

Clysar® Sustainable Shrink Packaging Report

This executive briefing reports the sustainable activities that are most important to our community, employees and consumers. As a leader in the shrink packaging market, we deliver end-to-end solutions that meet market criteria for performance and cost while providing responsible alternatives for the circular economy*.



Driving Solutions to Meet Our Stakeholders' Sustainability Goals

Clysar continues to invest in products, operations and strategies that support the goals and environmental commitments of leading companies and their brands, as tracked by the Sustainable Packaging Coalition (SPC).

Design for Recovery/Recyclability

Clysar is partnering with the **How2Recycle**® organization to categorize Clysar® shrink films, and determine which films can be dropped off at local retail stores where plastic is collected for recycling.

How2Recycle is a standardized labeling system that clearly communicates recycling instructions to the public, including which packages can be collected outside of curbside recycling through the Store Drop-Off stream.

Currently, polyethylene shrink films are technically considered "recyclable" through industrial processes, but consumers are unable to recycle these films through curbside collection. However, our films do offer the potential to be reclaimed through Store Drop-Off collection.

How2Recycle Shrink Film Recovery Process

Clysar provides our CPG customers with information and documentation on a pre-approved film.



CPGs work directly with **How2Recycle** to apply for the **How2Recycle** label.



How2Recycle issues the appropriate **How2Recycle** label directly to the brand owner.



Icon is placed on brand packaging to show consumers "how to recycle."



Consumers recycle shrink film with Store Drop-Off label at their local Store Drop-Off collection point.



Film is collected and upcycled into other products.



*A circular economy refers to the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

Eliminate Unfavorable Materials

Polyolefin shrink films from Clysar offer a highly functional, chemically inert replacement to PVC shrink film, a long-standing staple in the shrink packaging industry. PVC films contain chloride, a toxic substance. These films emit corrosive fumes in the manufacturing process, and deteriorate to harmful components when landfilled.

Leading consumer goods companies and retailers across the country have committed to eliminate PVC in all packaging by 2020-2021, as stated in company sustainability goals shared with the Sustainable Packaging Coalition.

Improve Volumetric & Material Efficiency

We work to optimize end-to-end space cube efficiency of our films during distribution and transport to our customers' operations, as well as reducing the material volume and weight of their packaged materials. This allows fewer truckloads to transport products through the package life cycle, reducing greenhouse gases and lowering fuel consumption.

The Anatomy of Our Source-Reduced Shrink Packaging

Clysar's own product packaging drives source reduction with end-to-end sustainability:

- Cores and end-boards are made of 100% recycled material.
- Shipping cartons feature 35% post-consumer recycled material, 65% sustainably sourced renewable virgin material.
- Core plugs and pallets are fully recyclable.
- Materials are domestically sourced with sustainable chains of custody.



Innovative "outside the box" packaging solutions are available for high-volume users. Shown here, our efficiency packs provide significant source reduction with minimal corrugate—ideal for long production runs.



Reduce Manufacturing Waste to Landfill

We are proud to report that Clysar manages all production processes so that there is **zero waste** going to a landfill. The majority of Clysar's manufacturing waste is reprocessed internally. Any remaining manufacturing waste is sold to customers who utilize the product within their process.

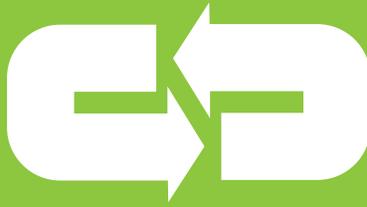
Provide Responsible Materials Sourcing

Clysar meets corporate mandates for packaging that is produced responsibly, with a clear, traceable chain of custody. Clysar is the **ONLY** shrink film produced exclusively in the United States, using domestically sourced resin and other materials.

- Films are produced safely and responsibly under highly regulated FDA, EPA and OSHA guidelines.
- Our films are fair trade products: manufactured with concern for worker well-being, safety and income stability.
- Domestic vs. offshore sourcing reduces the amount of CO² emitted for the transportation of goods via airplane or ocean liner.



REDUCE



REUSE



RECYCLE

Operating Responsibly – Clysar’s Sustainability Focus

Clysar remains committed to responsibility in the manufacture of shrink film that protects our employees, our community and our environment, now and in the future. We are focused on continuous improvement of our overall production, supply chain and waste management process.

