



PRO CARTON

**ASSOCIATION OF EUROPEAN CARTON BOARD
AND CARTON MANUFACTURERS**

⁶Carbon Footprint for Cartons



Carbon Footprint



We have followed a rigorous and scientifically-based framework set out by CEPI, the Confederation of European Paper Industries and together with other paper and board packaging sectors, developed **a common approach to calculate carbon footprints.**

Pro Carton has input its own members' environmental data to arrive at an industry average calculation for cartons. Having measured the European industry average, the aim is to strive for continuous improvement.

The Pro Carton calculation of the industry average carbon footprint begins at the forest (cradle) and ends at the exit door of the carton converter (gate).

This cradle to gate approach (as part of a supply chain for a packaged product) does not include carbon emission calculations which involve the end-user or retailer or the final disposal of the carton (e.g. incineration). The method used by Pro Carton closely follows the proposed UK PAS (Publicly Available Standard) developed by the Carbon Trust and BSI (British Standards Institute).

Pro Carton Carbon Footprint diagram

Currently, we can represent the various elements of **the carbon footprint for cartons** as follows. We aim to add further calculations eg for biogenic CO₂.

CO₂ stocked in the forest in roots and trunks is at least neutral but some studies show the uptake to be higher

Carbon stored in cartonboard products

**1474kg
/ tonne**

Fossil CO₂ emissions from cartonboard produced and converted

**1004kg
/ tonne**

Figures given for CO₂ equivalent and CO₂ stored have been reviewed and approved by IFEU (Institute for Energy and Environmental Research), Germany

For further information, please visit www.procarton.com / **European policy**

Pro Carton's

Pro Carton is the Association of European Cartonboard and Carton Industries.

Calculating carbon footprints can influence the debate about climate change and help us to understand the environmental effects of a process or product.

Pro Carton members have worked together to calculate the carbon footprint of the European industry to arrive at industry average figures, encompassing primary and recycled fibre cartonboard and printed cartons.

How do cartons and cartonboard compare?

As an industry based on the renewable resource of the forest, **cartons have a unique advantage as a packaging material**, in that our raw material, derived from the sustainably managed forests, captures and stores CO₂. Cartons continue to store CO₂ as well. In addition, recycling cartons keeps the CO₂ locked up and prevents it from returning to the atmosphere. Furthermore, **the carbon footprint of cartons is better than other packaging materials** when compared tonne for tonne.



The size of our Carbon Footprint

These are the average calculated greenhouse gas balances for cartonboard and cartons (cradle to gate):

1. Fossil CO₂ equivalent per tonne of cartonboard produced and converted:

1004 kg * (average of primary and recycled fibres)

2. CO₂ stored in a tonne of cartonboard packaging:

1474 kg *

CO₂ stocked in the forest in roots and trunks is at least neutral but some studies show the uptake to be higher. According to the European

GHG inventory, forests in the 15 Member States before the recent EU expansion, are a net carbon sink, with net CO₂ removals by forests having increased by about 25% between 1990 and 2004.¹

We can put these figures into perspective by comparing the amount of carbon emitted to make a cereal carton, with the amount of carbon emitted to drive a car per kilometre. Based on the European industry average, a hypothetical cereal carton packaging 375gms of product, would emit around 0.06kg of CO₂ in its total production process, whereas an average family car can emit around 0.163kg CO₂/km - nearly three times higher than the carton.

Carbon uptake in the forest

Researchers are working on a calculation which aims to show that the carbon uptake in the forest is more than the carbon emitted when the forest product finally comes to the end of its life. This means that there could be a favourable result for what is known as “**biogenic**” or “**biomass**” CO₂ for forest products.

Here is a hypothetical example of biogenic CO₂ for a typical forest product,

which shows the different stages in the calculation and gives a favourable result.

* Figures given for CO₂ equivalent and CO₂ stored have been reviewed and approved by IFEU (Institute for Energy and Environmental Research), Germany

¹ Annual European Community greenhouse gas inventory 1990-2004 and inventory report 2006, http://reports.eea.europa.eu/technical_report_2006_6/en/EC-GHG-Inventory-2006.pdf





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Biomass CO₂

