

# Life Cycle Analyses

MHPAD



# 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

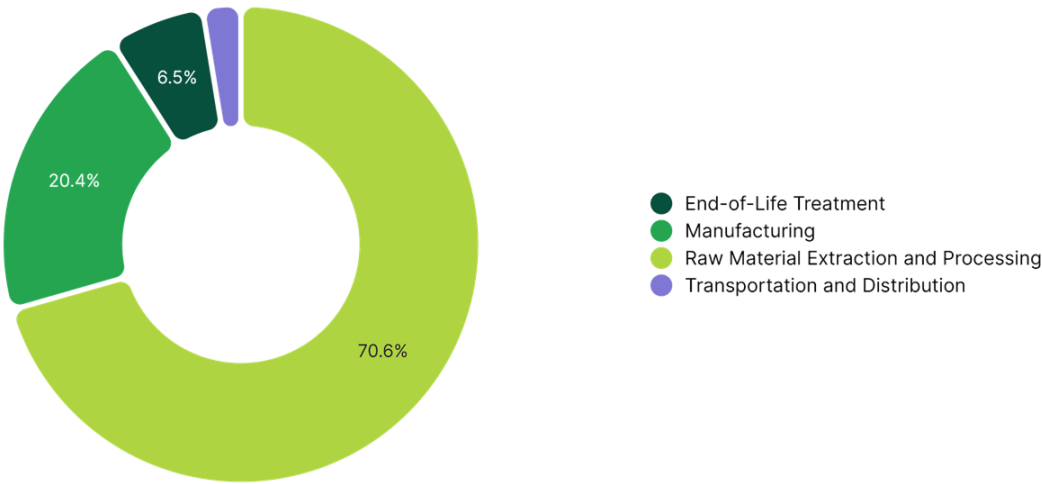
| Num | Emission Factor                                                          | Source                   | Value          | Unit |
|-----|--------------------------------------------------------------------------|--------------------------|----------------|------|
| 1   | Polyester filament   finished   at plant   100% polyester                | BASE EMPREINTE ADEME 3.0 | 10.0285        | kg   |
| 2   | Polyvinylchloride, emulsion polymerised   Ordinary transforming activity | ECOINVENT 3.10           | 2.62843892     | kg   |
| 3   | Polypropylene, granulate   Market activity                               | ECOINVENT 3.10           | 3.516196993    | kg   |
| 4   | Electricity   Total (Scope 2 & 3)   People's Republic of China           | IEA 2023                 | 0.7231         | kWh  |
| 5   | Freight   Boat   From CN to FR Waste                                     | WELOW EXPERTS 1.0        | 0.25227278     | kg   |
| 6   | polyethylene/polypropylene product   Ordinary transforming activity      | ECOINVENT 3.10           | 1.783532575    | kg   |
| 7   | Waste polypropylene product   Ordinary transforming activity             | ECOINVENT 3.10           | 1.213152213    | kg   |
| 8   | Waste yarn and waste textile   Ordinary transforming activity            | ECOINVENT 3.10           | 0.004657246015 | kg   |

