



2025-09-17

Lyreco LCA

Life Cycle Assessment

The methodology in this report is based on ISO 14040

1085509 (sold in WI)

Summary



01 | Methodology



02 | Results

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).
The functional unit of this analysis is "5 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

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.

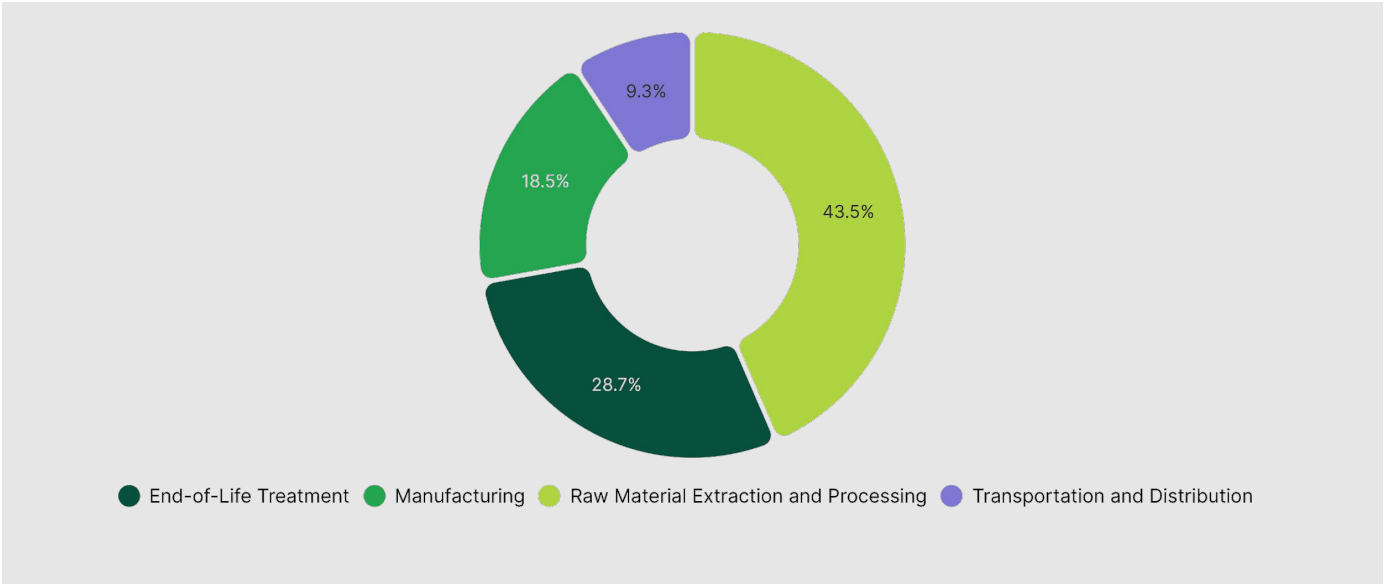
Exclusions

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

02

Results

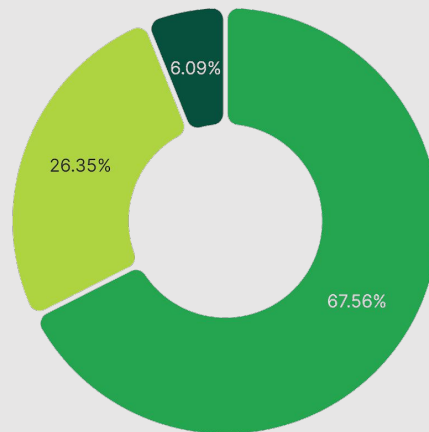
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 Climate Change



Step	Impact (g CO ₂ eq)	Percentage (%)
Raw Material Extraction and Processing	40.33	43.52 %
End-of-Life Treatment	26.57	28.67 %
Manufacturing	17.15	18.50 %
Transportation and Distribution	8.63	9.31 %
TOTAL	92.68	100.00 %

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Climate Change - Raw Material Extraction and Processing

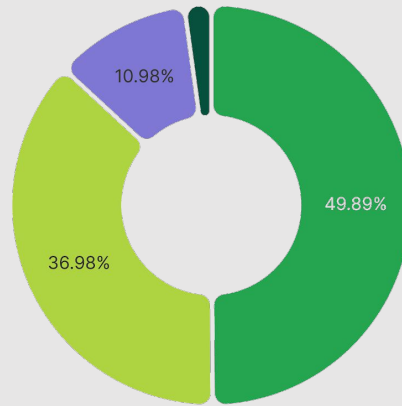


● Sourcing of raw material (adhesive) ● Sourcing of raw material (bleached kraft paper) ● Sourcing of raw material (PVC)

Activity	Emission Factor Num	Quantity	Impact (g CO ₂ eq)	Percentage (%)
Sourcing of raw material (bleached kraft paper)	1	0.05	27.25	67.56 %
Sourcing of raw material (PVC)	2	$4.51 \cdot 10^{-3}$	10.63	26.35 %
Sourcing of raw material (adhesive)	3	$4.51 \cdot 10^{-4}$	2.46	6.09 %
TOTAL			40.33	100.00 %

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Climate Change - Manufacturing



- Electricity usage during material transformation (adhesive)
- Electricity usage during material transformation (bleached kraft paper)

Activity	Emission Factor Num	Quantity	Impact (g CO ₂ eq)	Percentage (%)
Electricity usage during material transformation (bleached kraft paper)	5	0.02	8.56	49.89 %
Electricity usage during material transformation (PVC)	5	0.01	6.34	36.98 %
Natural gas usage during material transformation (bleached kraft paper)	4	0.01	1.88	10.98 %
Electricity usage during material transformation (adhesive)	5	$8.37 \cdot 10^{-4}$	0.37	2.16 %

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TOTAL			17.15	100.00 %
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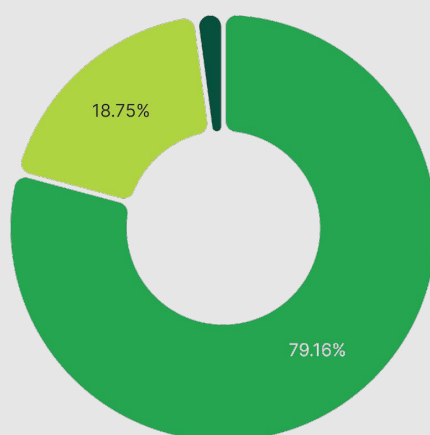
Climate Change - Transportation and Distribution



Activity	Emission Factor Num	Quantity	Impact (g CO ₂ eq)	Percentage (%)
Freight	6	0.04	8.63	100.00 %
TOTAL			8.63	100.00 %

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Climate Change - End-of-Life Treatment



● End of life (adhesive) ● End of life (bleached kraft paper) ● End of life (PVC)

Activity	Emission Factor Num	Quantity	Impact (g CO ₂ eq)	Percentage (%)
End of life (bleached kraft paper)	7	0.04	21.03	79.16 %
End of life (PVC)	8	$4.1 \cdot 10^{-3}$	4.98	18.75 %
End of life (adhesive)	9	$4.1 \cdot 10^{-4}$	0.55	2.09 %
TOTAL			26.57	100.00 %

Contact us

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