



2025-09-17

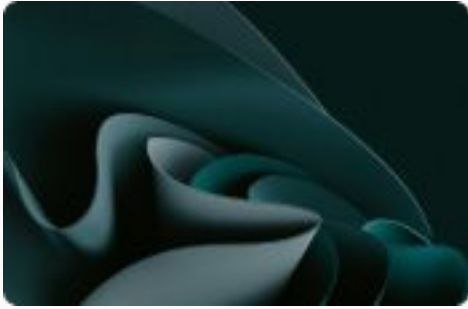
Lyreco LCA

# Life Cycle Assessment

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

7150265 (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 "6 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.

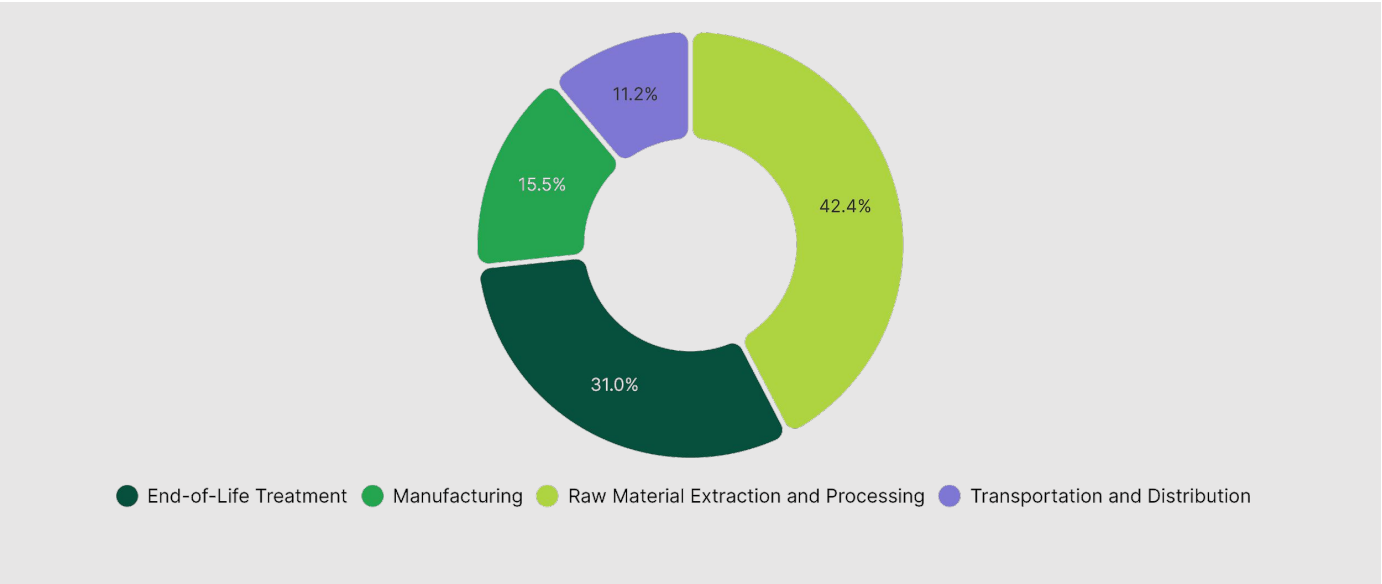
## Exclusions

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

# 02

## Results

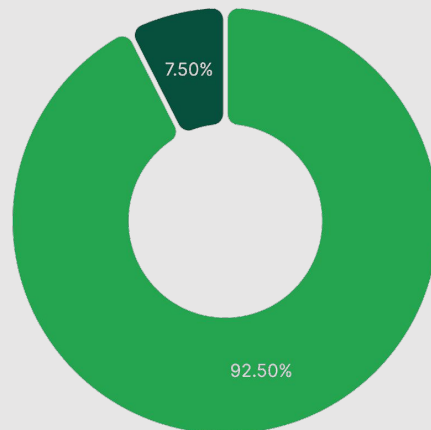
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 Climate Change



| Step                                   | Impact<br>(g CO <sub>2</sub> eq) | Percentage<br>(%) |
|----------------------------------------|----------------------------------|-------------------|
| Raw Material Extraction and Processing | 200.59                           | 42.37 %           |
| End-of-Life Treatment                  | 146.64                           | 30.98 %           |
| Manufacturing                          | 73.35                            | 15.49 %           |
| Transportation and Distribution        | 52.81                            | 11.16 %           |
|                                        |                                  |                   |
| TOTAL                                  | 473.38                           | 100.00 %          |

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# Climate Change - Raw Material Extraction and Processing

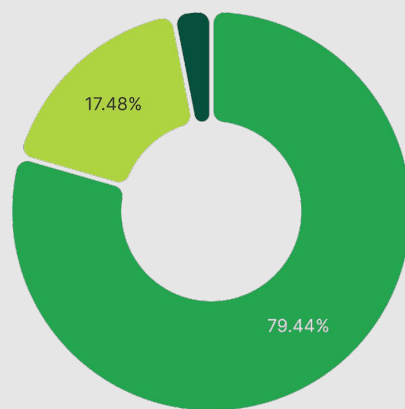


● Sourcing of raw material (adhesive) ● Sourcing of raw material (bleached kraft paper)

| Activity                                        | Emission Factor Num | Quantity     | Impact<br>(g CO <sub>2</sub> eq) | Percentage (%) |
|-------------------------------------------------|---------------------|--------------|----------------------------------|----------------|
| Sourcing of raw material (bleached kraft paper) | 1                   | 0.37         | 185.54                           | 92.50 %        |
| Sourcing of raw material (adhesive)             | 2                   | 2.76 · 10^-3 | 15.04                            | 7.50 %         |
|                                                 |                     |              |                                  |                |
|                                                 |                     |              |                                  |                |
|                                                 |                     |              |                                  |                |
| TOTAL                                           |                     |              | 200.59                           | 100.00 %       |

