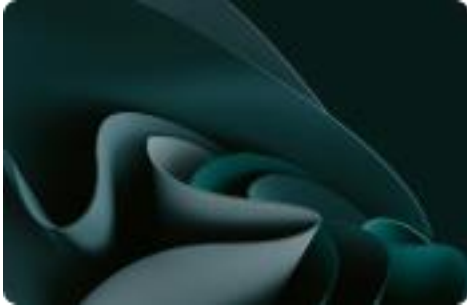


# Life Cycle Analyses

RDVMUG



# Summary



## 01 | Methodology



## 02 | Results

# 01

## Methodology

# Environmental Impact Assessment

## Functional unit

The functional unit is a quantified performance of a product system for use as a reference unit. One of the primary purposes of a functional unit is to provide a reference to which the input and output data are normalized (in a mathematical sense). Therefore, the functional unit shall be clearly defined and measurable.

## Impact Indicator

The impact is measured through the "IPCC 2021 GWP100" method

## Electricity impact calculation method

Following guidelines from the GHG Protocol, the impact of electricity is calculated using the location-based approach. This means that the emission factors used represent the average annual carbon intensity of the power grid in the country the processes take place in.

## Life Cycle Analyses

Cradle to grave

# Emission Factor Inventory

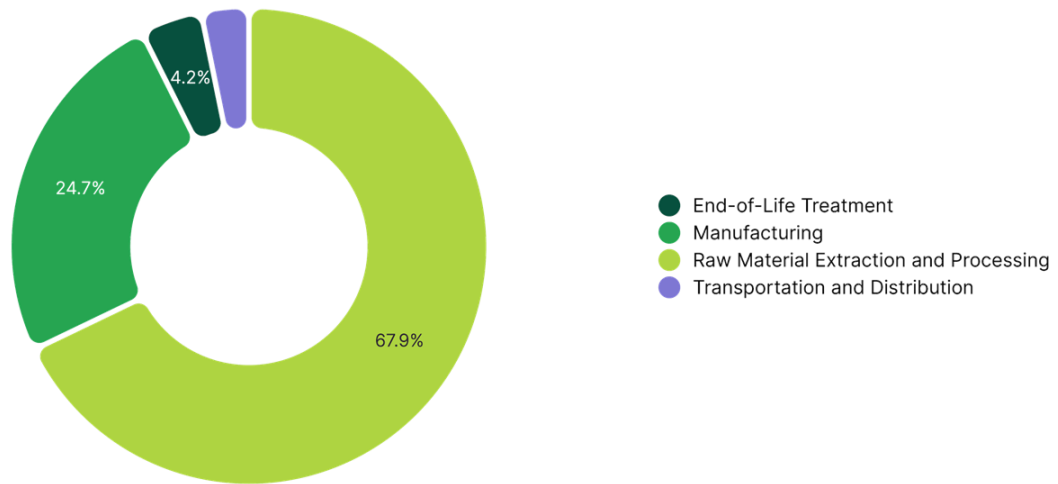
| Num | Emission Factor                                                                      | Source            | Value | Unit |
|-----|--------------------------------------------------------------------------------------|-------------------|-------|------|
| 1   | Acrylonitrile–butadiene–styrene copolymer   Ordinary transforming activity           | ECOINVENT 3.10    | 4.53  | kg   |
| 2   | Aluminium, primary, ingot   Ordinary transforming activity                           | ECOINVENT 3.10    | 7.61  | kg   |
| 3   | Electricity   Total (Scope 2 & 3)   People's Republic of China                       | IEA 2023          | 0.72  | kWh  |
| 4   | Freight   Boat   From CN to FR                                                       | WELOW EXPERTS 1.0 | 0.25  | kg   |
| 5   | Waste aluminium   Ordinary transforming activity                                     | ECOINVENT 3.10    | 0.03  | kg   |
| 6   | Residues, MSWI, waste plastic, consumer electronics   Ordinary transforming activity | ECOINVENT 3.10    | 0.36  | kg   |

