

**greenly**

2025-09-17

Lyreco LCA

# Life Cycle Assessment

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

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# 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 "1 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>	

# 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.

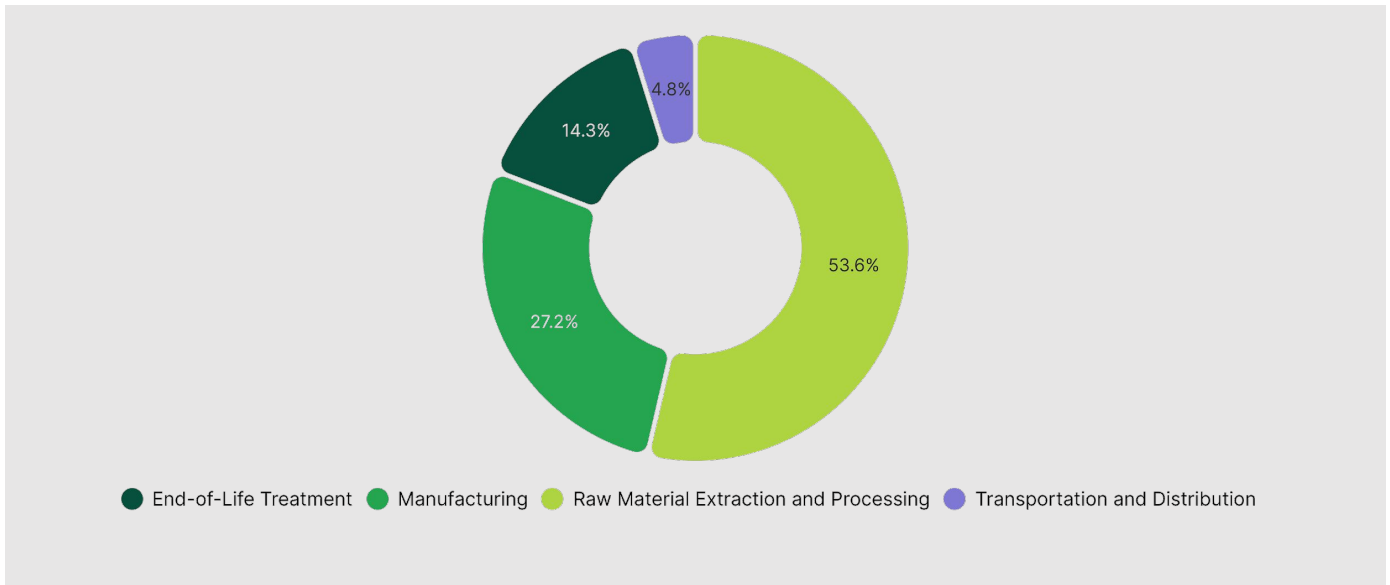
## Exclusions

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

# 02

## Results

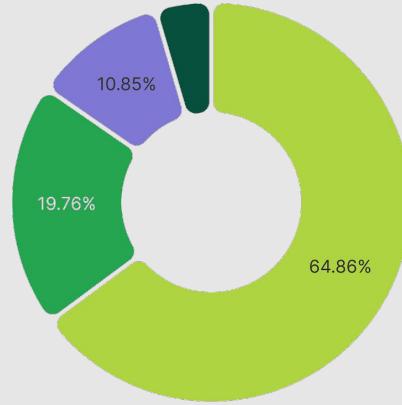
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**Climate Change**



Step	Impact (kg CO <sub>2</sub> eq)	Percentage (%)
Raw Material Extraction and Processing	0.87	53.63 %
Manufacturing	0.44	27.22 %
End-of-Life Treatment	0.23	14.32 %
Transportation and Distribution	0.08	4.82 %
<b>TOTAL</b>	<b>1.63</b>	<b>100.00 %</b>

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# Climate Change - Raw Material Extraction and Processing

