greenly

2025-09-17

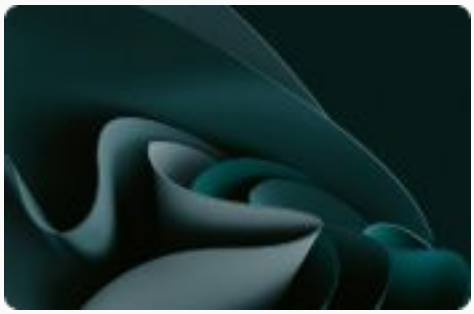
Lyreco LCA

# Life Cycle Assessment

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

2515159 (sold in FR)

# Summary





# 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).<br>The functional unit of this analysis is “1 set(s) of bound pages of paper for the purpose of writing”. |
| **Impact Indicator** | The impact is measured through the "IPCC 2013 GWP 100a" 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. |
| **Hypothesis** | The Product’s material composition is supplemented by secondary information, if necessary, as shown in the list below.<br>- paper: paper 99%<br>- binding: adhesive 1%<br>Manufacturing Processes and associated loss percentages are assumed based on materials in the product.<br>The electricity is based on the average in the country of manufacturing.<br>Transportation is based on the common routes between the country of manufacturing and the country of sale.<br>No replacements during the lifetime, therefore there are no emissions corresponding to the usage phase.<br>The End of Life is based on the average waste management process of the materials in the product. |

# Environmental Impact Assessment

| | |
|---|---|
| **System Boundaries** | The scope of this research includes the complete lifecycle of a notebook from raw material extraction to disposal options for each material, which is the cradle-to-grave perspective. |
| **Exclusions** | The impact of secondary packaging and writing utensils are excluded from this assessment. |

# 02

# Results

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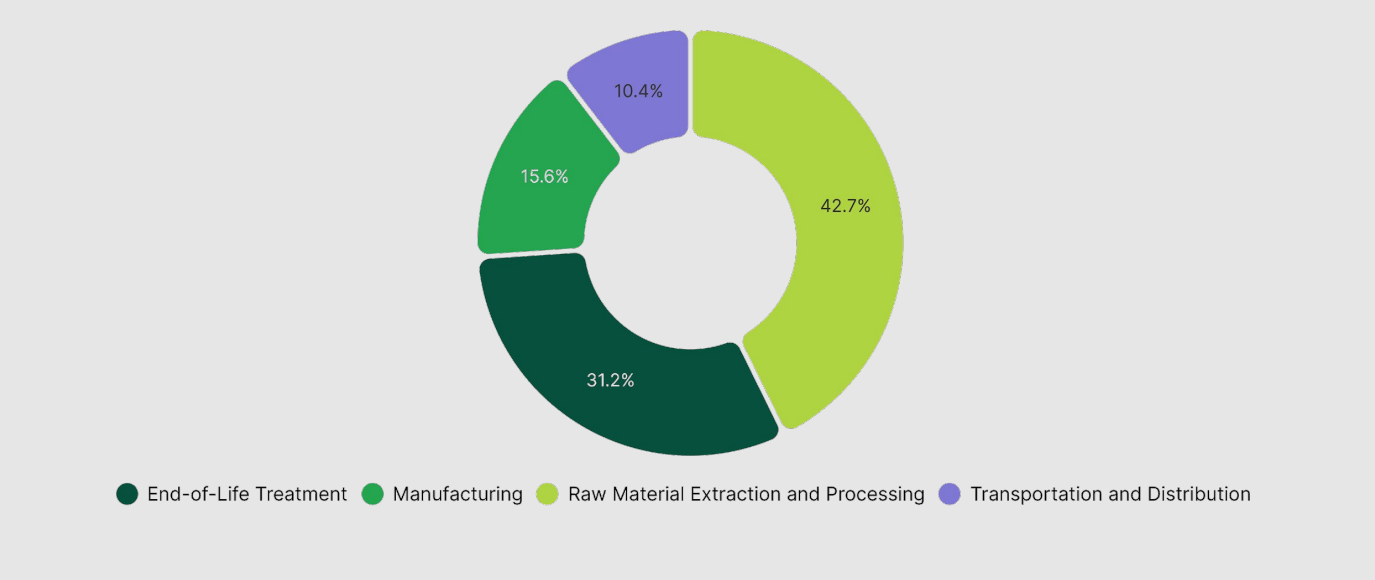
# Climate Change




| Step | Impact (g $CO_2$ eq) | Percentage (%) |
|---|---|---|
| Raw Material Extraction and Processing | 160.9 | 42.71 % |
| End-of-Life Treatment | 117.62 | 31.23 % |
| Manufacturing | 58.83 | 15.62 % |
| Transportation and Distribution | 39.33 | 10.44 % |
| | | |
| TOTAL | 376.68 | 100.00 % |

