

**greenly**

2025-09-17

Lyreco LCA

# Life Cycle Assessment

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

14139184 (sold in FR)

# Summary



**01** | Methodology



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# 01

## Methodology

# Environmental Impact Assessment

<p><b>Functional unit</b></p>	<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). The functional unit of this analysis is "16 set(s) of bound pages of paper for the purpose of writing".</p>
<p><b>Impact Indicator</b></p>	<p>The impact is measured through the "IPCC 2013 GWP 100a" method.</p>
<p><b>Electricity impact calculation method</b></p>	<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>
<p><b>Hypothesis</b></p>	<p>The Product's material composition is supplemented by secondary information, if necessary, as shown in the list below.</p> <ul style="list-style-type: none"> <li>- paper: paper 99%</li> <li>- binding: adhesive 1%</li> </ul> <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 notebook from raw material extraction to disposal options for each material, which is the cradle-to-grave perspective.

## Exclusions

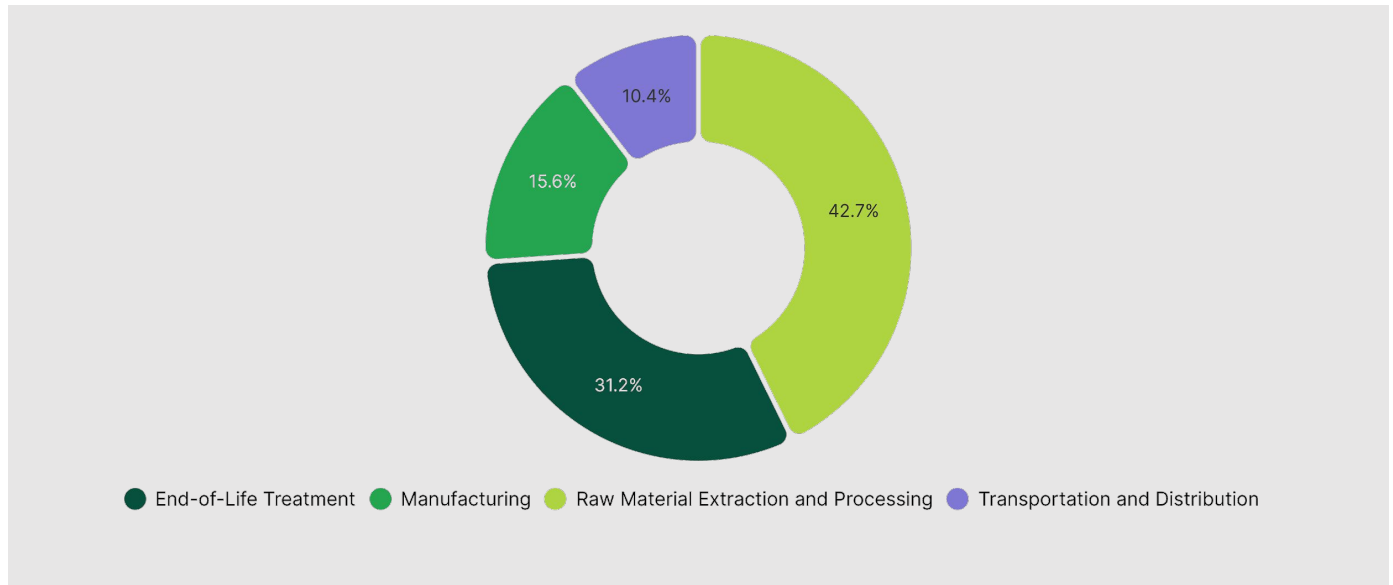
The impact of secondary packaging and writing utensils are excluded from this assessment.

# 02

## Results

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# Climate Change



Step	Impact (kg CO <sub>2</sub> eq)	Percentage (%)
Raw Material Extraction and Processing	1.01	42.71 %
End-of-Life Treatment	0.74	31.23 %
Manufacturing	0.37	15.62 %
Transportation and Distribution	0.25	10.44 %
<b>TOTAL</b>	<b>2.36</b>	<b>100.00 %</b>

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# Climate Change - Raw Material Extraction and Processing



● Sourcing of raw material (adhesive) ● Sourcing of raw material (bleached kraft paper)

Activity	Emission Factor Num	Quantity	Impact (kg CO <sub>2</sub> eq)	Percentage (%)
Sourcing of raw material (bleached kraft paper)	2	1.87	0.93	92.50 %
Sourcing of raw material (adhesive)	1	0.01	0.08	7.50 %

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TOTAL			1.01	100.00 %
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# Climate Change - Manufacturing



Activity	Emission Factor Num	Quantity	Impact (g CO <sub>2</sub> eq)	Percentage (%)
Electricity usage during material transformation (bleached kraft paper)	4	0.66	292.21	79.44 %
Natural gas usage during material transformation (bleached kraft paper)	3	0.36	64.29	17.48 %
Electricity usage during material transformation (adhesive)	4	0.03	11.36	3.09 %
TOTAL			367.85	100.00 %

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# Climate Change - Transportation and Distribution



Activity	Emission Factor Num	Quantity	Impact (g CO <sub>2</sub> eq)	Percentage (%)
Freight	5	1.26	245.89	100.00 %
TOTAL			245.89	100.00 %

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# Climate Change - End-of-Life Treatment



Activity	Emission Factor Num	Quantity	Impact (g CO <sub>2</sub> eq)	Percentage (%)
End of life (bleached kraft paper)	7	1.25	718.37	97.68 %
End of life (adhesive)	6	0.01	17.03	2.32 %
TOTAL			735.4	100.00 %

# Contact us

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