

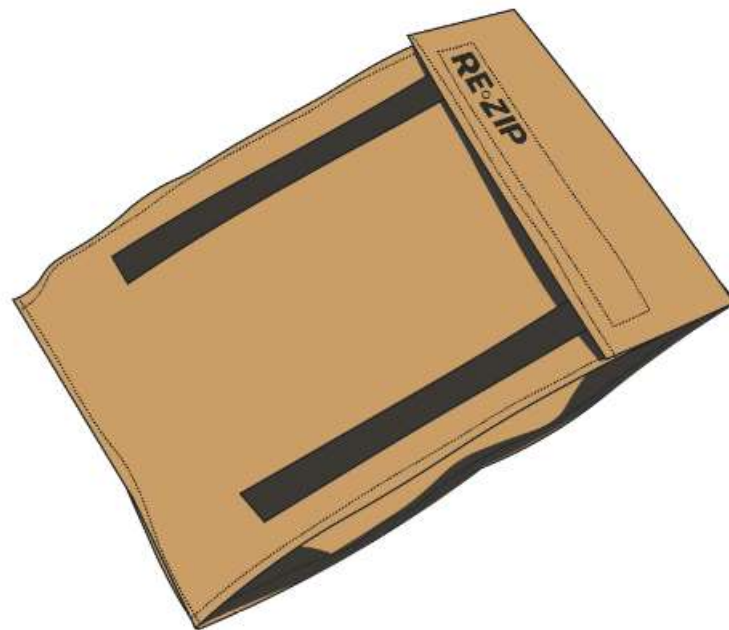
RE^{♻️}ZIP

Comparative Life Cycle Assessment (LCA)

RE-ZIP #3 bag and RE-ZIP #7 box against conventional mailing packaging alternatives

Summary Report

June 2021



Summary Report

This summary report compiles the main results from the LCA Background Report. The LCA Background Report is available from RE-ZIP management by request.

RE-ZIP is a small Danish enterprise providing circular packaging solutions for mailing purposes, which can be re-used up to 30 times.

RE-ZIP has commissioned a comparative life cycle assessment (LCA) study to 1) compare the environmental impacts of RE-ZIP #3 bag with single-use mailing bags, and 2) compare the environmental impacts of RE-ZIP #7 box with conventional mailing boxes. The purpose is to communicate the environmental savings to consumers, with a specific focus on GHG emissions and water consumption. In addition, RE-ZIP also uses the result to identify the environmental hotspots in the life cycle of RE-ZIP products.

The LCA Background Report has been compiled in accordance with the International Reference Life Cycle Data System (ILCD) Handbook and in alignment with ISO 14040 and 14044, with the exceptions that a critical review has not been performed by another third-party assurance provider and that uncertainty analysis has not been performed.

The comparisons are carried out based on the main function of the products, which is to contain and protect small-size goods during transport and storage. The functional unit for RE-ZIP #3 bag and corresponding single-use mailing bags is to contain and protect goods that are of maximum size 30cm (Length) x 45cm (Width) x 10cm (Height) and to keep its original condition during transport and storage for 10 deliveries. The functional unit of RE-ZIP #7 bag and corresponding conventional mailing boxes is to contain and protect goods that are of maximum volume of 4 liters and to keep its original condition during transport and storage for 10 deliveries.

The reference flows are as follows:

RE-ZIP #3 bag: One bag

Conventional single-use mailing bag: 10 conventional single-use mailing bags of type ‘large LDPE bag’¹

RE-ZIP #7 box: One box

Conventional mailing boxes: 10 conventional mailing boxes of type ‘Mailing Box 50’²

The system boundaries include all life stages from cradle to grave, including raw material extraction and production, use stage, and end of life treatment. While the primary data for RE-ZIP products are obtained from the company, the data for conventional mailing packaging are mainly obtained from secondary sources.

The LCA results for GHG emissions and water consumption are presented for one RE-ZIP #3 bag (table S1), one RE-ZIP #7 box (table S2), and two conventional mailing packaging (table S3). The comparative LCA results for GHG emissions and waste consumption between RE-ZIP packaging and conventional mailing packaging are illustrated in table S4 and table S5.

¹ <https://www.jakodan.com/bags/mailling-bags.html>

² <https://www.jakodan.com/packaging/maillingboxes.html>

Table S1 LCA environmental impacts of one RE-ZIP #3 bag in use 10 times

Impacts	Total	Production	Sorting and reuse	Transport
GHG emissions (gCO₂eq)	426	230	4	192
Water consumption (liter)	8	7	1	0

Table S2 LCA environmental impacts of one RE-ZIP #7 box in use 10 times

Impacts	Total	Production	Sorting and reuse	Transport
GHG emissions (gCO₂eq)	273	98	4	170
Water consumption (liter)	2	1	1	0

Table S3 LCA environmental impacts of conventional mailing packaging

Impacts	One single-use mailing bag	One conventional mailing box
GHG emissions (gCO₂eq)	74	209
Water consumption (liter)	0.7	2