Through our areas of focus, we will:

- Offer films that are beneficial, safe and healthy for individuals and communities.
- Employ diligent processes and procedures to ensure operational waste is reused within the production process.
- Identify ongoing energy project identification to reduce energy consumption within our production process.
- Use freight solutions that maximize fuel efficiencies in the delivery of our product.
- Conduct continuous packaging evaluation to drive source reduction within our own product packaging.
- Adhere to strict non-recyclable waste management processes that ensure virtually zero product waste disposed of in a landfill.

Guided by our values, Clysar will continue to drive new initiatives to ensure that the sustainability goals of our business, our customers and the community are met.

Read the Clysar Sustainability Statement at <https://www.clysar.com/sustainability>.

“We don’t see a world without plastic. We focus on a world without packaging waste in our lands and oceans.”

- *New Plastics Economy*

Clysar® Shrink Film: A Sustainable Packaging Option

Certain plastics—such as straws, water bottles and beverage rings—are creating global challenges, from ensnaring wildlife to generating marine debris. This often causes all plastics to be painted with a broad brush as undesirable.

Yet plastics like Clysar® shrink film clearly meet the triple bottom line sustainability needs of planet, people and profit.

At Clysar, we have a vision for a plastics system that keeps plastics in the economy and out of the environment. Our shrink film is extremely efficient, **typically only 1%-2% of all packaging material volume**. This offers the lowest product-to-package ratio of almost any packaging medium.

Pound for pound, Clysar® shrink film delivers oversize benefits of product protection, source reduction, extended shelf life, cost effectiveness and consumer appeal that are difficult to match with alternative packaging materials.

Our films offer the potential to be recovered into recycling streams; or used as a clean industrial fuel. Although there is no current infrastructure for curbside recycling, efforts are under way to support a system to recover and repurpose our films.

We have worked with both startup entrepreneurs and the world’s leading brands to craft sustainable packaging with quantifiable economic and environmental advantages. Used tactically as part of a total packaging program, shrink film can meet critical forward-facing environmental goals.

Strategic Shrink Packaging Solutions

Driving Volumetric Efficiency for E-Commerce

A leading consumer brand company switched its rigid HDPE detergent bottles to a new eco-box designed for e-commerce channels. The spouted bag-in-box contains 60% less plastic and 30% less water than the original bottle. The boxes are wrapped in Clysar® HPG Confidential film, allowing them to be shipped without additional boxes and wrapping materials (a high-level goal of the Amazon organization).



Reducing Food Waste

Food waste is a global sustainability concern. Shrink packaging is increasingly being used to reduce spoilage and oxidation damage in fruits and vegetables, while delivering hygienic protection against contaminants and micro-organisms. In fact, recent studies show shrink film packaging can extend the shelf life of certain produce varieties by up to 60%, while maintaining the desirable natural moisture, color and nutrition.*



Summary

Whether you are considering converting a current package to shrink film or have a new application, meeting with the Clysar technical packaging team is the first step in achieving sustainable overall solutions that deliver excellent business results.

For more information or to begin an introductory conversation, please contact marketing@clysar.com.

Partnerships



**SUSTAINABLE PACKAGING
COALITION®**

Sustainable Packaging Coalition
<https://sustainablepackaging.org/>

Achieving Significant Materials Efficiency

Using printed shrink film for multi-packs can eliminate secondary packaging such as trays and labels, achieving as much as a 60% reduction in packaging materials. 30%-50% in labor savings can also be achieved (based on a Clysar life cycle analysis). The multi-pack allows brands to offer more value in an efficient, sustainable format than single-use SKUs.



Delivering Higher Performing, Lower Impact Materials

A brake pad manufacturer serving the automotive aftermarket is using lean, light, high-abuse ShrinkBox® packaging film to replace heavier, bulkier corrugate containers. The clear package significantly minimizes the volume of materials: one roll of ShrinkBox® film replaces more than 600 corrugated cartons. The package is reducing transport emissions and has eliminated corrugate disposal cost at retail.



Clysar is a responsible partner that operates sustainably, is pursuing viable film reclaim strategies, and is able to deliver data-driven evaluations to analyze the impacts of your current and future packaging. We are ready to work with you.

*Effect of Shrink Packaging for Maintaining Quality of Cucumber During Storage, *Food Science Technology*, Aug 2012;
Effectiveness of Shrink-Wrap Packaging on Extending the Shelf-Life of the Apple, *International Journal of Current Microbiology*, 2017