# 02

## Results

Dynamic seating cushion

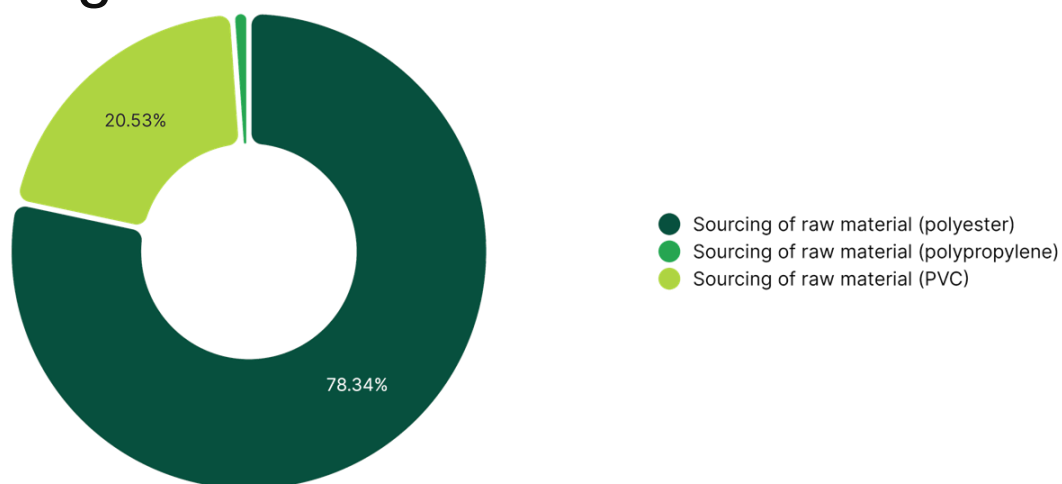
# Climate Change



| Step                                   | Impact (kg CO <sub>2</sub> eq) | Percentage (%) |
|----------------------------------------|--------------------------------|----------------|
| Raw Material Extraction and Processing | 7.59                           | 70.57 %        |
| Manufacturing                          | 2.19                           | 20.38 %        |
| End-of-Life Treatment                  | 0.7                            | 6.47 %         |
| Transportation and Distribution        | 0.28                           | 2.58 %         |
|                                        |                                |                |
| TOTAL                                  | 10.75                          | 100.00 %       |

## Dynamic seating cushion

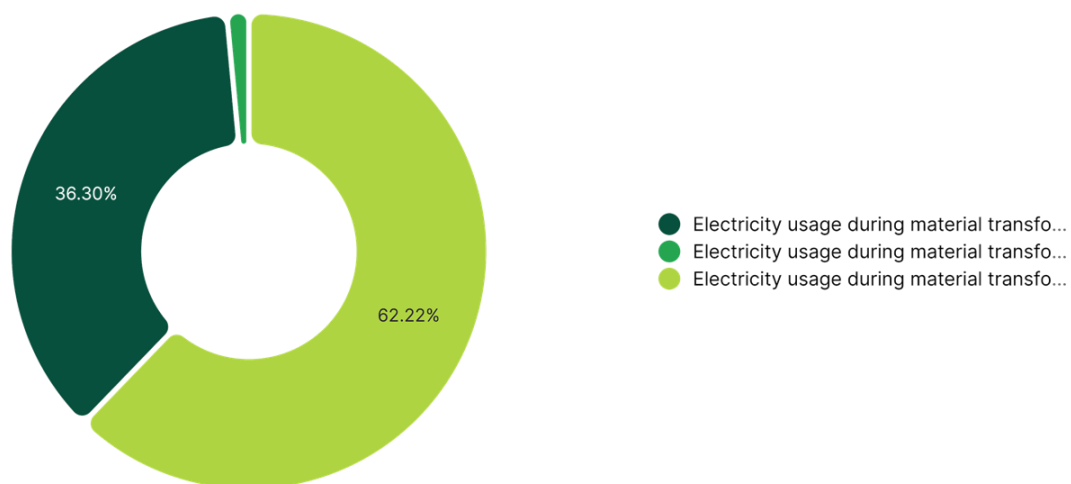
# Climate Change - Raw Material Extraction and Processing



| Activity                                 | Emission Factor Num | Quantity | Impact (kg CO <sub>2</sub> eq) | Percentage (%) |
|------------------------------------------|---------------------|----------|--------------------------------|----------------|
| Sourcing of raw material (polyester)     | 1                   | 0.59     | 5.95                           | 78.34 %        |
| Sourcing of raw material (PVC)           | 2                   | 0.59     | 1.56                           | 20.53 %        |
| Sourcing of raw material (polypropylene) | 3                   | 0.02     | 0.09                           | 1.12 %         |
|                                          |                     |          |                                |                |
|                                          |                     |          |                                |                |
|                                          |                     |          |                                |                |
|                                          |                     |          |                                |                |
|                                          |                     |          |                                |                |
| TOTAL                                    |                     |          | 7.59                           | 100.00 %       |