Table S4 Savings: RE-ZIP #3 bag vs. single-use mailing bag in use 10 times

Impacts	RE-ZIP #3 bag	10 single-use mailing bags	Absolute savings	Relative savings
GHG emissions (gCO₂eq)	426	739	313	42%
Water consumption (liter)	8	7	-1	-14%

Table S5 Savings: Re-Zip #7 box vs. conventional mailing box in use 10 times

Impacts	RE-ZIP #7 box	Conventional mailing box	Absolute savings	Relative savings
GHG emissions (gCO₂eq)	273	2,086	1,813	87%
Water consumption (liter)	2	20	18	89%

The result shows that for the full life cycle, a RE-ZIP #3 bag used 10 times saves 313 grams CO₂eq (42%) in comparison with 10 single-use mailing bags. But it also leads to slightly higher water consumption. A RE-ZIP #7 box used 10 times saves 1,813 grams CO₂eq (87%) in comparison with conventional mailing boxes. It also outperforms the conventional mailing packaging in water consumption. This is mainly because RE-ZIP products are used multiple times (i.e. fewer resources are needed to fulfil the same function) that they have a smaller environmental footprint. More details on the LCA environmental impacts and savings are in the LCA Background Report.

While RE-ZIP expects its #3 bag to be used on average 10 times, the bag has been designed and tested for use 30 times. We have conducted a comparative LCA, comparing the RE-ZIP #3 bag in use 30 times with single use mailing bags. The LCA impacts of one RE-ZIP #3 bag with 30 times use is presented in table S6. The comparative LCA results between a RE-ZIP #3 bag in use 30 times and a single use mailing bag is presented in table S7. It shows that 67% of GHG emissions and 54% of water consumption can be saved when the RE-ZIP #3 bag is used 30 times.

Table S6 LCA environmental impacts of one RE-ZIP #3 bag in use 30 times

Impacts	Total	Production	Sorting and reuse	Transport
GHG emissions (gCO₂eq)	721	230	12	479
Water consumption (liter)	10	7	2	1

Table S7 Savings: RE-ZIP #3 bag in use 30 times vs. single-use mailing bags

Impacts	RE-ZIP #3 bag	30 single-use mailing bags	Absolute savings	Relative savings
GHG emissions (gCO₂eq)	721	2,218	1,497	67%
Water consumption (liter)	10	22	12	54%

Statement by Management

RE-ZIP ApS Management has today considered and approved the comparative Life Cycle Assessment (LCA) Summary Report for RE-ZIP #3 bag and RE-ZIP #7 box.

The LCA Background Report has been prepared in accordance with the International Reference Life Cycle Data System (ILCD) Handbook and in alignment with ISO 14040 and 14044, with the exception that a critical review has not been performed by another third-party assurance provider, and that uncertainty analysis has not been performed.

This report is an accurate summary of the main results of the LCA Background Report.

In my opinion, the LCA Background Report is in accordance with International Reference Life Cycle Data System (ILCD) Handbook, and in alignment with ISO 14040 and 14044, with the exception noted above, and is free from material misstatement and omissions, whether due to fraud or error, including the accuracy and completeness of the data, sources and assumptions used.

Aarhus, 11 June 2021

Management

Bo Bach Boddum

CEO

Independent Auditor's Compilation Report on LCA Summary Report

To Management and other stakeholders of RE-ZIP ApS

We have been asked to compile the Comparative Life Cycle Assessment (LCA) Summary Report for RE-ZIP #3 bag and #7 box against other mailing packaging, hereafter called 'the LCA Summary Report'. Each LCA compares the environmental impacts of one of RE-ZIP's products against a conventional packaging solution. The LCA Summary Report has been compiled based on the information we have received from Management of RE-ZIP ApS and is a summary of the 'LCA Background Report'. The LCA Summary Report may be used for the purpose of general market communication.

We performed this compilation engagement in accordance with ISRS 4410, Compilation Engagements.

We have applied our expertise in non-financial reporting to assist Management in the preparation and presentation of the LCA Background Report in accordance with the International Reference Life Cycle Data System (ILCD) Handbook and in alignment with ISO 14040 and 14044, with the exception that a critical review has not been performed by another third-party assurance provider, and that uncertainty analysis has not been performed. We have complied with relevant provisions of the Danish Public Accountants Act and FSR - Danish Auditors' Code of Conduct for professional accountants, including principles of integrity, objectivity, professional competence and due care.

The LCA Summary Report is a summary of the LCA Background Report, and the accuracy and completeness of the information used to compile the LCA Summary Report and the LCA Background Report are Management's responsibility.

Since a compilation engagement is not an assurance engagement, we are not required to verify the accuracy or completeness of the information Management provided to us to compile the LCA Summary Report and the LCA Background Report. Accordingly, we do not express an audit opinion or a review conclusion about the LCA Summary Report or the LCA Background Report.

Our report is solely for the purpose set forth in the first paragraph of this Compilation Report and for your information and is not to be used for any other purpose.

Copenhagen, 11 June 2021

Deloitte

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