

Product Carbon Footprint of one cup of Privat Kaffee Rarity Machare from Tchibo



The Company

Tchibo is one of Germany’s largest internationally active retail and consumer goods companies with a unique business model.

The Product

Machare Estate Coffee, one of the most precious Arabicas from Tanzania at Kilimanjaro.

What exactly was assessed?

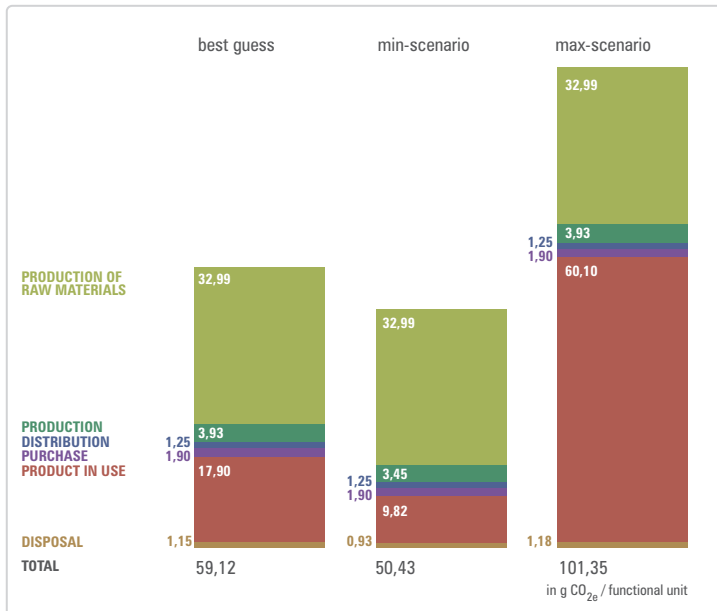
System Boundaries

The analyses encompasses the whole life cycle of one cup of Tchibo Privat Kaffee Rarity Machare from coffee cultivation in Tanzania to disposal of coffee grounds by consumer.

Functional Unit

Provision of one cup of Tchibo Privat Kaffee Rarity Machare, made with 7 g coffee powder and 125 ml of water.

What is the Carbon Footprint of one cup Privat Kaffee Rarity Machare from Tchibo?



PRODUCTION OF RAW MATERIALS

Cultivation of coffee on the Machare Farm in Tanzania at the slopes of Kilimanjaro and manufacturing processes on the farm (e.g. depulping, fermentation) as well as processes in a coffee mill in Tanzania.

PRODUCTION

Overseas transport of green coffee to Germany and relevant manufacturing processes in Germany (Roasting, Packaging).

DISTRIBUTION

Distribution of the packaged coffee beans from the roasting plant in Hamburg to the single Tchibo Shops in Germany.

PURCHASE

Shopping tour to Tchibo shop by consumer (5 km in an average car with an overall purchase: 20 kg), grinding of coffee beans in the Tchibo shop, product packaging, plastic bag.

PRODUCT IN USE

Preparation of one cup of coffee, based on a mix of common brewing methods (75% filter drip; 16% automatic coffee machine; 9% french press).

DISPOSAL

Disposal of coffee grounds with a typical share of bio-waste-container and domestic waste resp. sewage.

Where do most emissions derive from?

Hot spots concerning green house gas emissions are coffee cultivation, especially the use resp. the production of agro-chemicals, and the brewing of coffee by the consumer.

Which options for further reductions of emissions could be identified?

Reductions seem possible concerning the hot spots coffee cultivation – with reservation regarding impacts on harvest, soil fertility etc. – and preparation of coffee by consumer. The cultivation of the Rarity coffee can be seen as widely optimised concerning climate protection. For the identification of further improvement potentials additional analyses – especially concerning the cultivation method – are necessary. Possibilities to communicate the reduction potentials concerning the preparation of coffee to consumers have to be checked very carefully. The average per-capita consumption of coffee amounts to 146 litres per year (source: German Coffee Association) and causes greenhouse gas emissions of 69,05 kg CO_{2e}/year. For comparison: an average car in the compact class with 12.000 km annual mileage causes greenhouse gas emissions of just under 3.200 kg CO_{2e}/year.

What are the lessons learned for Tchibo through participation in the PCF pilot project?

The Carbon Footprint of coffee is small but relevant. We have identified the hot spots of GHG emissions: Supporting the sustainable coffee farming is elementary for the conservation of high quality coffees. The coffee preparation is important for the total footprint; i.e. consumer’s action is relevant.

Is Tchibo planning further activities regarding product related climate protection?

We will continue with building up internal know-how on climate impacts of the food sector and increase the sourcing of coffee which will be cultivated in line with best practices. A second goal is to identify further options how to reduce the carbon footprint in the supply chain. According to Rainforest Alliance, coffee grown in agro forest systems as promoted by its certification program, have been shown to capture carbon. Further studies of Rainforest Alliance will determine if the farms can offset the greenhouse gases in the entire value chain. Furthermore, we will assess the possibilities of GHG compensation within the supply chain as well as the costs and benefits (including communicational) of compensation.

“ By calculating the product carbon footprint, we have gained in-depth insights on the basis of which we can optimize our processes. With this we contribute towards our goal of designing our products in a climate compatible manner. ”