



Frequently Asked Questions

Corrugated Packaging vs. Reusable Plastic Containers Life Cycle Assessment

This FAQ addresses common questions about the 2025 comparative life cycle assessment study examining the environmental impacts of corrugated packaging versus reusable plastic containers (RPCs).

About Life Cycle Assessments

What is a life cycle assessment?

A life cycle assessment (LCA) is a globally recognized scientific method for measuring environmental impacts throughout a product's entire life. It examines everything from raw material extraction and manufacturing to transportation, use, and end-of-life disposal or recycling.

Why are LCAs important for packaging decisions?

LCAs provide objective, data-driven insights that help businesses make informed sustainability decisions. They reveal the true environmental costs of different packaging options, going beyond surface-level assumptions to examine comprehensive impacts.

About This Study

What does this study compare?

This study compares the environmental performance of corrugated cardboard packaging against reusable plastic containers (RPCs) across eight different environmental impact categories, including climate change, energy use, and water consumption.

Who conducted this research?

Anthesis Group, an independent sustainability consulting firm with over 1,200 experts worldwide, conducted the study on behalf of the Corrugated Packaging Alliance. The research follows international standards (ISO 14040/14044) and underwent external peer review.

How is this study different from previous research?

This 2025 study builds on earlier research by incorporating updated data from a comprehensive 2023 assessment of the corrugated industry. It provides more detailed quantification of environmental differences and offers clearer guidance for sustainability decisions.

Study Results

What are the key findings?

The study found that corrugated packaging outperforms RPCs in four of eight environmental categories, with particularly strong advantages in:

- Greenhouse gas emissions
- Respiratory health effects
- Non-renewable energy use
- Eutrophication (creation of algae in waterways)

Does corrugated perform better overall?

Yes. While both packaging systems have strengths and weaknesses, corrugated shows the most substantial environmental benefits overall when taking into account issues that are critical to retailers, including reducing greenhouse gas emissions and energy use.

Why are the results mixed across different categories?

Different packaging systems excel in different areas due to their unique materials and processes. RPCs show advantages in water use and acidification, while corrugated excels in climate-related impacts and energy efficiency. The mixed results reflect the complexity of environmental trade-offs.

What about areas where RPCs perform better?

RPCs do show advantages in specific areas like water usage and acidification. However, corrugated's superior performance in key climate-related metrics, which are priority concerns for most retailers, makes it the more impactful choice for overall sustainability.

Data and Methodology

Where did the RPC data come from?

The study used data from a 2017 life cycle assessment conducted by RPC manufacturer IFCO for North American markets. While IFCO has published newer data (2024) for European operations, no updated North American data is publicly available. The researchers used conservative assumptions that favor RPCs to ensure fair comparison.

Is this study reliable despite industry funding?

Yes. The study maintains objectivity through several safeguards:

- Independent research firm (Anthesis Group) conducted the analysis
- Adherence to international LCA standards (ISO 14040/14044)
- External peer review validation
- Conservative methodology that favors RPCs where data was uncertain
- Transparent disclosure of all data sources and assumptions

How current is the data used?

The corrugated data comes from a comprehensive 2023 industry assessment, while RPC data is from 2017. The researchers acknowledged this limitation and applied conservative assumptions to account for any potential improvements in RPC performance.

Industry Response and Implications

What is the corrugated industry doing about water use?

The corrugated industry recognizes water use as an important environmental factor. Sustainable water management is a key goal in the American Forest & Paper Association's [Better Practices, Better Planet 2030](#) initiative.

What does this mean for businesses choosing packaging?

Businesses focused on reducing greenhouse gas emissions, energy consumption, and transportation impacts should consider corrugated packaging as the more sustainable choice. The study provides concrete data to support sustainability goals while potentially offering cost advantages through lighter weight and supply chain efficiencies.

How do transportation impacts affect the comparison?

Container weight significantly impacts both environmental performance and costs. RPCs weigh up to four times more than corrugated boxes, increasing freight costs and greenhouse gas emissions. Corrugated's lighter weight allows more products per truck load and shorter supply chains through local sourcing.

Additional Information

Why did the Corrugated Packaging Alliance change research firms from the 2019 study?

Anthesis Group conducted the most recent comprehensive life cycle assessment of the corrugated industry in 2020. Since this comparative study relies heavily on that data, Anthesis was the logical choice to ensure consistency and accuracy in the methodology.

Where can I find more detailed information?

For complete study details and methodology, visit: fibrebox.org/life-cycle-assessments

For sustainability trends in retail, see this [2023 Deloitte analysis](#) on retailer sustainability priorities.

This FAQ is designed to provide clear, factual information about the comparative life cycle assessment. For specific business applications or detailed technical questions, please consult the full study report.