



# The Carbon Footprint of Moving Mountains Products

## Introduction

Klimato calculated the carbon footprint (CF) of Moving Mountains' products using the Life Cycle Assessment (LCA) methodology. LCA is the most widely acknowledged method for assessing the environmental impact of products, processes, and services. LCA is an ISO-standardized method, with the ISO 14040 and 14044 standards providing a framework for LCA studies. ISO 14067 specifically regulates carbon footprinting.

The value resulting from Klimato calculations can be displayed on the products, thereby enabling the end consumer to make informed choices about their food consumption. Furthermore, the carbon footprint calculation can be used to identify hotspots in the production process (i.e. where most emissions originate) and determine potential emissions reductions.

## Case study

The CF of a food product is the sum of the greenhouse gas emissions released during the stages necessary to produce the product. The greenhouse gas emissions are measured in kg CO<sub>2</sub> equivalent (kg CO<sub>2</sub>e). The system boundaries considered in this study include: ingredients production and transport, processing, packaging, transport from the production factory located in the Netherlands to storage site, storage, and cooking.

*The flowchart below maps the emissions sources that were included in the assessment.*



In order to perform the calculations for the CF of Moving Mountains' products, both foreground and background data were collected. Foreground data such as ingredients and production processes were supplier-specific data provided by Moving Mountains. Background data such as carbon footprint of ingredients and emission factors were provided by the Klimato Carbon Footprint database. Assumptions were made by Klimato to fill eventual data gaps.

The assessment was performed during May-June 2023 with data collected during April-May 2023. Klimato has conducted a Life Cycle assessment of the following retail products:

**Burger** (page 2), **Meatballs** (page 3), **Mince** (page 4), **Sausage** (page 5), **Sausage Burger** (page 6), **Hotdogs** (page 7), **No Fish Fingers** (page 8), **Fish Fillet** (page 9), **Chicken Nugget** (page 10) & **Chicken burger** (page 11).

*Find an overview of the carbon footprint of all products on page 12.*



## Burger (MMBURR)

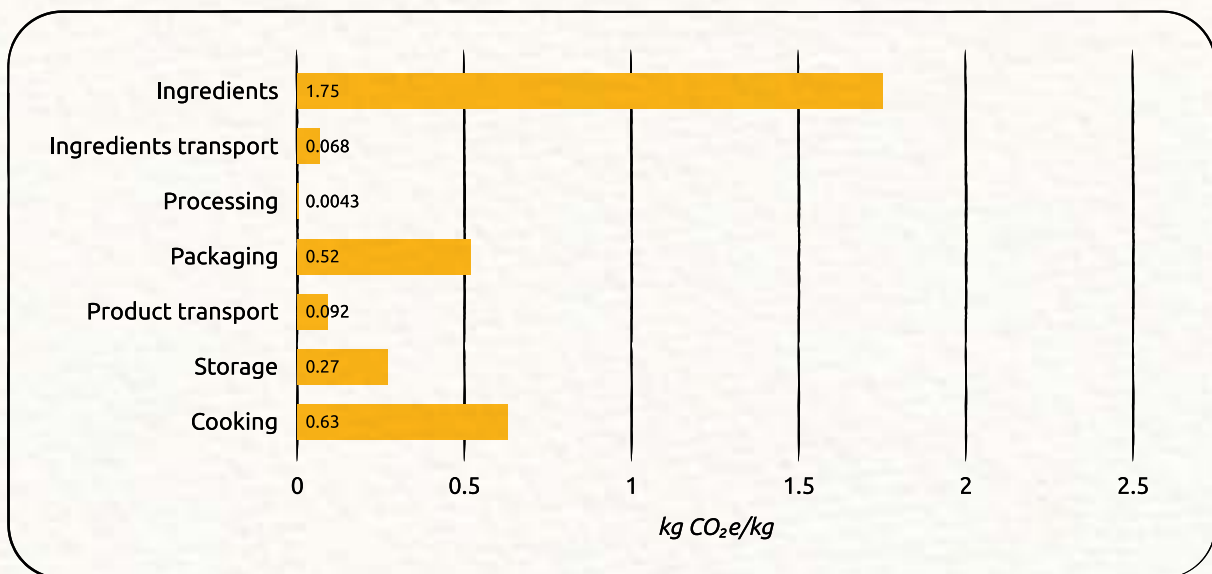
**1 kg of burger emits 3.34 kg CO<sub>2</sub>e, equalling 0.40 kg CO<sub>2</sub>e per unit (113.5g).**

The assessment shows that 53% of the emissions come from raw material production. Within this stage, 33% of the emissions come from coconut oil, followed by soy protein (19%) and oyster mushrooms (12%).

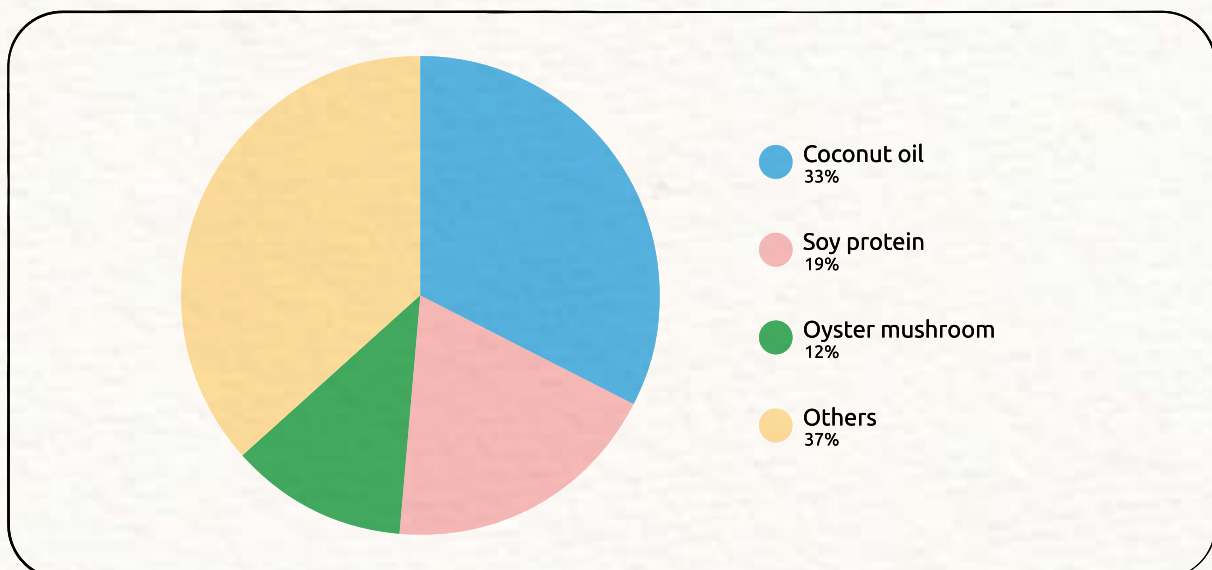
The cradle-to-gate emissions of the burger (ingredients production to packaging) represent 70% (2.35 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 16%.

