

**greenly**

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Lyreco LCA

# Life Cycle Assessment

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

2514987 (sold in FR)

# Summary



**01** | Methodology



**02** | Results

# 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 "6 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

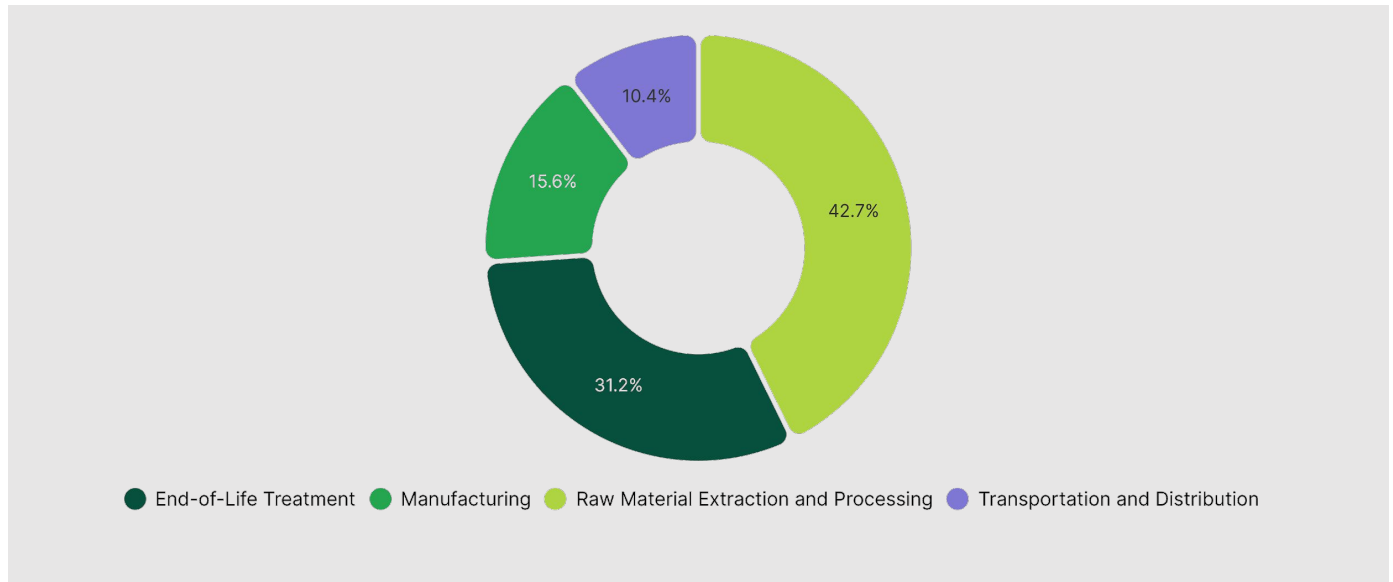
The impact of secondary packaging and writing utensils are excluded from this assessment.

# 02

## Results

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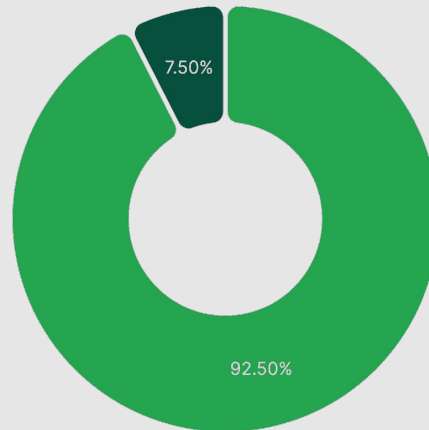
# Climate Change



Step	Impact (g CO <sub>2</sub> eq)	Percentage (%)
Raw Material Extraction and Processing	206.45	42.71 %
End-of-Life Treatment	150.92	31.23 %
Manufacturing	75.49	15.62 %
Transportation and Distribution	50.46	10.44 %
<b>TOTAL</b>	<b>483.33</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 (g CO <sub>2</sub> eq)	Percentage (%)
Sourcing of raw material (bleached kraft paper)	2	0.38	190.97	92.50 %
Sourcing of raw material (adhesive)	1	2.84 · 10 <sup>-3</sup>	15.48	7.50 %

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TOTAL			206.45	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	0.14	59.97	79.44 %
Natural gas usage during material transformation (bleached kraft paper)	3	0.07	13.19	17.48 %
Electricity usage during material transformation (adhesive)	4	5.27 · 10 <sup>-3</sup>	2.33	3.09 %
TOTAL			75.49	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	0.26	50.46	100.00 %
TOTAL			50.46	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	0.26	147.43	97.68 %
End of life (adhesive)	6	2.58 · 10 <sup>-3</sup>	3.5	2.32 %
TOTAL			150.92	100.00 %

# Contact us

Alexis Normand CEO

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