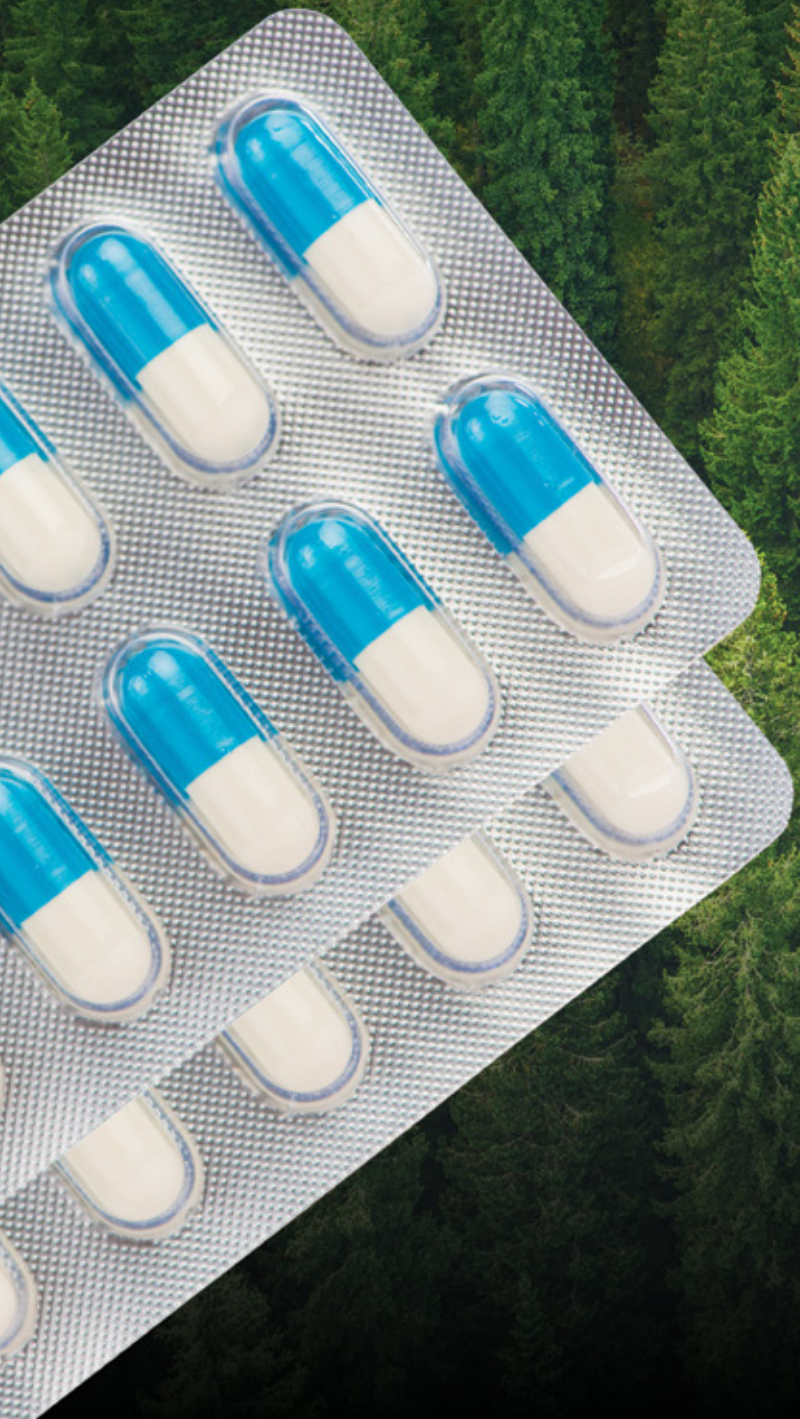
ACLAR® HIGH-BARRIER THERMOPLASTIC FILM

Can Drastically Improve Sustainability Without Sacrificing Performance



Honeywell

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INTRODUCTION

Honeywell Aclar® thermoformable film reduces pack size, waste, and carbon emissions when compared to the same product packaged in cold form foil (CFF)

In a landscape where industries are facing increased pressure to implement more sustainable business practices, drive operational efficiency and comply with evolving regulations, companies and organizations are continually looking for innovative solutions that can improve their environmental footprint, reduce greenhouse gas emissions, and lessen packaging material use. In parallel, consumers are becoming progressively influential over the demand for more sustainable products and materials.