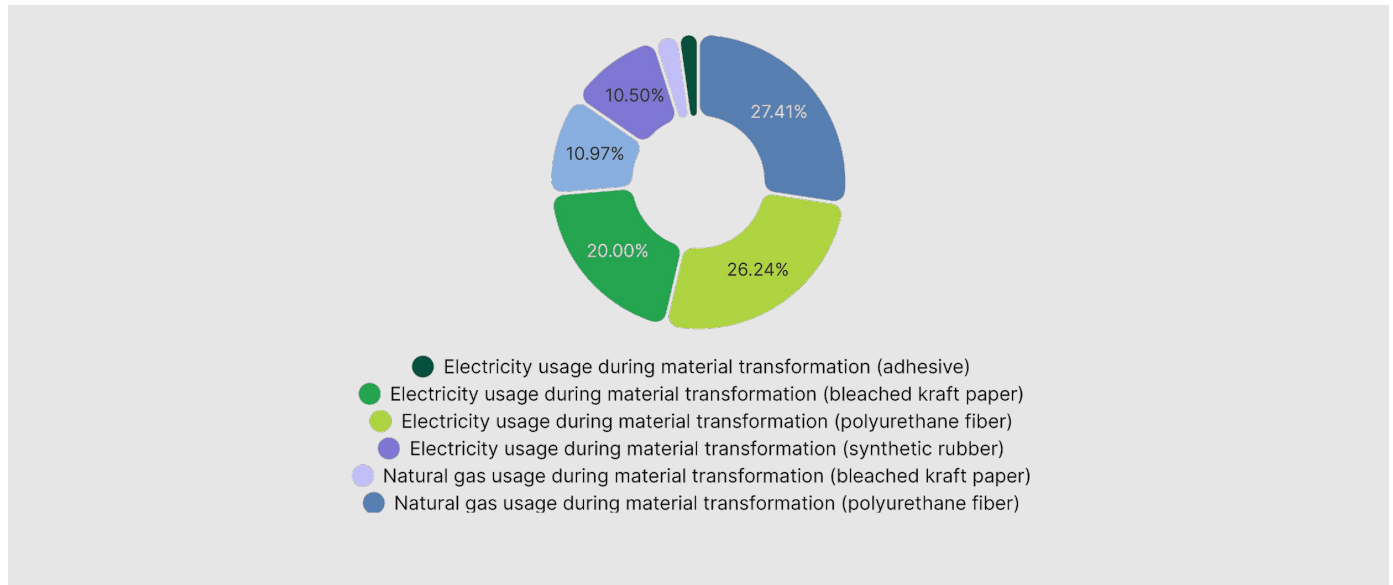


- Sourcing of raw material (adhesive)
- Sourcing of raw material (bleached kraft paper)
- Sourcing of raw material (polyurethane fiber)
- Sourcing of raw material (synthetic rubber)

Activity	Emission Factor Num	Quantity	Impact (g CO <sub>2</sub> eq)	Percentage (%)
Sourcing of raw material (polyurethane fiber)	3	0.09	566.28	64.86 %
Sourcing of raw material (bleached kraft paper)	4	0.35	172.48	19.76 %
Sourcing of raw material (synthetic rubber)	2	0.03	94.73	10.85 %
Sourcing of raw material (adhesive)	1	7.26 · 10 <sup>-3</sup>	39.56	4.53 %
TOTAL			873.05	100.00 %

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# Climate Change - Manufacturing

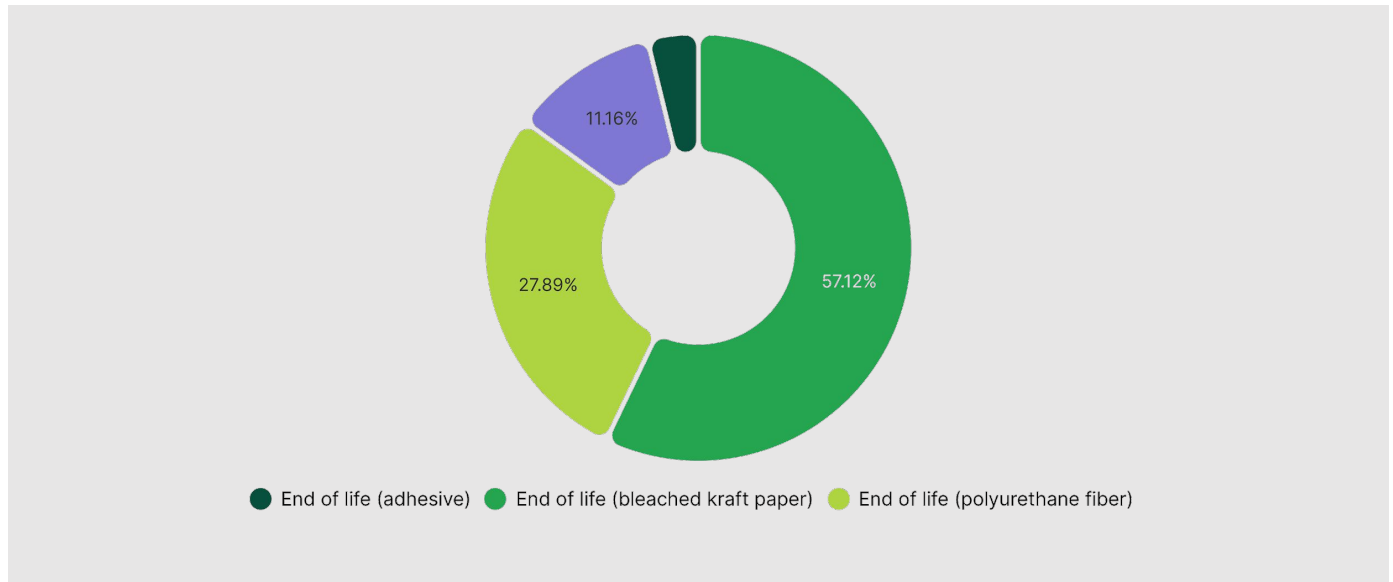


Activity	Emission Factor Num	Quantity	Impact (g CO <sub>2</sub> eq)	Percentage (%)
Natural gas usage during material transformation (polyurethane fiber)	6	0.67	121.48	27.41 %
Electricity usage during material transformation (polyurethane fiber)	5	0.16	116.28	26.24 %
Electricity usage during material transformation (bleached kraft paper)	5	0.12	88.63	20.00 %
Natural gas usage during material transformation (synthetic rubber)	6	0.27	48.59	10.97 %
Electricity usage during material transformation (synthetic rubber)	5	0.06	46.51	10.50 %
Natural gas usage during material transformation (bleached kraft paper)	6	0.07	11.92	2.69 %
Electricity usage during material transformation (adhesive)	5	0.01	9.74	2.20 %
<b>TOTAL</b>			<b>443.16</b>	<b>100.00 %</b>



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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)	9	0.23	133.16	57.12 %
End of life (polyurethane fiber)	8	0.07	65.01	27.89 %
End of life (synthetic rubber)	8	0.03	26.01	11.16 %
End of life (adhesive)	10	6.6 · 10 <sup>-3</sup>	8.93	3.83 %
TOTAL			233.11	100.00 %

# Contact us

Alexis Normand CEO

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