

**greenly**

2025-09-13

Lyreco LCA

# Life Cycle Assessment

*The methodology in this report is based on ISO 14040*

2.847.293 (sold in FR)

# Summary



**01** | Methodology



**02** | Results

# 01

## Methodology

# Environmental Impact Assessment

|  |   |
|--|---|
| <b>Functional unit</b>                       | <p>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).</p> <p>The functional unit of this analysis is "500 page(s) of A4 paper for writing".</p>   |
| <b>Impact Indicator</b>                      | <p>The impact is measured through the "IPCC 2013 GWP 100a" method.</p>  |
| <b>Electricity impact calculation method</b> | <p>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.</p>   |
| <b>Hypothesis</b>                            | <p>Manufacturing Processes and associated loss percentages are assumed based on materials in the product.</p> <p>The electricity is based on the average in the country of manufacturing.</p> <p>Transportation is based on the common routes between the country of manufacturing and the country of sale.</p> <p>No replacements during the lifetime, therefore there are no emissions corresponding to the usage phase.</p> <p>The End of Life is based on the average waste management process of the materials in the product.</p> |

# Environmental Impact Assessment

## System Boundaries

The scope of this research includes the complete lifecycle of a piece of paper from raw material extraction to disposal options for each material, which is the cradle-to-grave perspective.

## Exclusions

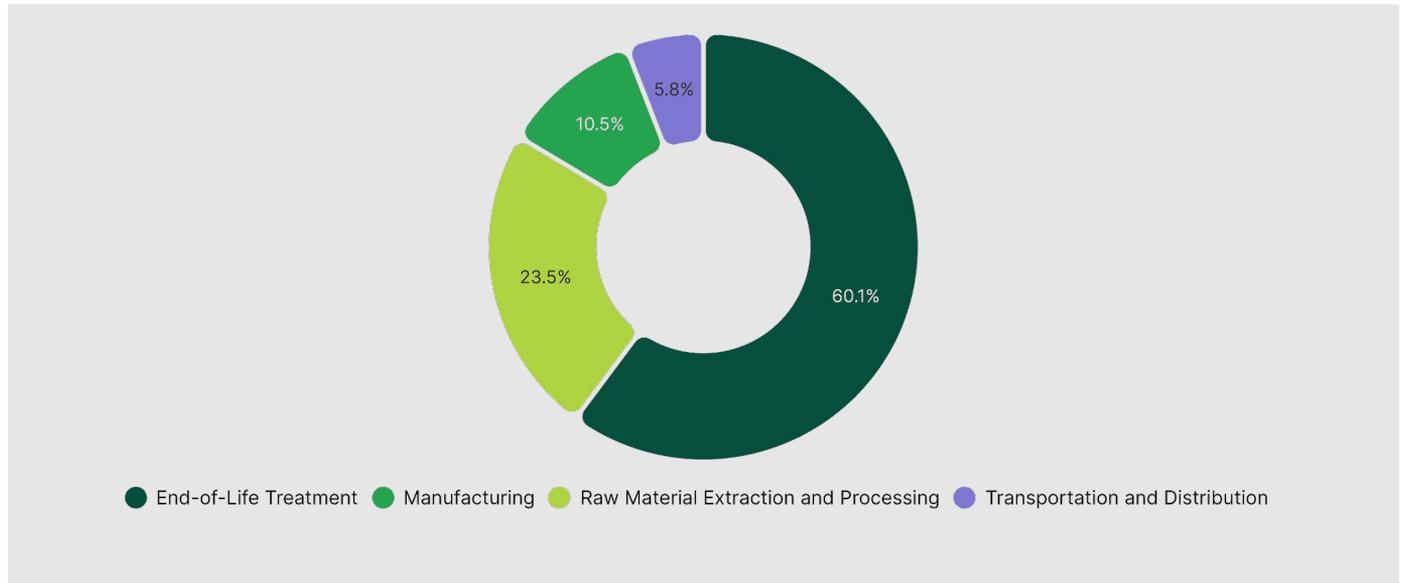
The impact of secondary packaging impact and writing utensils are excluded from this assessment.