Trusted for its best-in-class moisture barrier protection and crystal-clear, non-yellowing appearance, Honeywell Aclar® thermoformable film reduces pack size, waste, and carbon emissions when compared to the same product packaged in cold form foil (CFF). This white paper focuses on the multi-dimensional benefits of Aclar® barrier films and how Aclar® packaging is helping the pharmaceutical and medical device industries reach their sustainability goals and commitments

WHAT IS HONEYWELL ACLAR® THERMOFORMABLE FILM?

Developed by Honeywell, Aclar® is a clear, high-barrier poly-chloro-tri-fluoro-ethylene (PCTFE) thermoformable material used in oral solid dose blister packaging, a common pharmaceutical package.

Additionally, Aclar is also used in primary and secondary packages of medical devices. It is available in a wide range of finished laminate structures with different substrates and designed to offer exceptional protection against moisture and gases. Due to its superior moisture barrier, Aclar® high and ultra-high barrier films offer shelf life and stability for drug products worldwide distribution, including Zone 4 tropical locations, and are usually selected for the most demanding applications, such as drug products with high moisture sensitivity or the need to pass the accelerated stability trials as set forth by ICH. Additionally, the substrate polymer agnostic nature of Aclar® enable companies to design tailor-made, multi-layer structures that can address specific functional requirements, making it one of the most adaptable materials available in the market today. Its unique composition also allows for significantly thinner and smaller structures to be used in packaging applications without compromising on product protection or integrity. All Aclar fluoropolymer films comply with FDA regulation #21 CFR 177.1380, Drug Master File #1578.

Honeywell Aclar® thermoformable film enables pharmaceutical and medical device companies to achieve their sustainability commitments by reducing pack size, waste, and carbon emissions. *

Honeywell has been supporting the pharmaceutical industry with Aclar® film for more than 40 years. The need to reduce carbon footprint, material use, and supply chain waste is increasing – all without compromising the health outcomes of patients. Aclar® film continues to be committed to innovation and a more sustainable future.

Traditional materials used in pharmaceutical packaging, such as cold form foil (CFF), have certain limitations that make them less efficient in comparison to Aclar® thermoformable film. Cold-forming technology is inferior to thermoforming as it produces large blister packages and runs at slower line speeds, leading to material waste and energy inefficiencies. When compared to CFF, Aclar® film is a more efficient choice because it delivers a high moisture barrier to protect medicines while reducing primary packaging size by 50%* with thermoformed Aclar® blisters on average. When compared to High Barrier PVdC, Aclar® film blisters provide up to 12 percent reduction in material.

Larger blister card footprints like those used in CFF not only results in potentially higher material costs but also exacerbates the environmental toll. The materials needed to create larger blister size require more raw materials for production, more energy for manufacturing, and contribute to increased waste at the end of their lifecycle. The additional weight from larger blister packs also impacts transportation efficiency, necessitating more fuel for shipping and thereby increasing carbon emissions. According to a recent report, due to the reduced footprint, the waste disposal in thermoforming packaging is lower than cold forming packaging.

With the goal to reduce process waste, Aclar® films contain up to 25 percent virgin reclaim material from the production process. Less raw material extraction means lower demand on natural resources, contributing to a more balanced ecosystem.

The benefits extend to the manufacturing and transportation process as well. Reduced material requirements mean that less energy is consumed during the production of Aclar® films. Energy consumption is a critical factor in the overall carbon footprint of any manufactured product, and by needing fewer resources for production, Aclar® helps in lowering greenhouse gas emissions. This makes the entire lifecycle of the product more energy-efficient, aligning with global and business sustainability goals. Furthermore, due its smaller pack sizes, Aclar® can optimize logistics and transportation aspects of the supply chain. Reduced weight translates to lower fuel consumption during transit, leading to decreased emissions of harmful gases. The cost benefits are noteworthy too. Lower manufacturing and transportation costs make the product more economically viable.