# 02

## Results

Coffee accessories

# Climate Change

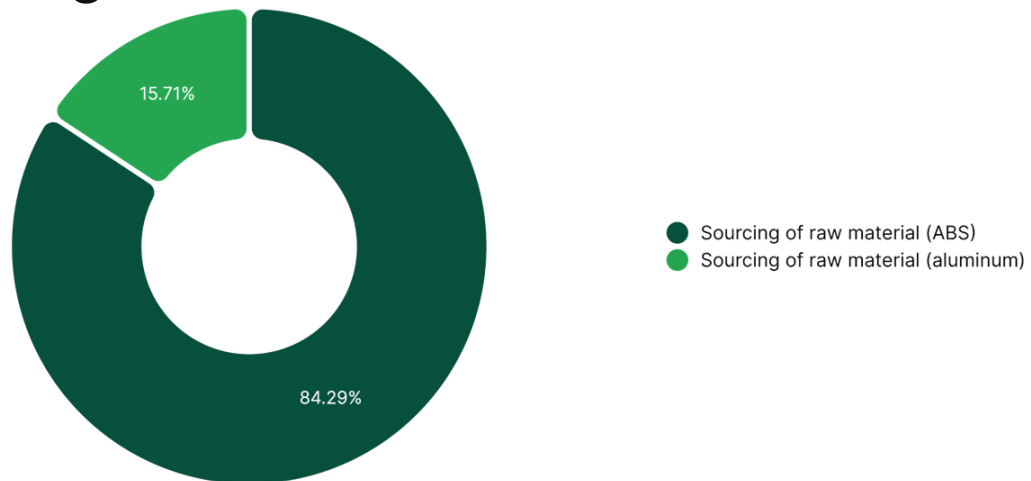


- End-of-Life Treatment
- Manufacturing
- Raw Material Extraction and Processing
- Transportation and Distribution

| Step                                   | Impact<br>(kg CO <sub>2</sub> eq) | Percentage<br>(%) |
|----------------------------------------|-----------------------------------|-------------------|
| Raw Material Extraction and Processing | 1.6                               | 67.88 %           |
| Manufacturing                          | 0.58                              | 24.72 %           |
| End-of-Life Treatment                  | 0.1                               | 4.19 %            |
| Transportation and Distribution        | 0.08                              | 3.22 %            |
|                                        |                                   |                   |
| TOTAL                                  | 2.36                              | 100.00 %          |

Coffee accessories

# Climate Change - Raw Material Extraction and Processing



| Activity                            | Emission Factor Num | Quantity | Unité | Impact (kg CO <sub>2</sub> eq) | Percentage (%) |
|-------------------------------------|---------------------|----------|-------|--------------------------------|----------------|
| Sourcing of raw material (ABS)      | 1                   | 0.3      | kg    | 1.35                           | 84.29 %        |
| Sourcing of raw material (aluminum) | 2                   | 0.03     | kg    | 0.25                           | 15.71 %        |

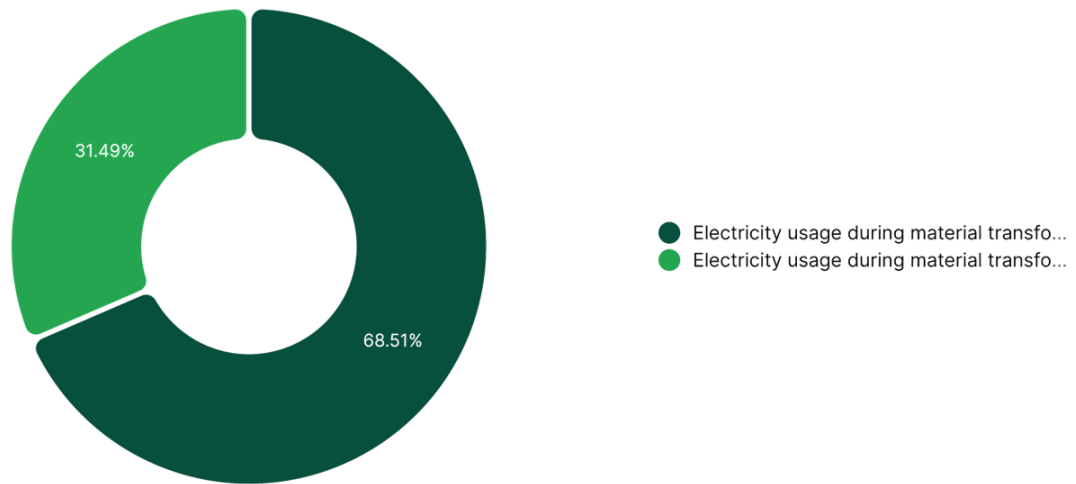
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| TOTAL |  |  |  | 1.6 | 100.00 % |
|-------|--|--|--|-----|----------|

Coffee accessories

# Climate Change - Manufacturing



| Activity                                                    | Emission Factor Num | Quantity | Unité | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|-------------------------------------------------------------|---------------------|----------|-------|-------------------------------|----------------|
| Electricity usage during material transformation (ABS)      | 3                   | 0.55     | kWh   | 399.94                        | 68.51 %        |
| Electricity usage during material transformation (aluminum) | 3                   | 0.25     | kWh   | 183.8                         | 31.49 %        |