The transport of the products after packaging in the Netherlands accounts for 3%. The storage accounts for 8% and the cooking phase for 19% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Meatballs (MMMB300R)

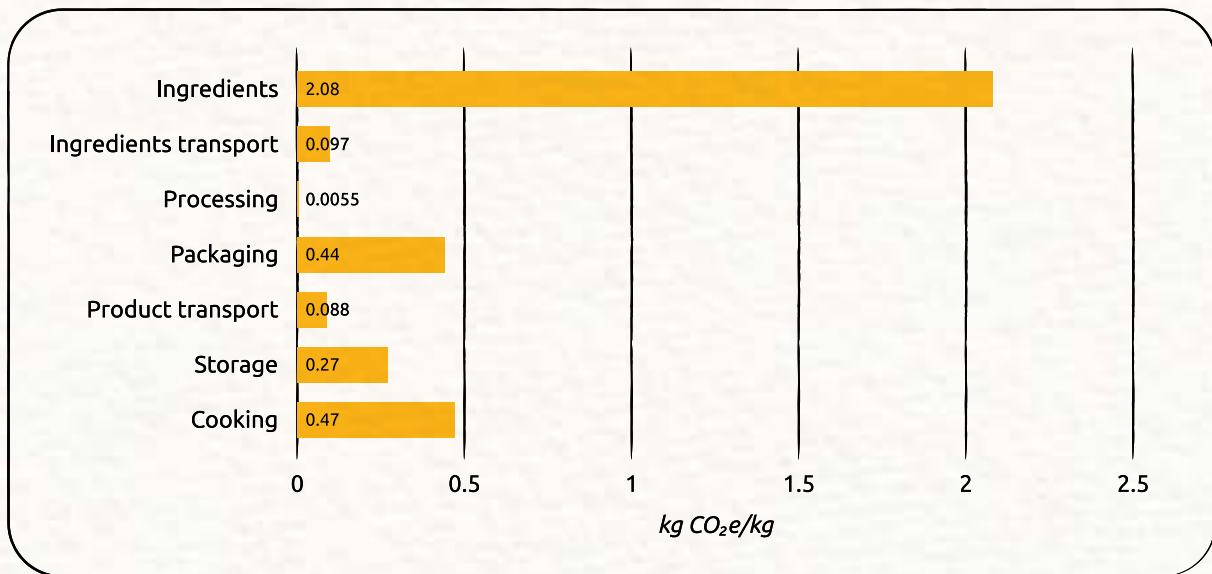
**1 kg of meatballs emits 3.44 kg CO<sub>2</sub>e, equalling 0.09 kg CO<sub>2</sub>e per unit (17g).**

The assessment shows that 60% of the emissions come from raw material production. Within this stage, 26% of the emissions come from oyster mushrooms, followed by coconut oil (14%) and soy protein concentrate (12%).

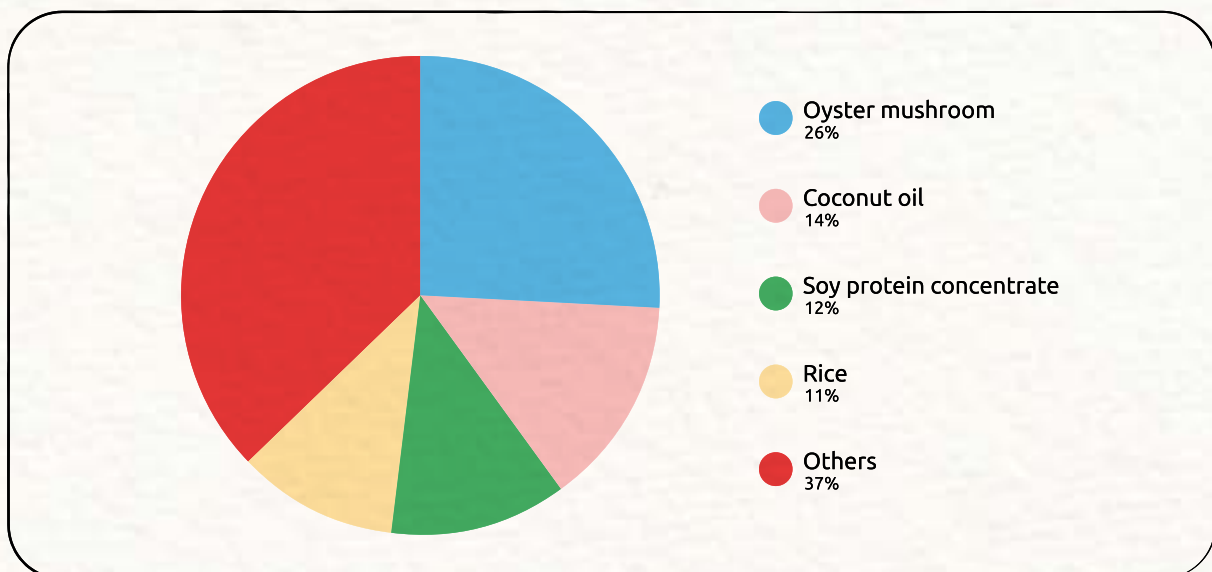
The cradle-to-gate emissions of the meatballs (ingredients production to packaging) represent 76% (2.62 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 13%.

The transport of the products after packaging in the Netherlands accounts for 3%. The storage accounts for 8% and the cooking phase for 14% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Mince (MMM260R)

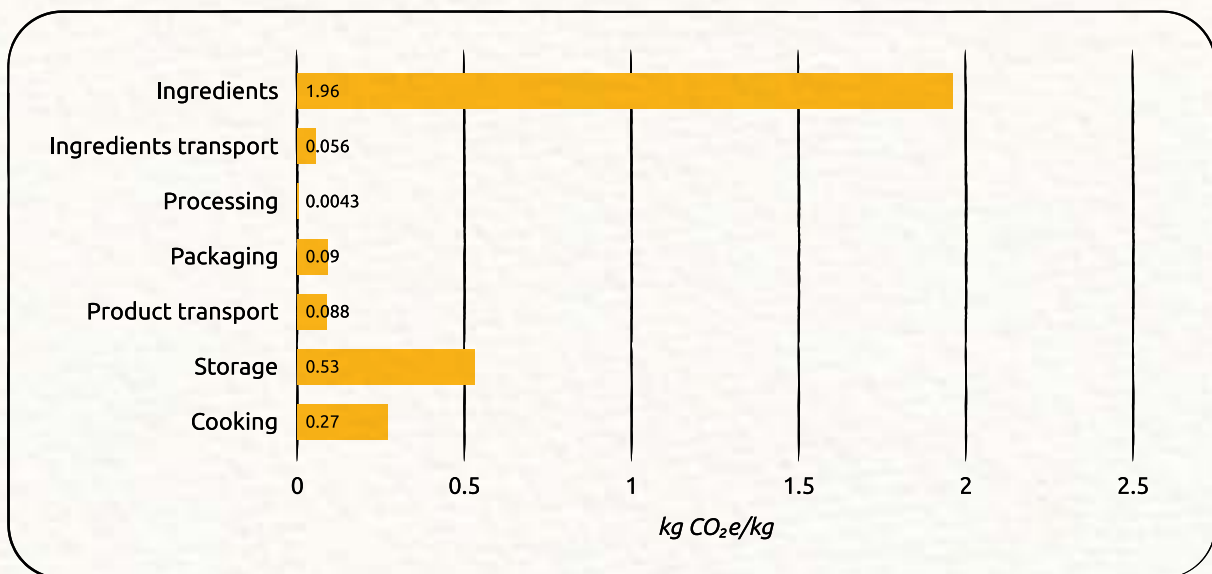
**1 kg of mince emits 3.01 kg CO<sub>2</sub>e, equalling 0.79 kg CO<sub>2</sub>e per unit (260g).**

The assessment shows that 65% of the emissions come from raw material production. Within this stage, 34% of the emissions come from oyster mushrooms, followed by sunflower oil (16%) and soy protein concentrate (15%).