Honeywell is innovating to solve the world's toughest Environment, Social and Governance (ESG) challenges and is committed to achieving carbon neutrality in its operations and facilities by 2035. The Aclar® portfolio carbon footprint has improved by more than 50 percent since 2012. With active projects, goals have been set to improve by an additional 20% by 2025. These efforts substantiate Aclar®'s position as a future-forward, responsible choice for industries.

THE BENEFITS OF A POLYMER-AGNOSTIC MATERIAL

Aclar® offers pharmaceutical and medical device packaging manufacturers an unparalleled level of flexibility and customization in packaging solutions. Many pharmaceutical and over the counter (OTC) production companies are considering PVC-Free packaging. Although today most Aclar® is laminated with PVC, pharmaceutical customers can choose to combine Aclar® with many other substrates such as A-PET, PET-G, PE, PP, EVOH, and others. This exceptional adaptability can enable manufacturers to design bespoke packaging configurations that meet the multifaceted demands of various products.

Additionally, Aclar®'s versatility is not confined to a narrow range of applications. While it has a robust presence in the pharmaceutical sector, its compatibility with plastics that possess specialized properties extends its applicability to other consumer packaging solutions as well.

Envision your impact

In today's competitive and increasingly eco-conscious marketplace, making informed decisions on material choices is crucial for any organization aiming to stay ahead. The Aclar® Impact Estimator tool serves as a powerful instrument that brings data-driven analytics and sustainability insights directly to decision-makers. Unlike traditional methods that often rely on generalized assumptions or limited data, this calculator provides quantifiable metrics that can significantly expedite stakeholder approval processes. The tool also provides invaluable insights into the environmental impact of adopting Aclar® over other materials, as it calculates various sustainability metrics, including carbon footprint reduction, water conservation, and waste minimization. Optimizing supply chain management is another dimension where the tool proves to be indispensable. Customers leverage the Aclar® Impact Estimator tool to gain insight on what they can achieve by using Aclar®, including the number of shipping containers of packaging material that can be saved annually, the reduction in transportation-related CO_2 emissions, and a unique view regarding waste reduction.

CONCLUSION

Aclar® is a comprehensive, sustainable solution for modern packaging challenges. With proven reductions in carbon footprint, package size and material us, Aclar® stands as a strategic asset for enterprises aiming to improve their sustainability footprint. By delivering a versatile, efficient, and environmentally responsible solution, Aclar® promises to shape a sustainable and profitable future for businesses across a range of industries.

ABOUT HONEYWELL ACLAR® THERMOFORMABLE FILM

Honeywell is a proven packaging partner ready to support you throughout all packaging phases — from design through production and launch. We have an experienced technical team and packaging cost-evaluation tools, all backed by superior support.

Aclar® films enable customers to utilize a flexible, efficient thermoformable packaging platform with a scope of thermoformable moisture barrier products available in the Aclar® films product line.

The non-yellowing, crystal-clear performance of Aclar® thermoformable film makes it ideal for pharmaceutical packaging. Aclar® film provides the highest moisture barrier of any clear thermoplastic film, is bio-chemically inert, chemical-resistant, non-flammable and is plasticizer and stabilizer free. It processes within the same range as other thermoforming films. For applications requiring oxygen and/or light barrier protection, Aclar® film can easily be laminated to a wide range of substrates including white or amber PVC, EVOH, or others.

For more information

Learn more about how Honeywell's Aclar® delivers a high moisture barrier to protect medicines and reduces pack size, waste, and carbon emissions, compared to the same product packaged in Cold Form Foil (CFF). Use the linked tool below to estimate your savings and see how Aclar® compares. Visit https://hwll.co/8leoao or contact your Honeywell Account Manager.

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* When compared to the same product packaged in Cold Form Foil (CFF)
**Reductions are product specific based on the design of the solid oral dose and the dosing regimen of the product.

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THE FUTURE IS WHAT WE MAKE IT

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