# 02

## Results

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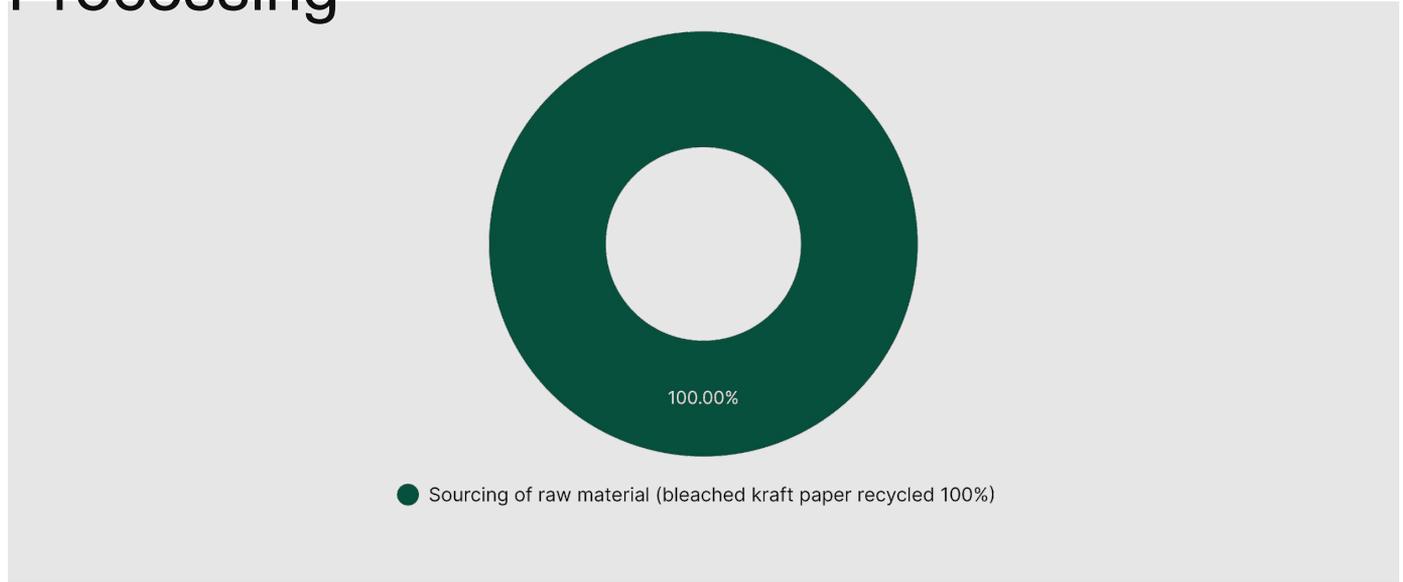
# Climate Change



| Step                                   | Impact (kg CO <sub>2</sub> eq) | Percentage (%)  |
|--|--------------------------------|-----------------|
| End-of-Life Treatment                  | 2.81                           | 60.14 %         |
| Raw Material Extraction and Processing | 1.1                            | 23.48 %         |
| Manufacturing                          | 0.49                           | 10.55 %         |
| Transportation and Distribution        | 0.27                           | 5.83 %          |
| <b>TOTAL</b>                           | <b>4.68</b>                    | <b>100.00 %</b> |

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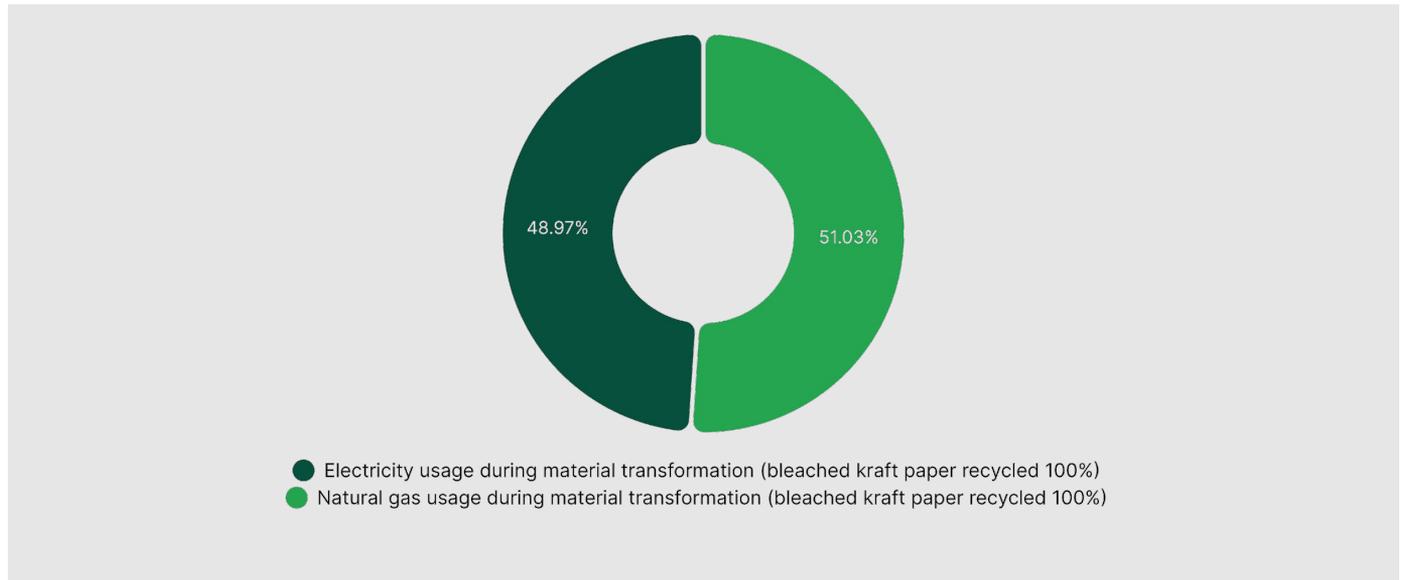
# Climate Change - Raw Material Extraction and Processing