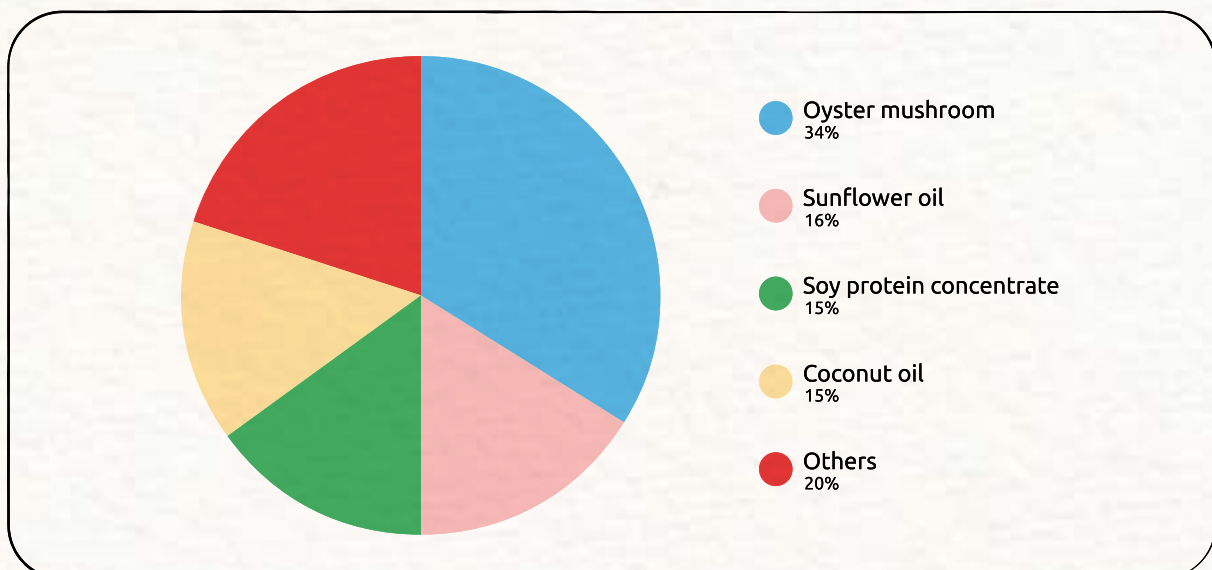
The cradle-to-gate emissions of the mince (ingredients production to packaging) represent 70% (2.11 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 3%.

The transport of the products after packaging in the Netherlands accounts for 3%. The storage accounts for 18% and the cooking phase for 9% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*





## Sausage (MMSS40R)

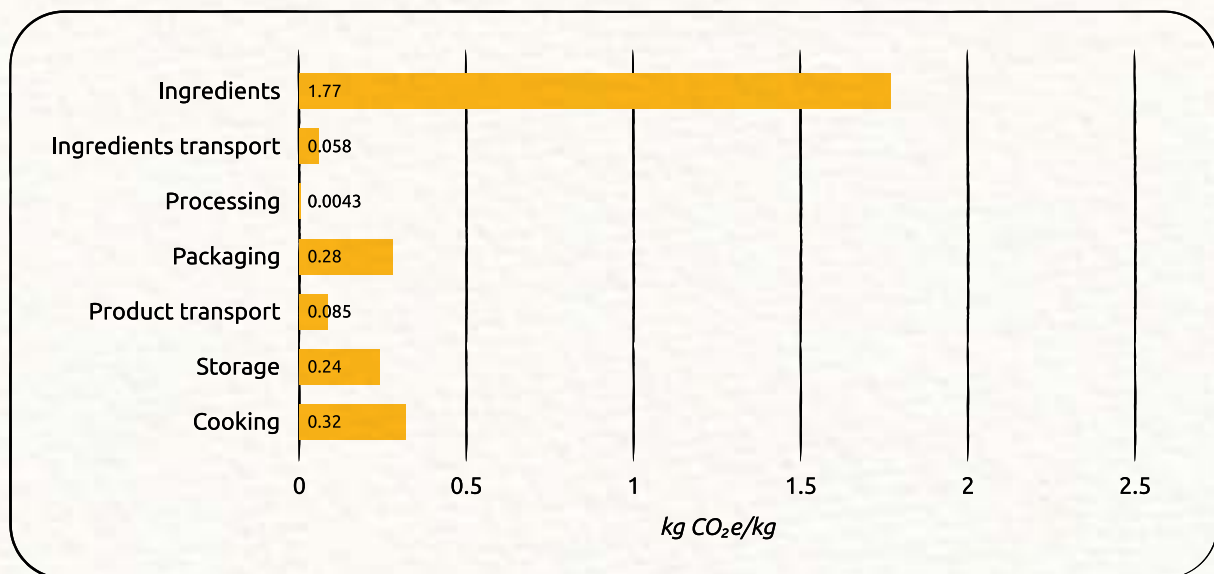
**1 kg of sausage emits 2.75 kg CO<sub>2</sub>e, equalling 0.14 kg CO<sub>2</sub>e per unit (40g).**

The assessment shows that 64% of the emissions come from raw material production. Within this stage, 38% of the emissions come from oyster mushrooms, followed by coconut oil (17%) and soy protein concentrate (16%).

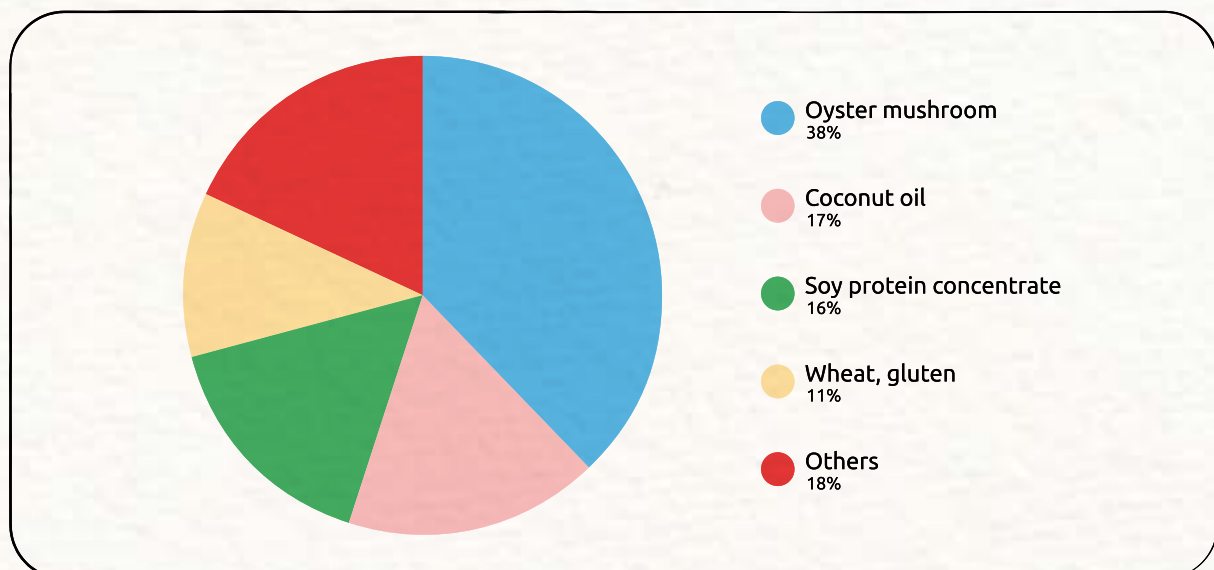
The cradle-to-gate emissions of the sausage (ingredients production to packaging) represent 77% (2.1 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 10%.