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# Climate Change - Manufacturing

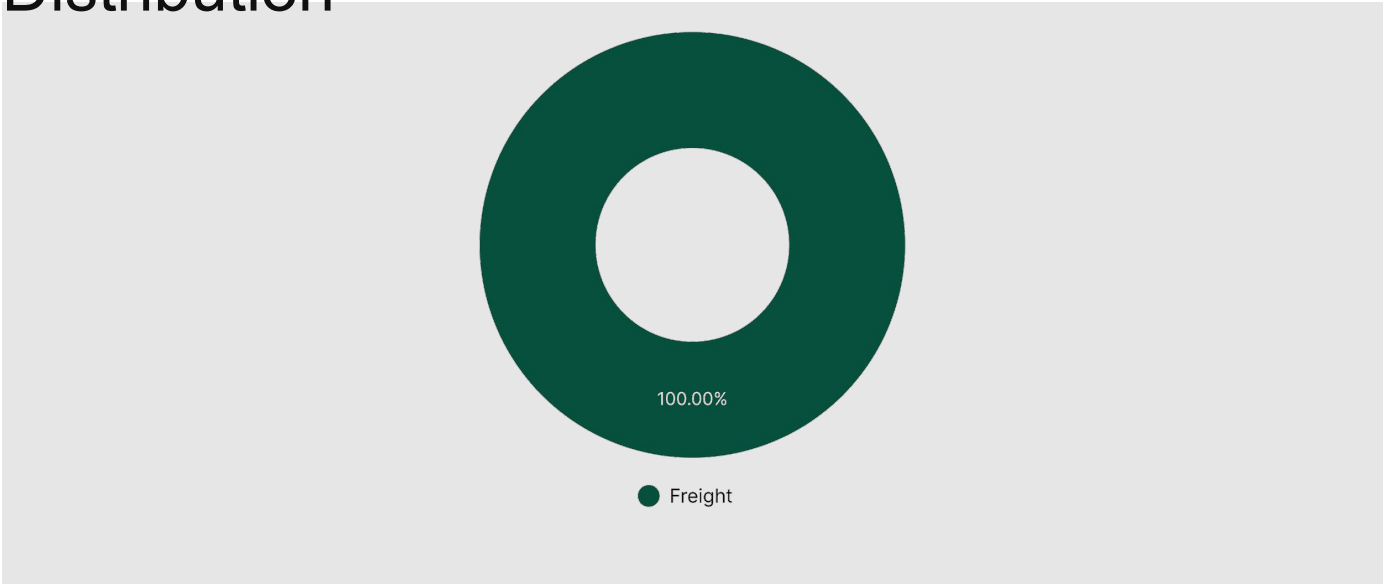


- Electricity usage during material transformation (adhesive)
- Electricity usage during material transformation (bleached kraft paper)

| Activity                                                                | Emission Factor Num | Quantity             | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|-------------------------------------------------------------------------|---------------------|----------------------|-------------------------------|----------------|
| Electricity usage during material transformation (bleached kraft paper) | 3                   | 0.13                 | 58.26                         | 79.44 %        |
| Natural gas usage during material transformation (bleached kraft paper) | 4                   | 0.07                 | 12.82                         | 17.48 %        |
| Electricity usage during material transformation (adhesive)             | 3                   | $5.12 \cdot 10^{-3}$ | 2.26                          | 3.09 %         |
|                                                                         |                     |                      |                               |                |
|                                                                         |                     |                      |                               |                |
|                                                                         |                     |                      |                               |                |
| TOTAL                                                                   |                     |                      | 73.35                         | 100.00 %       |

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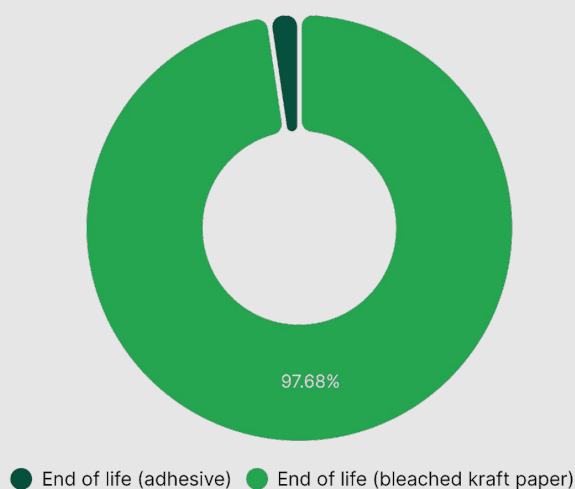
# Climate Change - Transportation and Distribution



| Activity | Emission Factor Num | Quantity | Impact (g CO <sub>2</sub> eq) | Percentage (%) |
|----------|---------------------|----------|-------------------------------|----------------|
| Freight  | 5                   | 0.25     | 52.81                         | 100.00 %       |
|          |                     |          |                               |                |
|          |                     |          |                               |                |
|          |                     |          |                               |                |
|          |                     |          |                               |                |
| TOTAL    |                     |          | 52.81                         | 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                   | 0.25                   | 143.24                        | 97.68 %        |
| End of life (adhesive)             | 6                   | 2.5 · 10 <sup>-3</sup> | 3.4                           | 2.32 %         |

|       |        |          |
|-------|--------|----------|
| TOTAL | 146.64 | 100.00 % |
|-------|--------|----------|

# Contact us

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[www.greenly.earth](http://www.greenly.earth)