

Product carbon footprints - concepts

Defining product carbon footprints



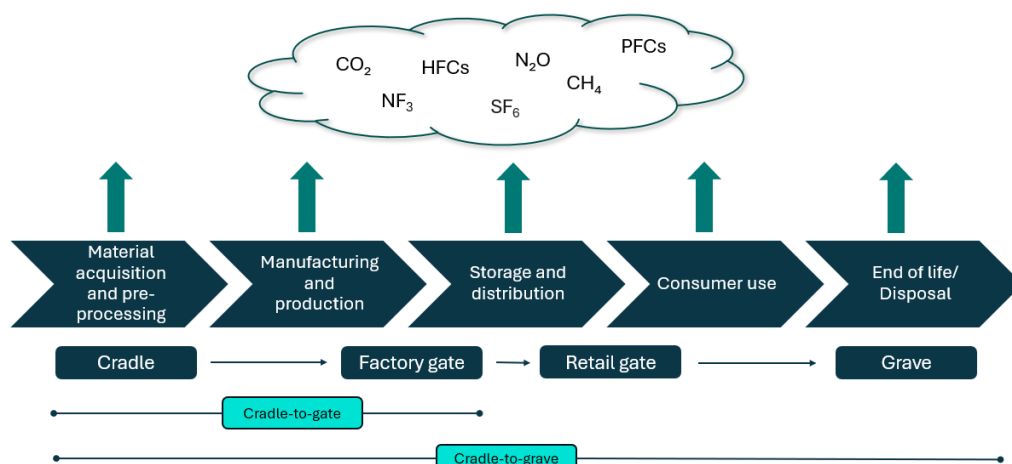
What is a product carbon footprint?

A Product Carbon Footprint (PCF) is a measure of the **total greenhouse gas emissions associated with the production of a specific product or service**. It can encompass all stages of a product's lifecycle, from raw material extraction to manufacturing, distribution, use, and disposal. We come across PCFs in our day-to-day lives, particularly when we see ecolabels on products. Ecolabels tend to contain information about the results of a PCF and help consumers make more informed decisions about their own shopping choices.

We do PCFs because we want to better understand the environmental impact a product has on the environment. In a manufacturing sense, it can help identify improvements through efficiency gains, innovation in product design, or other mitigation options that can improve the environmental performance of a product. In many cases, improvements can also help reduce the cost of manufacture of a product and so undertaking PCFs can lead to **financial benefits** too.

What does a PCF include?

A PCF can include any process that is a source of emissions (or removals) of greenhouse gases across a product lifetime, from raw material extraction and acquisition to the disposal of a product at the end of its life. Only a small proportion of emissions will happen on a manufacturer's site: most emissions will happen either upstream of the manufacturer or in the use and disposal phases of a product life.



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What does cradle-to-gate mean and how is it different from cradle-to-grave?

A **cradle-to-gate** PCF refers to a PCF where the scope is limited to assessing the environmental impacts from its raw material extraction ('cradle') to the point at which it leaves the manufacturing facility ('gate' or 'factory gate'). It includes all processes involved in manufacturing a product to the 'gate', such as material extraction, pre-processing, transportation from suppliers to manufacturers. Cradle-to-gate PCFs are typically used for intermediate products where the final use of the product is unknown.

A **cradle-to-retail gate** PCF is almost the same as a cradle-to-gate PCF, but also includes the emissions from distribution of products from facility to customer.

A **cradle-to-grave** PCF expands the scope to include all emission sources across a product lifetime, from raw material extraction (cradle) to its ultimate disposal of end-of-life stage (grave). This is a more common approach for products which are consumed more generally by the public rather than intermediate products provided to another manufacturer.

What is the difference between a PCF and a life cycle assessment?

A life cycle assessment (LCA) evaluates the environment impact of a product throughout its life cycle considering a broad range of environmental factors beyond just climate change, such as ecotoxicity, water scarcity, and ionizing radiation. One of these environmental criteria is the impact of a product on climate change, the results of which are equivalent to a PCF.