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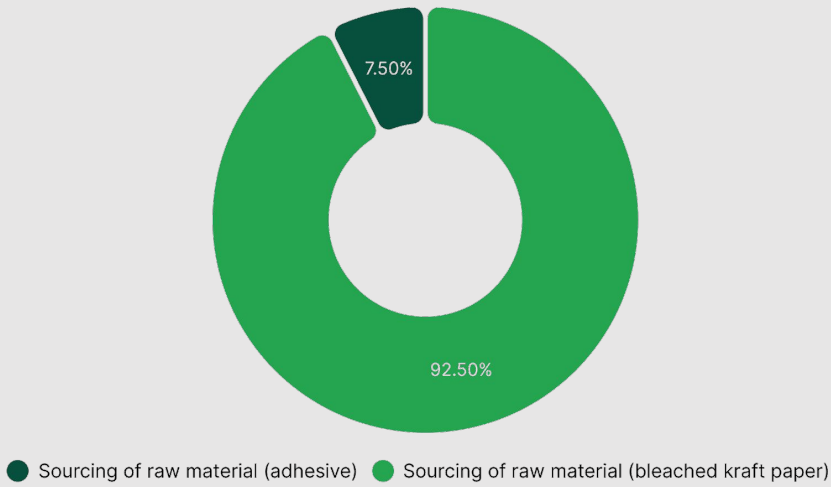
# Climate Change - Raw Material Extraction and Processing




| Activity | Emission Factor Num | Quantity | Impact (g $CO_2$ eq) | Percentage (%) |
|---|---|---|---|---|
| Sourcing of raw material (bleached kraft paper) | 2 | 0.3 | 148.83 | 92.50 % |
| Sourcing of raw material (adhesive) | 1 | 2.21 · 10^-3 | 12.07 | 7.50 % |
| | | | | |
| | | | | |
| | | | | |
| TOTAL | | | 160.9 | 100.00 % |

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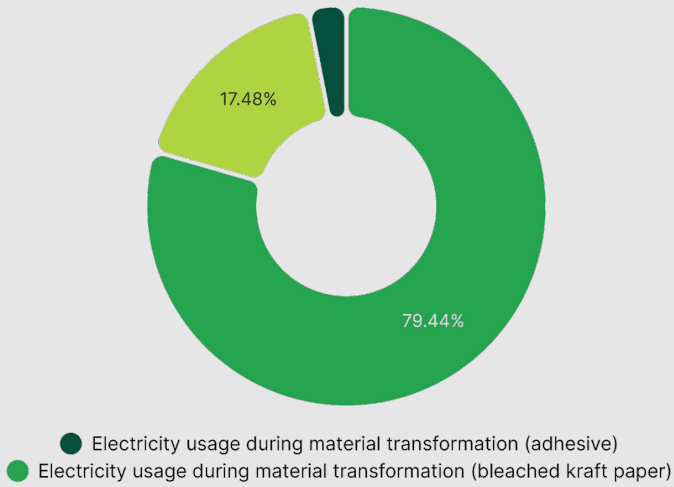
# Climate Change - Manufacturing




| Activity | Emission Factor Num | Quantity | Impact (g $CO_2$ eq) | Percentage (%) |
|---|---|---|---|---|
| Electricity usage during material transformation (bleached kraft paper) | 4 | 0.11 | 46.74 | 79.44 % |
| Natural gas usage during material transformation (bleached kraft paper) | 3 | 0.06 | 10.28 | 17.48 % |
| Electricity usage during material transformation (adhesive) | 4 | 4.11 · 10^-3 | 1.82 | 3.09 % |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| TOTAL | | | 58.83 | 100.00 % |

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# Climate Change - Transportation and Distribution


| Activity | Emission Factor Num | Quantity | Impact (g $CO_2$ eq) | Percentage (%) |
|---|---|---|---|---|
| Freight | 5 | 0.2 | 39.33 | 100.00 % |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| TOTAL | | | 39.33 | 100.00 % |

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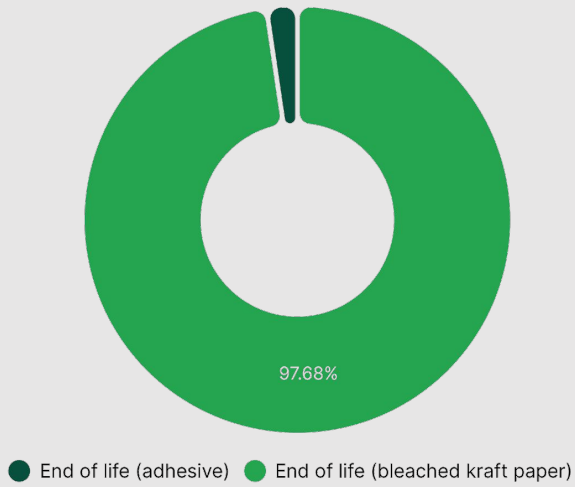
# Climate Change - End-of-Life Treatment




| Activity | Emission Factor Num | Quantity | Impact (g $CO_2$ eq) | Percentage (%) |
|---|---|---|---|---|
| End of life (bleached kraft paper) | 7 | 0.2 | 114.9 | 97.68 % |
| End of life (adhesive) | 6 | 2.01 · 10^-3 | 2.72 | 2.32 % |
| | | | | |
| | | | | |
| | | | | |
| TOTAL | | | 117.62 | 100.00 % |

# Contact us

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