as well as regulatory bodies. Against this background, PCF is becoming increasingly important within the tape industry as well.

The web-based Afera PCF calculation tool

Responding to this need, **Afera, the European Adhesive Tape Association**, as part of the Flagship Sustainability Project, partnered with the German Adhesives Association, **IVK.** Together, they have collaborated with **Sphera** – a specialised provider of sustainability consulting services – to develop a web-based, sector-wide tool for PCF calculation of both adhesives and adhesive tapes using a **harmonised, straightforward,** and **affordable** method.

A series of four workshops were conducted in 2023 in order to scope and build industry-specific PCF tools. For the tape tool, Afera recently shared the important agreements that were reached.

Calculation methodology	**To be based on 'ISO standard 14067:2018: Greenhouse Gases – Carbon Footprint of Products' through an expansion of the Together for Sustainability (TfS) PCF Guideline**
Scope	Cradle-to-gate For reporting within B2B for the time being
Functional unit	CO_2 eq. per sq. m of tape, with a conversion factor (surface area to mass)
Parameters	'Open parameters' [raw material, waste (including treatment), energy use, warehousing, packaging] 'Fixed parameters' [transportation, auxiliary materials]
Data	Primary data from suppliers possible to be incorporated Secondary data sets to be compiled by Sphera with input from Afera
Timeline	Raw materials clusters and model processes – Q4 2023 Data collection – H1 2024 Draft tool delivery (MVP) – Q3 2024

Table 2. Afera PCF calculation tool for tape industry: Key features and next steps

The PCF tool, being designed for adhesive tape manufacturers with the entire tapes value chain in scope, is currently in the development pipeline. The tool will not require a high level of expertise for use and will be accessible to non-LCA experts to produce PCF values confidently.

Both the input and results will be certified, allowing businesses to meet future legal requirements as well as the demands of the supply chain. It will be updated and expanded and, in the future, more sustainability aspects, such as PEF and Environmental Product Declaration (EPD), may be incorporated into the tool.

For more information regarding the development and accessibility of the tool, visit https://afera.com/adhesive-tapes-sustainability/afera-pcf-calculation-tool/

For more details, contact us at AFSP@afera.com

References:

- The Scope 3 challenge: Solutions across the materials value chain https://www.mckinsey.com/industries/metals-and-mining/our-insights/the-scope-three-challenge-solutions-across-the-materials-value-chain

- Product carbon footprint tracking and tracing https://www.systemiq.earth/product-carbon-footprint/