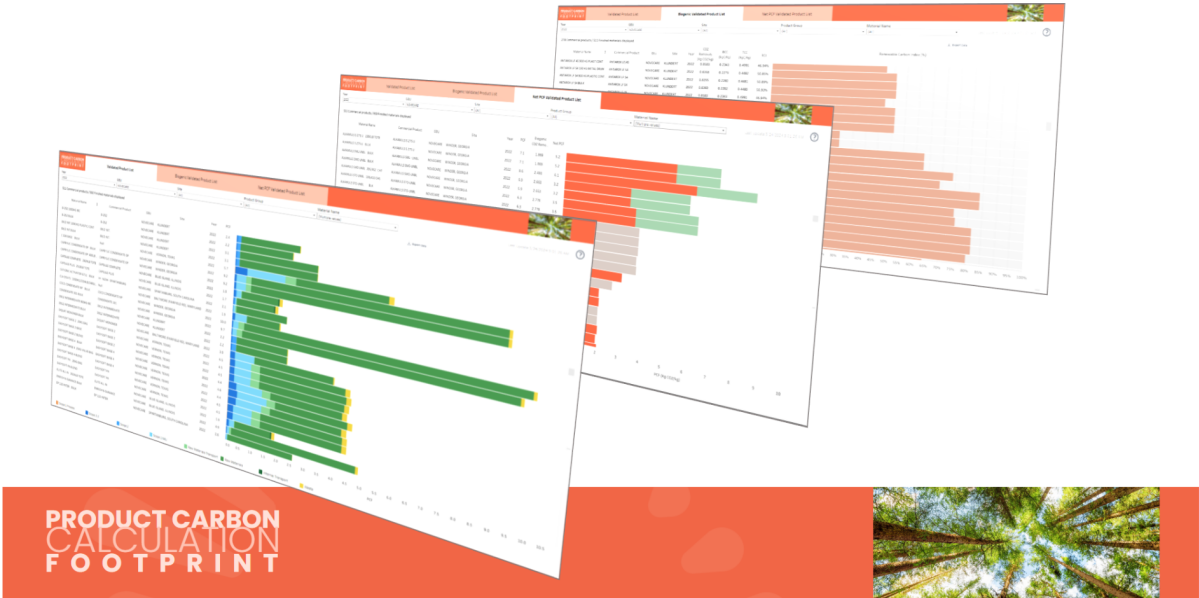


# Product Carbon Footprint



PCF Digital Tool is a solution that calculates the carbon footprint at product level.

Many customers are requesting such values to compute their own footprints. In order to publish our annual corporate report, the same solution calculates the scope 3.1 emission corporate report, by combining our indirect emissions related to our supplies (raw materials and industrial goods) at corporate level. In a nutshell, it uses the raw material quantities from our BOMs, convert these quantities in CO2 emissions using supplier PCF (for our raw materials) or emission factors coming from commercial database (EcoInvent) or emission factor proxies when missing. Then, in addition to this raw material scope, tool is computing product footprint related to energy consumption, waste emissions, or direct emission of greenhouse gases, and also upstream or internal transport.

Then, it also manages carbon content of the products, considering total carbon atoms and biogenic carbon content (from biomass). Other KPIs are also computed to review confidence in the calculation (Primary Data Share, Data Quality Rating...)

Finally, a validation process, performed by the PCF data owner, qualify the calculation to be used by GBUs and validate data sharing with our customers.

|                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |
| <a href="#">Go to "Validated" board</a>                                             | <a href="#">Go to "Advanced" board</a>                                              |
|  | <a href="#">Request access to the PCF dashboards</a>                                |
|  | <a href="#">Dashboards documentation</a>                                            |
| <a href="#">blocked URL</a>                                                         | <a href="#">Calculation documentation for users</a>                                 |

| Feature Group  | Feature Description                                                                      | Advanced Dashboard | Validated PCF Dashboard |
|----------------|------------------------------------------------------------------------------------------|--------------------|-------------------------|
| Product basics | Portfolio product list with commercial name, production plant, year, GBU, material group | ✓                  | ✓                       |
|                | Validated PCF value (kgCO2/kg) of finish product                                         | ✓                  | ✓                       |
|                | Validated Biogenic Carbon content, CO2 removals (kgCO2/kg)                               | ✓                  | ✓                       |

|                     |                                                                                                                                                                       |                               |             |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------|
|                     | <b>Net Product Carbon Footprint</b> (kgCO2/kg)                                                                                                                        | ✓                             | ✓           |
|                     | Scope & energy type details: PCF split by emission contribution                                                                                                       | ✓                             | ✓           |
| Calculation details | <b>Latest calculated PCF</b> value and split by scope & energy type                                                                                                   | ✓                             | ✗           |
|                     | <b>Latest calculated Biogenic</b> values (Total Carbon content, Biogenic carbon content, RCI)                                                                         | ✓                             | ✗           |
|                     | <b>Latest calculated emissions split (Fossil / Biogenic / Land Use / Aircraft )</b>                                                                                   | ✓                             | ✗           |
|                     | <b>Raw materials contribution</b> breakdown details (usage factor, emission factor, source of emission factor...)                                                     | ✓                             | ✗           |
|                     | <b>Energy, Wastes, Process direct emissions</b> details in breakdowns                                                                                                 | ✓                             | ✗           |
|                     | by plant and intermediate (Energy type, emission factor, QUS, Energy quantity)                                                                                        | ✓                             | ✗           |
| Access management   | <b>Data access management</b> for users by GBU                                                                                                                        | ✓                             | ✗           |
|                     | <b>Export Controlled products</b>                                                                                                                                     | excluded                      | excluded    |
|                     | <b>Confidential or trade secrets products</b>                                                                                                                         | excluded                      | included    |
| Quality KPIs        | <b>TFS KPIs:</b> Primary Data share (PDS), Data quality rating (DQR)                                                                                                  | ✓                             | ✓           |
|                     | <b>Recipe (BOM) balance ratio</b> (raw material qty vs. finished product qty)                                                                                         | currently for validation only | ✗           |
|                     | <b>Mapping coverage</b> of raw Materials with an emission factor & biogenic data                                                                                      | ✓                             | ✗           |
|                     | <b>Warning when a significant change occurs</b> between latest calculated value and validated value for PCF and Biogenic content                                      | ✓                             | ✗           |
| Validation process  | <b>Portfolio overview</b> of number products (by GBU / plant ) per validation status (validated, rejected, pending)                                                   | ✓                             | ✗           |
| Raw materials       | <b>Low Carbon product alternatives:</b> table extraction to be able to perform estimation of PCF and cost by substituting raw materials on selected Finished products | coming soon                   | ✗           |
|                     | <b>Raw material details</b> (supplier, emission factors...) + corporate reporting scope 3.1                                                                           | ✓                             | ✗           |
| BOM balance YoY     | <b>Explain BOM changes:</b> Show the raw materials for which the quantity variation impacts the BOM balance over years                                                | ✓                             | ✗           |
| Emissions Changes   | <b>Explain PCF change:</b> showing for each scope contributor, variation of quantities and emissions factors variations over years                                    | ✓                             | coming soon |

... Then to go further ...

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