The transport of the products after packaging in the Netherlands accounts for 3%. The storage accounts for 9% and the cooking phase for 12% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Sausage Burger (MMSSBR1)

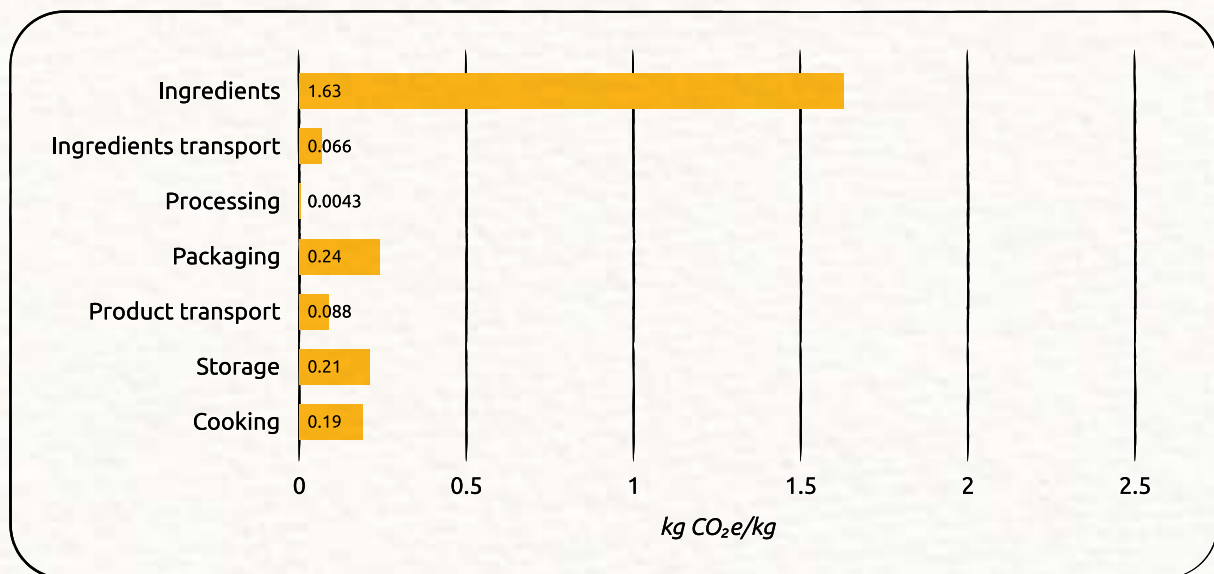
**1 kg of sausage burger emits 2.43 kg CO<sub>2</sub>e, equalling 0.3 kg CO<sub>2</sub>e per unit (113.5g).**

The assessment shows that 67% of the emissions come from raw material production. Within this stage, 33% of the emissions come from oyster mushrooms, followed by coconut oil (20%) and rice (14%).

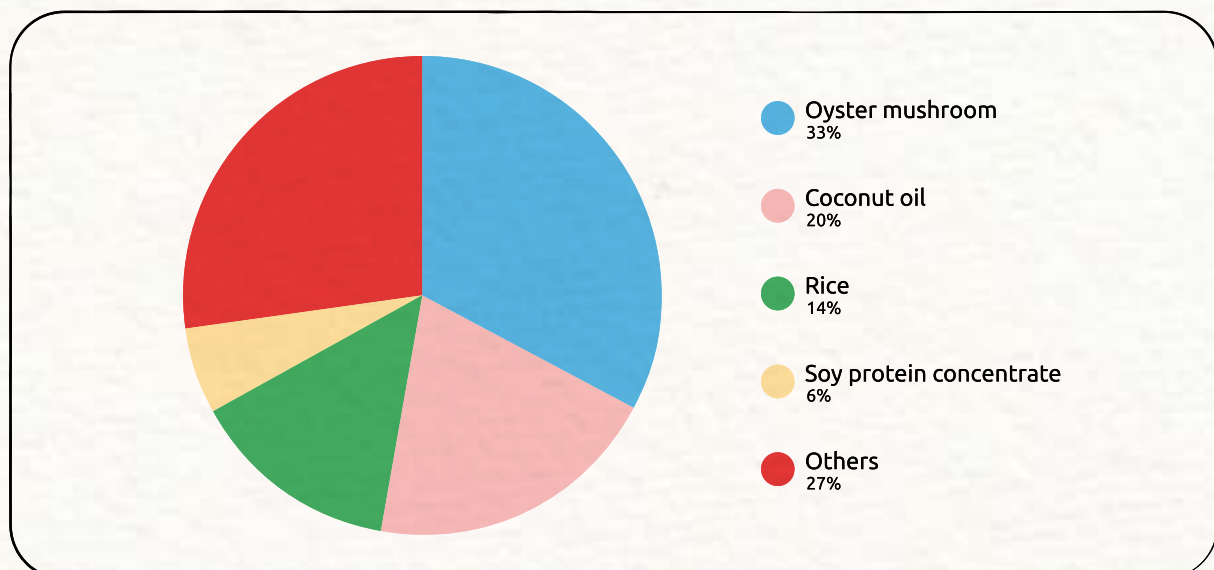
The cradle-to-gate emissions of the sausage burger (ingredients production to packaging) represent 80% (1.94 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 10%.

The transport of the products after packaging in the Netherlands accounts for 4%. The storage accounts for 9% and the cooking phase for 8% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Hotdogs (HD60R41)