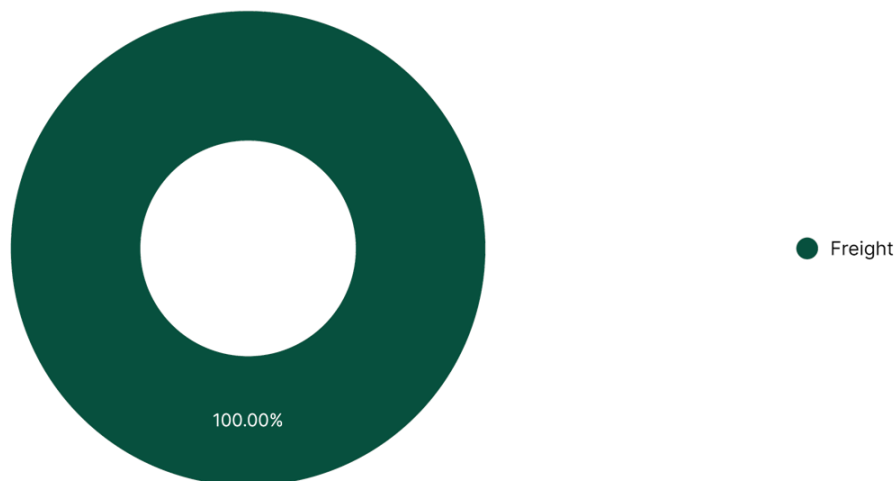
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| TOTAL |  |  |  | 583.73 | 100.00 % |
|-------|--|--|--|--------|----------|

## Coffee accessories

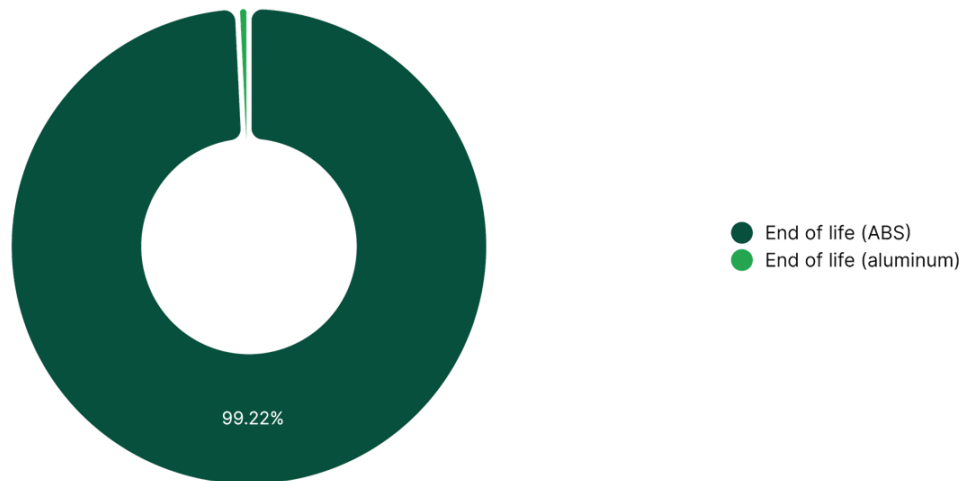
# Climate Change - Transportation and Distribution



| Activity | Emission Factor Num | Quantity | Unité | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|----------|---------------------|----------|-------|-------------------------------|----------------|
| Freight  | 4                   | 0.3      | kg    | 75.93                         | 100.00 %       |
|          |                     |          |       |                               |                |
|          |                     |          |       |                               |                |
|          |                     |          |       |                               |                |
|          |                     |          |       |                               |                |
| TOTAL    |                     |          |       | 75.93                         | 100.00 %       |

## Coffee accessories

# Climate Change - End-of-Life Treatment



| Activity               | Emission<br>Factor<br>Num | Quantity | Unité | Impact<br>(g CO <sub>2</sub> eq) | Percentage<br>(%) |
|------------------------|---------------------------|----------|-------|----------------------------------|-------------------|
| End of life (ABS)      | 6                         | 0.27     | kg    | 98.07                            | 99.22 %           |
| End of life (aluminum) | 5                         | 0.03     | kg    | 0.77                             | 0.78 %            |

|       |       |          |
|-------|-------|----------|
| TOTAL | 98.84 | 100.00 % |
|-------|-------|----------|