| Activity  | Emission Factor Num | Quantity | Impact (kg CO <sub>2</sub> eq) | Percentage (%) |
|---|---------------------|----------|--------------------------------|----------------|
| Sourcing of raw material (bleached kraft paper recycled 100%) | 1                   | 7.32     | 1.1                            | 100.00 %       |
|   |                     |          |                                |                |
|   |                     |          |                                |                |
|   |                     |          |                                |                |
| TOTAL   |                     |          | 1.1                            | 100.00 %       |

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# Climate Change - Manufacturing

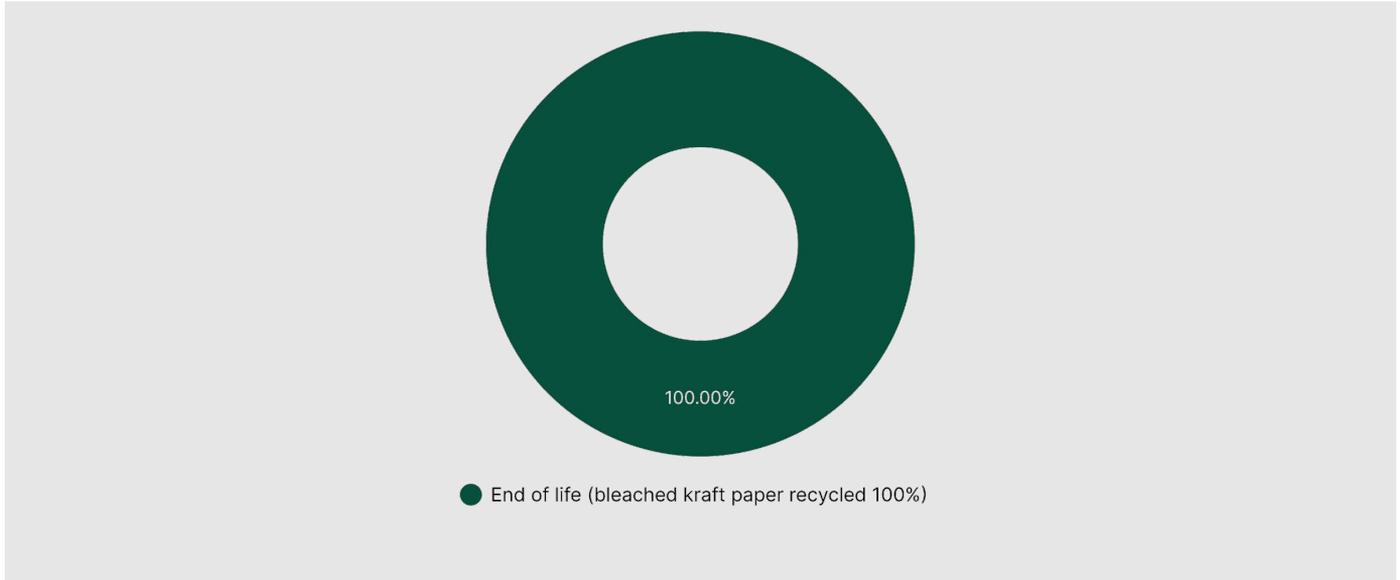


| Activity  | Emission Factor Num | Quantity | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|---|---------------------|----------|-------------------------------|----------------|
| Natural gas usage during material transformation (bleached kraft paper recycled 100%) | 3                   | 1.39     | 251.73                        | 51.03 %        |
| Electricity usage during material transformation (bleached kraft paper recycled 100%) | 2                   | 2.59     | 241.59                        | 48.97 %        |
| TOTAL   |                     |          | 493.32                        | 100.00 %       |



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# Climate Change - End-of-Life Treatment



| Activity   | Emission Factor Num | Quantity | Impact (kg CO <sub>2</sub> eq) | Percentage (%) |
|--|---------------------|----------|--------------------------------|----------------|
| End of life (bleached kraft paper recycled 100%) | 5                   | 4.88     | 2.81                           | 100.00 %       |
|  |                     |          |                                |                |
|  |                     |          |                                |                |
|  |                     |          |                                |                |
| TOTAL  |                     |          | 2.81                           | 100.00 %       |

# Contact us

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[www.greenly.earth](http://www.greenly.earth)