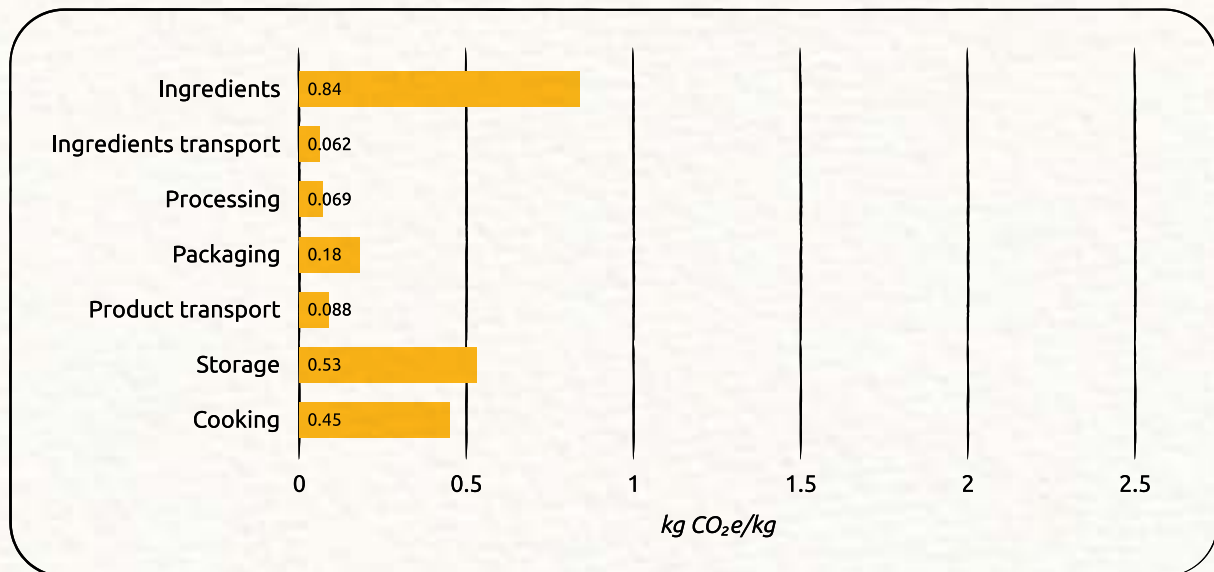
**1 kg of hotdog emits 2.21 kg CO<sub>2</sub>e, equalling 0.16 kg CO<sub>2</sub>e per unit (60g).**

The assessment shows that 38% of the emissions come from raw material production. Within this stage, 54% of the emissions come from the thickener, followed by coconut oil (39%) and sunflower seeds (5%).

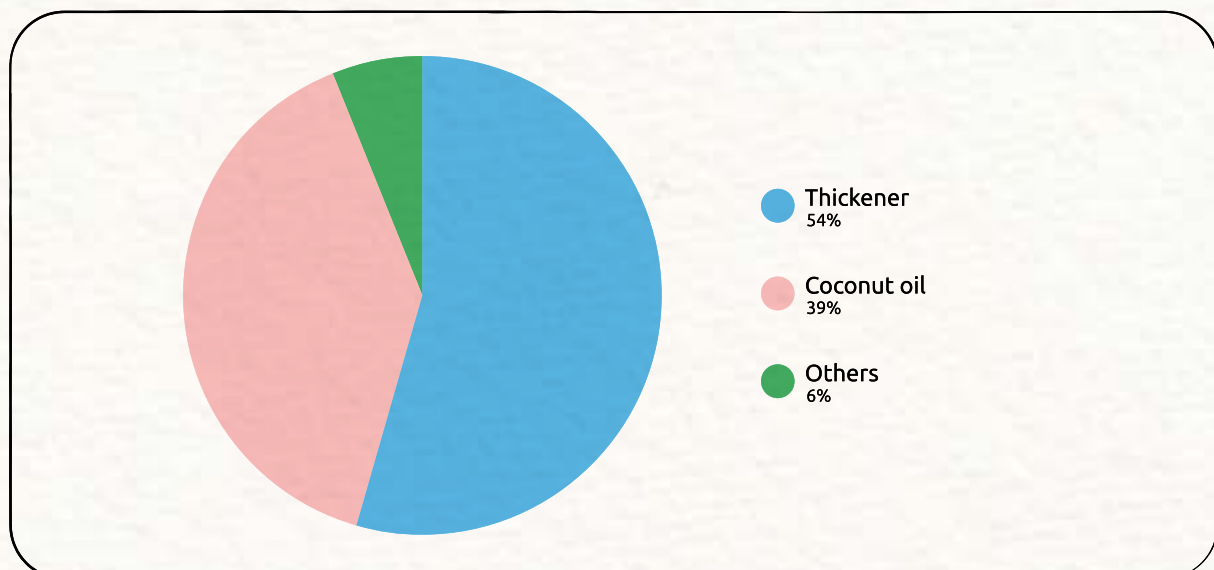
The cradle-to-gate emissions of the hotdog (ingredients production to packaging) represent 52% (1.15 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 8%.

The transport of the products after packaging in the Netherlands accounts for 4%. The storage account for 24% and the cooking phase for 20% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## No Fish Fingers (MMFF300R)

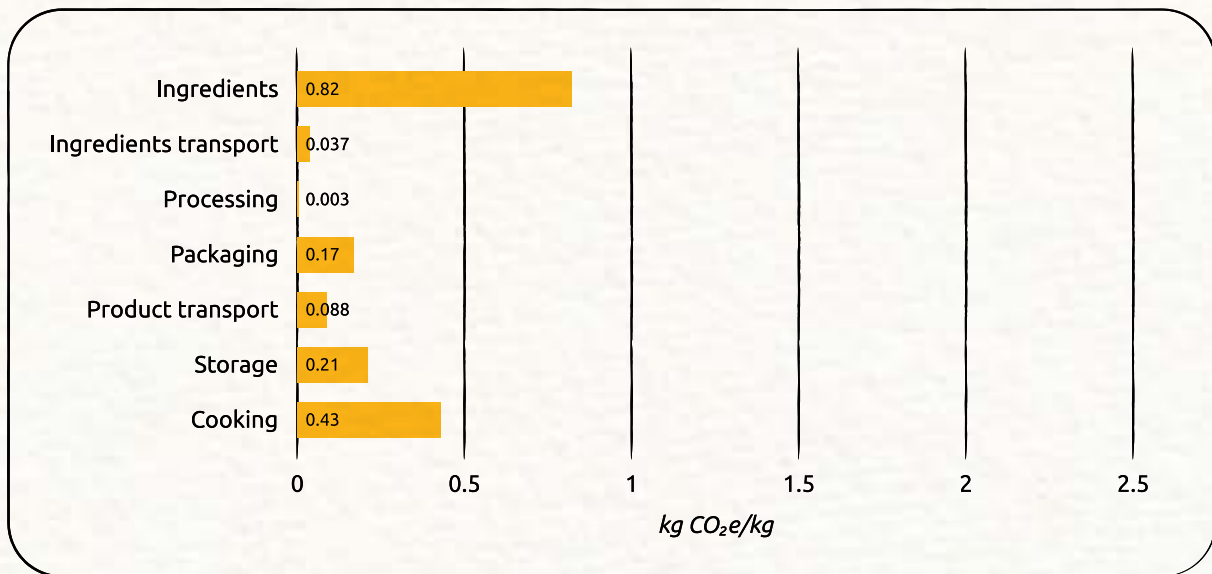
**1 kg of no fish fingers emits 1.76 kg CO<sub>2</sub>e, equalling 0.38 kg CO<sub>2</sub>e per unit (30g).**

The assessment shows that 47% of the emissions come from raw material production. Within this stage, 56% of the emissions come from sunflower oil, followed by soy protein concentrate (24%) and wheat flour (16%).

