

UPM CARBON PROFILE





UPM Carbon Profile

- UPM has launched consistent carbon footprint calculations **to assist its customers** to estimate the **carbon footprint** of their products.
- The data used in Carbon Profiles is based on **annual averages** of specific paper machine lines.
- The figures refer to **fossil CO₂ emissions** which are the most important greenhouse gas emissions of paper industry.
- Customers can request **UPM Carbon Profiles** as supplements to **UPM Paper Profiles**. Please contact UPM sales.

UPM Carbon Profile

- UPM calculates the Carbon Profile based on **ten elements of the CEPI Framework:**

- 1. Carbon sequestration in the forest
- 2. Carbon stored in the product

Net sequestration of biomass carbon

- 3. GHG emissions from pulp and paper production
- 4. GHG emissions associated with producing virgin or recovered fibre
- 5. GHG emissions associated with producing other raw materials
- 6. GHG emissions associated with purchased electricity and steam
- 7. Transport-related GHG emissions

Total fossil CO₂ emissions

- 8. GHG emissions attributable to product use (e.g. printing)
- 9. GHG emissions attributable to end-of-life-management of product
- 10. Avoided emissions

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Product WFU paper (UPM Fine, Papers for copying and printing (A4/A3), PrePrint papers, UPM DIGI Fine papers, UPM Mail)

Company UPM-Kymmene Corporation

Site Kymi PM 9

Information gathered from 1.1. 2007 to 31.12.2007

Carbon Footprint

- UPM calculates the Carbon Footprint of its paper products based on the ten elements of the Carbon Footprint Framework for Paper and Board Products developed by CEPI (the Confederation of European Paper Industries). Detailed information on the CEPI Framework can be found at www.cepi.org.
- The data used in the calculation are based on annual averages for a paper machine line.
- GHG = greenhouse gas. UPM figures refer only to emissions of fossil CO₂.

Carbon footprint of Kymi PM 9 (kg fossil CO₂ per tonne of paper)

Ten elements of the CEPI Framework (See next page for remarks and explanations)	Fossil CO ₂ (kg/tonne of paper)	Biogetic CO ₂ (kg/tonne of paper)
1. Carbon sequestration in the forest		0
2. Carbon stored in the product		1270
Net sequestration of biomass carbon		1270
3. GHG emissions from pulp and paper production	160	
4. GHG emissions associated with producing virgin or recovered fibre	-	
5. GHG emissions associated with producing other raw materials	-	
6. GHG emissions associated with purchased electricity and steam *)	30	
7. Transport-related GHG emissions	10	
Total fossil CO₂ emissions	200	
8. GHG emissions attributable to product use (e.g. printing)	-	
9. GHG emissions attributable to end-of-life-management of products	-	
10. Avoided emissions	-	

*) The CO₂ factor used for purchased power is 147 kg CO₂ per MWh.

Remarks and explanations to the ten elements of CEPI Framework

- Carbon sequestration in the forest**
 - In line with the CEPI Framework, carbon sequestration is currently not included in product level carbon footprint calculations.
 - For UPM, forest certification and traceability of fibre supply using certified Chain of Custody ensures the sustainable management of forests, and the long-term sequestration of carbon in them via the process of photosynthesis.
- Carbon stored in the product**
 - Biogetic carbon is stored in products produced from wood fibre. The IPCC formula is used to determine the amount of CO₂ that is stored in the paper product.
 - Through paper recycling the carbon stored in products is retained within the paper cycle.
- GHG emissions from pulp and paper production**
 - UPM includes data on fossil CO₂ emissions from combustion of fossil fuels at pulp and paper manufacturing facilities, including that for external pulp production (production of purchased pulp).
- GHG emissions associated with generating the supply of wood or recovered fibre**
 - For wood fibre, this includes fossil CO₂ emissions from forest management and harvesting activities.
 - For recovered fibre, this includes fossil CO₂ emissions from the collection, sorting and processing of recovered fibre before it enters the recycling process.
 - The basic target set by the CEPI framework is to cover 90% of GHG emissions in the carbon footprint. UPM's emissions relating to this element are significantly less than the emissions from pulp and paper manufacturing, purchased power and transportation. Thus, this element will be included only where its share is relevant. UPM is currently preparing a detailed assessment of this element.
- GHG emissions associated with producing other raw materials**
 - Includes fossil CO₂ emissions generated during the manufacturing of non-wood-based raw materials (e.g. pigments or chemicals) and fuels.
 - The basic target set by CEPI is to cover 90% of GHG emissions in the carbon footprint. UPM's emissions relating to this element are much smaller than the emissions from pulp and paper manufacturing, purchased power and transportation. Thus, this element will be included only where its share is relevant. UPM is currently preparing a detailed assessment of this element.
- GHG emissions associated with purchased electricity and steam**
 - Includes fossil CO₂ emissions associated with purchased electricity, steam and heat used for pulp and paper production, including that for external pulp production (production of purchased pulp).
 - Due to differences in fuel mix used to produce electricity there are significant differences in the emission factors used to convert grid electricity to its equivalent CO₂. UPM uses country specific emission conversion factors which are based on the real power supply to UPM mills in each respective country. The factor used is given below the table on the previous page.
- Transport-related GHG emissions**
 - Includes fossil CO₂ emissions associated with in- and outbound transports of raw materials and final products from the paper mill, along the value chain.
 - At UPM, this figure includes the transportation of wood, pulp, recovered paper and pigments to UPM mills.
 - CO₂ emissions from transportation of paper to the customer is not included since this depends on the transportation modes used and distances to specific customer locations. This part of the element can be calculated for a specific case on request.
- GHG emissions attributable to product use (e.g. printing)**
 - This element is not included within UPM's scope as a paper manufacturer.
- GHG emissions attributable to end-of-life-management of products**
 - This element is not included within UPM's scope as a paper manufacturer.
- Avoided emissions (e.g. superior energy efficiency or carbon offsetting measures)**
 - This element is not currently included in UPM's scope.

Carbon Footprint in general

- No **globally accepted definition** available yet, nor standard for calculation.
- One of the definitions:
*"**Carbon Footprint** is the total amount of greenhouse gases emitted both directly and indirectly in the production and delivery of goods and services"*
- As no global standards or rules are available, each party can chose what to include into the **scope of their calculations**.
- Note! Do not forget the **lifecycle approach**, Carbon Footprint is only one environmental aspect!

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