## Dynamic seating cushion

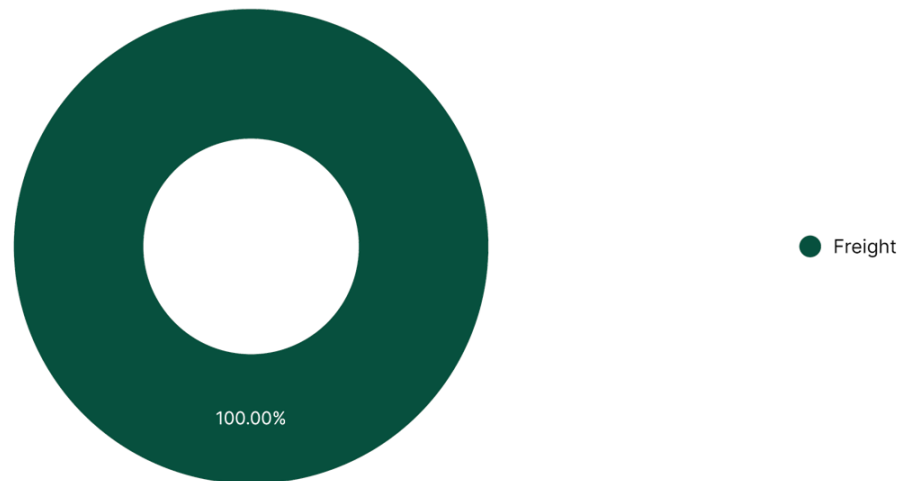
# Climate Change - Manufacturing



| Activity                                                         | Emission<br>Factor<br>Num | Quantity | Impact<br>(kg CO <sub>2</sub> eq) | Percentage<br>(%) |
|------------------------------------------------------------------|---------------------------|----------|-----------------------------------|-------------------|
| Electricity usage during material transformation (PVC)           | 4                         | 1.89     | 1.36                              | 62.22 %           |
| Electricity usage during material transformation (polyester)     | 4                         | 1.1      | 0.8                               | 36.30 %           |
| Electricity usage during material transformation (polypropylene) | 4                         | 0.04     | 0.03                              | 1.48 %            |
|                                                                  |                           |          |                                   |                   |
|                                                                  |                           |          |                                   |                   |
|                                                                  |                           |          |                                   |                   |
|                                                                  |                           |          |                                   |                   |
| TOTAL                                                            |                           |          | 2.19                              | 100.00 %          |

## Dynamic seating cushion

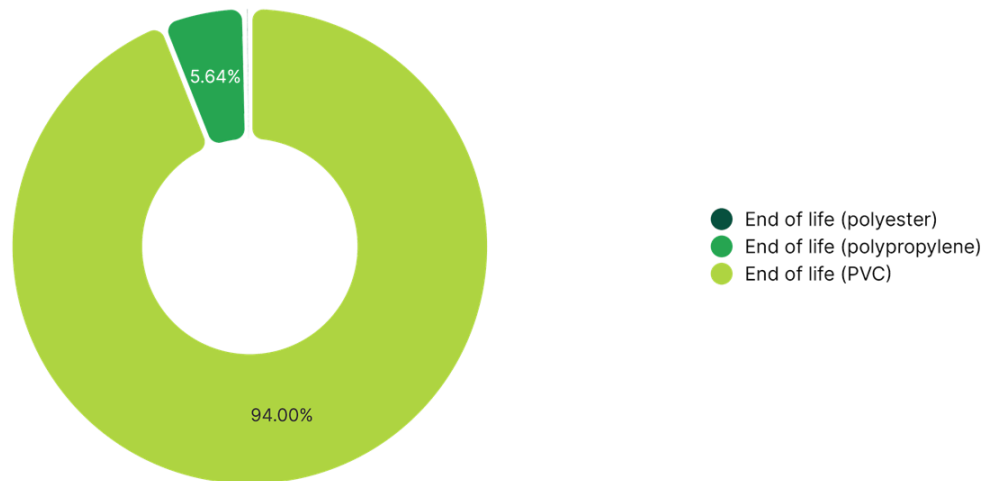
# Climate Change - Transportation and Distribution



| Activity | Emission Factor Num | Quantity | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|----------|---------------------|----------|-------------------------------|----------------|
| Freight  | 5                   | 1.1      | 277.5                         | 100.00 %       |
|          |                     |          |                               |                |
|          |                     |          |                               |                |
|          |                     |          |                               |                |
|          |                     |          |                               |                |
| TOTAL    |                     |          | 277.5                         | 100.00 %       |

## Dynamic seating cushion

# Climate Change - End-of-Life Treatment



| Activity                    | Emission Factor Num | Quantity | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|-----------------------------|---------------------|----------|-------------------------------|----------------|
| End of life (PVC)           | 7                   | 0.54     | 653.89                        | 94.00 %        |
| End of life (polypropylene) | 6                   | 0.02     | 39.24                         | 5.64 %         |
| End of life (polyester)     | 8                   | 0.54     | 2.51                          | 0.36 %         |
|                             |                     |          |                               |                |
|                             |                     |          |                               |                |
|                             |                     |          |                               |                |
| TOTAL                       |                     |          | 695.64                        | 100.00 %       |