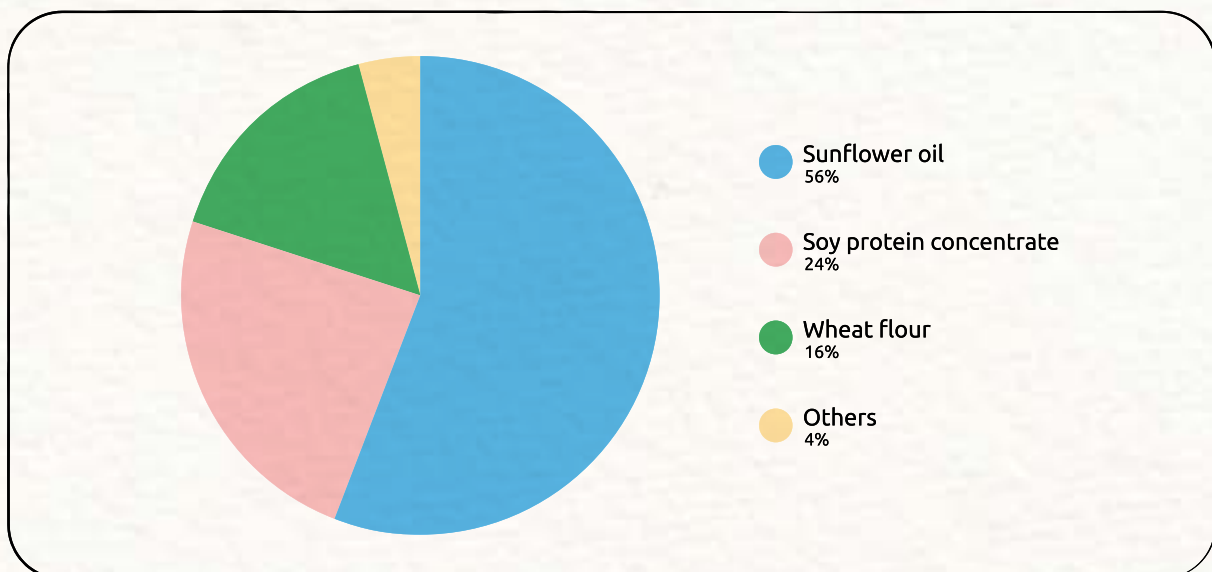
The cradle-to-gate emissions of the no fish fingers (ingredients production to packaging) represent 59% (1.03 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 10%.

The transport of the products after packaging in the Netherlands accounts for 5%. The storage accounts for 12% and the cooking phase for 24% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*





## Fish Fillet (MMFILR)

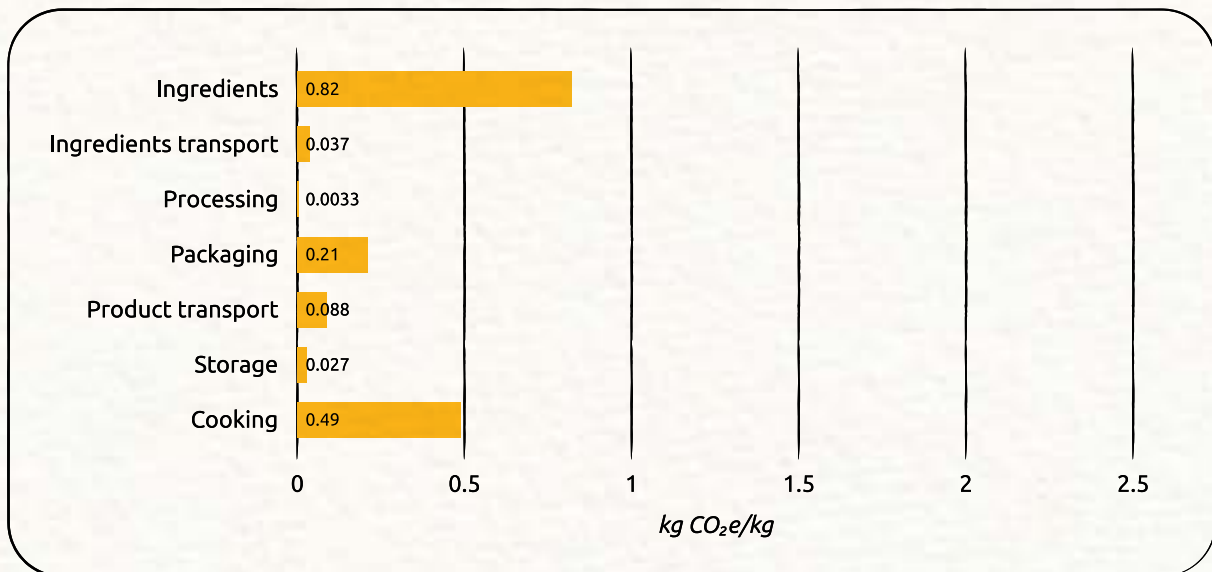
**1 kg of fish fillet emits 1.68 kg CO<sub>2</sub>e, equalling 0.3 kg CO<sub>2</sub>e per unit (130g).**

The assessment shows that 49% of the emissions come from raw material production. Within this stage, 56% of the emissions come from sunflower oil, followed by soy protein concentrate (24%) and wheat flour (16%).

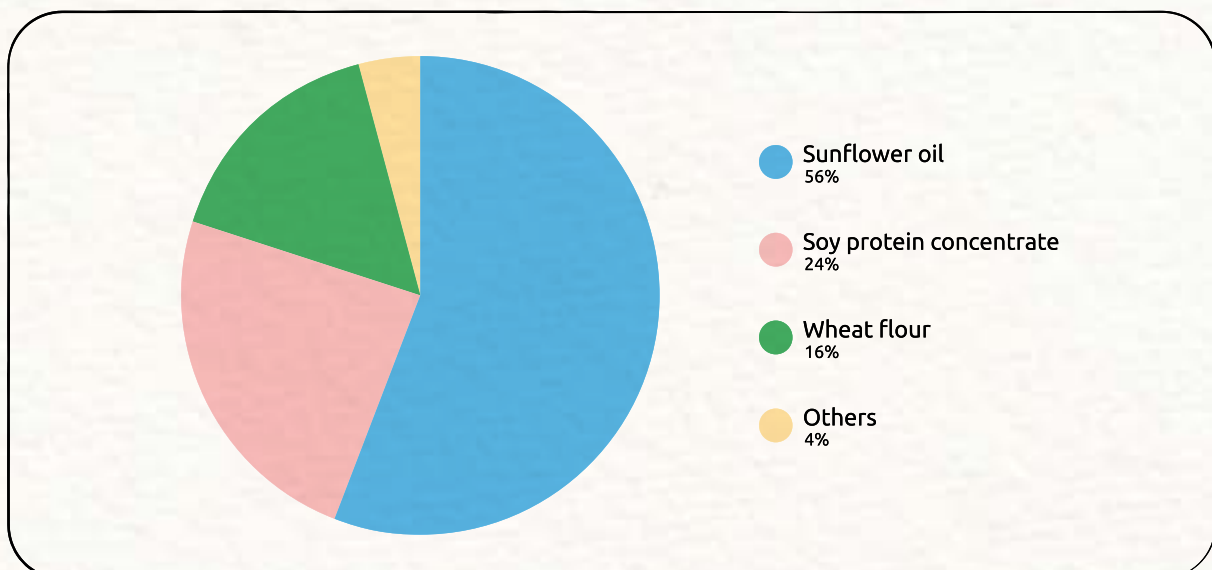
The cradle-to-gate emissions of the fish fillet (ingredients production to packaging) represent 64% (1.07 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 13%.

The transport of the products after packaging in the Netherlands accounts for 5%. The storage accounts for 2% and the cooking phase for 29% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Chicken Nugget (MMCN220R)

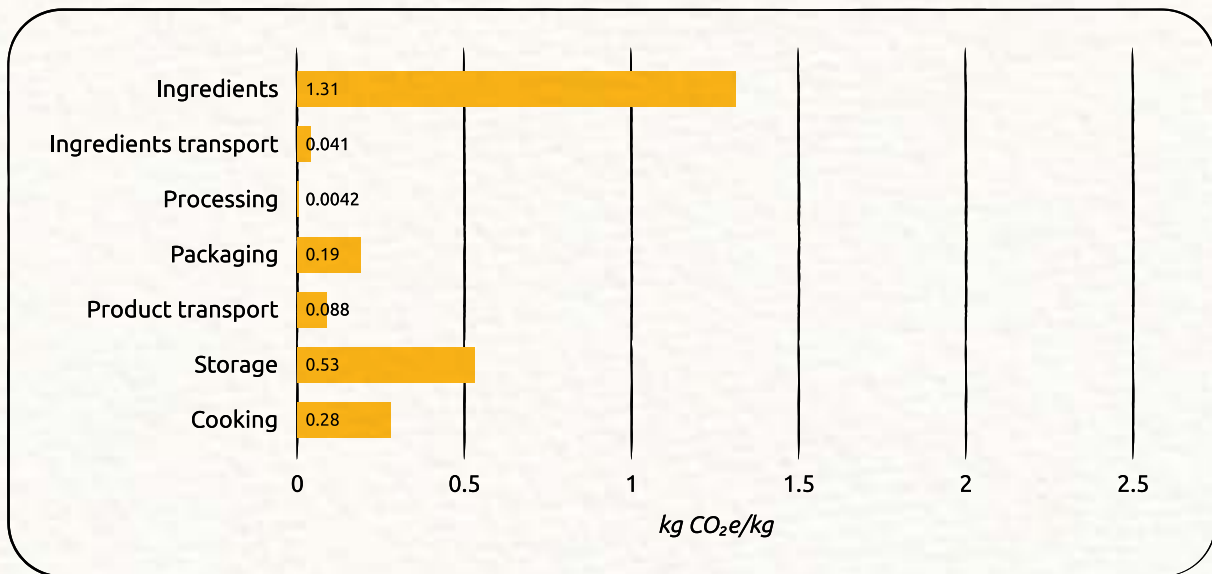
**1 kg of chicken nuggets emits 2.45 kg CO<sub>2</sub>e, equalling 0.8 kg CO<sub>2</sub>e per unit (20g).**

The assessment shows that 53% of the emissions come from raw material production. Within this stage, 26% of the emissions come from sunflower oil, followed by soy protein concentrate (22%) and soy protein isolate (21%).

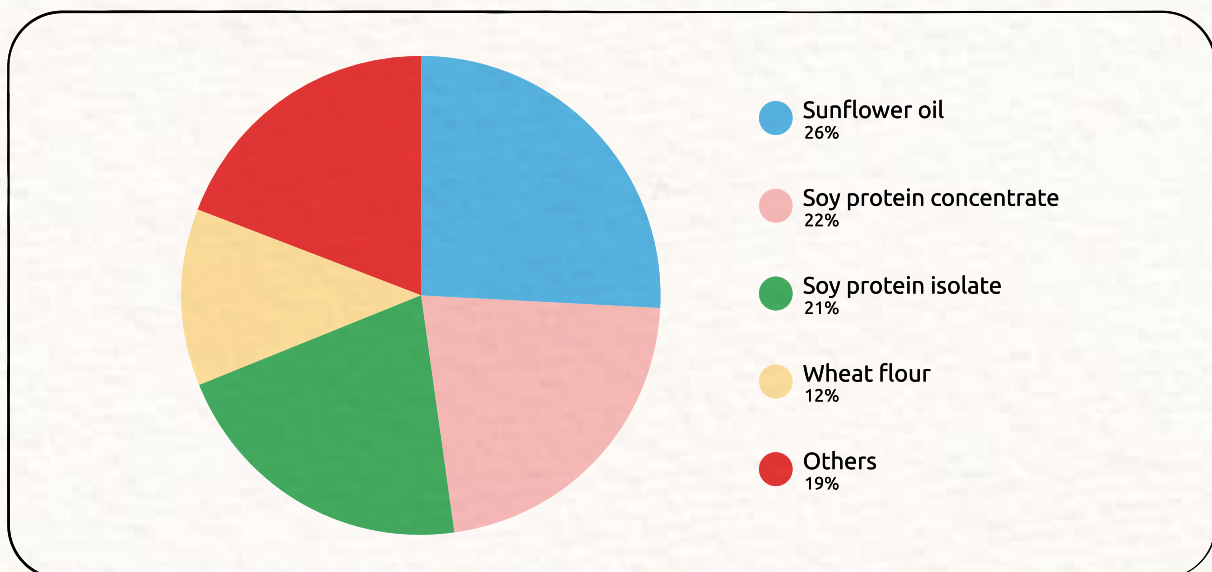
The cradle-to-gate emissions of the chicken nuggets (ingredients production to packaging) represent 68% (1.55 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 8%.

The transport of the products after packaging in the Netherlands accounts for 4%. The storage accounts for 22% and the cooking phase for 12% of the total emissions.

### Breakdown of Emissions per LCA stage



### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Chicken Burger (MMCB90R)

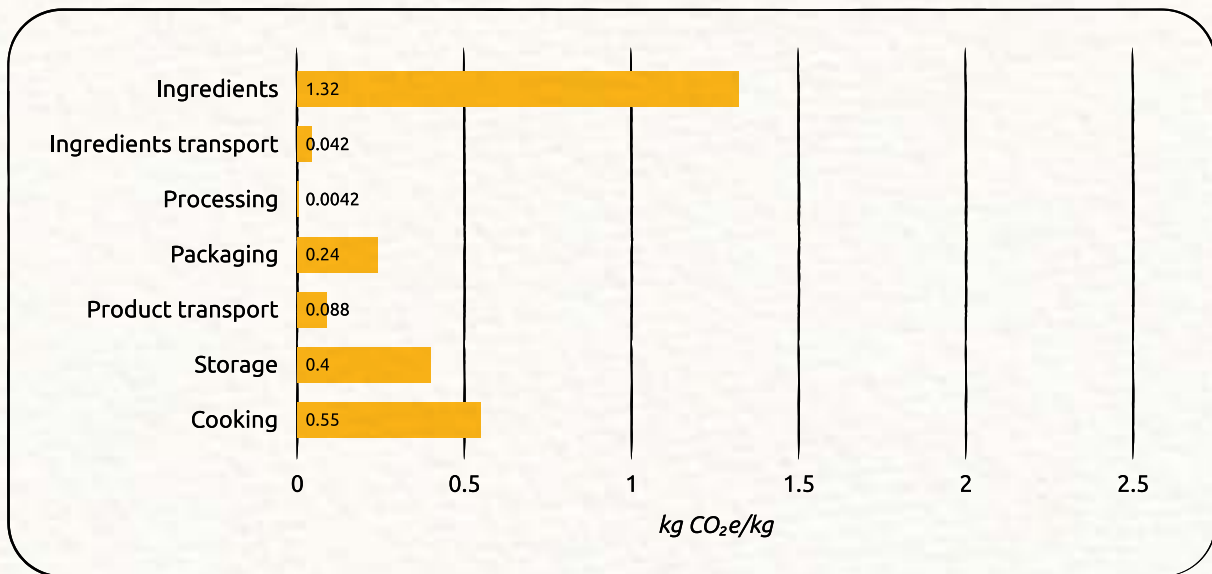
**1 kg of chicken burger emits 2.64 kg CO<sub>2</sub>e, equalling 0.26 kg CO<sub>2</sub>e per unit (90g).**

The assessment shows that 50% of the emissions come from raw material production. Within this stage, 23% of the emissions come from sunflower oil, followed by soy protein concentrate (22%) and soy protein isolate (21%).

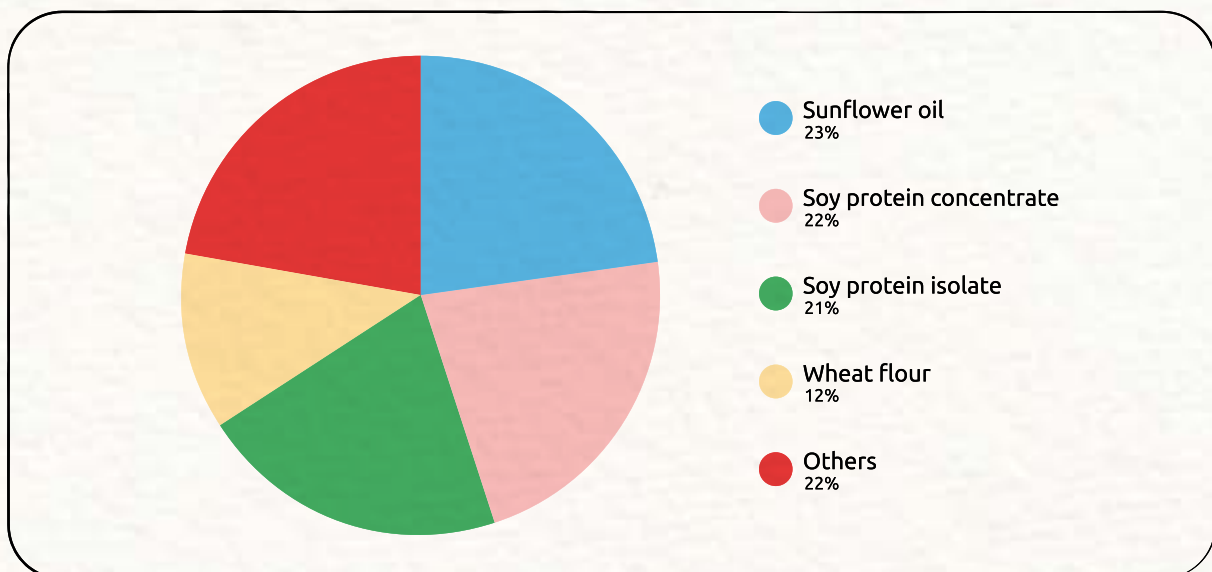
The cradle-to-gate emissions of the chicken burger (ingredients production to packaging) represent 61% (1.6 kg CO<sub>2</sub>e/kg) of the total emissions. The packaging and its transport accounts for 9%.

The transport of the products after packaging in the Netherlands accounts for 3%. The storage accounts for 15% and the cooking phase for 21% of the total emissions.

### Breakdown of Emissions per LCA stage



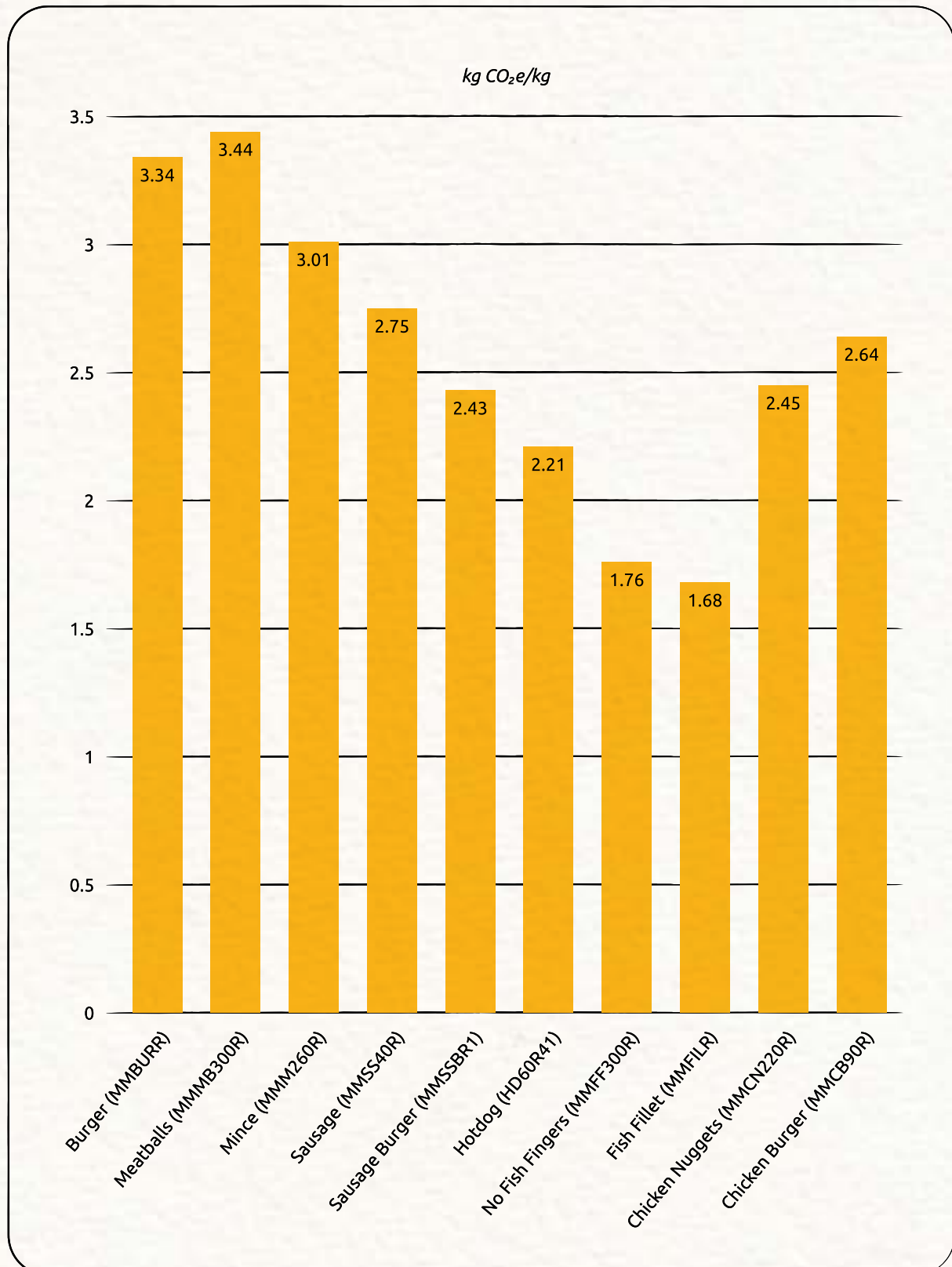
### Share of Emissions Within the Ingredient Production Stage\*



*\*Percentages may not sum to 100% due to rounding.*



## Carbon Footprint Overview of the Ten Retail Products



For any further questions about the methodology and results,  
feel free to reach out to Klimato at [support@klimato.co](mailto:support@klimato.co).