



## Single Blister, Multiple Benefits for Veterinary Packaging

How TekniPlex Healthcare helped safely consolidate a new veterinary product line from two blisters to one, reducing waste and expense.




## PROBLEM

A prominent manufacturer of veterinary medicines had been using a two-step packaging system for its flea and tick topical liquid products. The blister-in-blister setup was deemed necessary to ensure both adequate product protection and the highest-possible child resistance. The primary blister protected and dispensed the product, while the secondary one provided F=1 level child resistance (CR).

However, for a new product line with seven different products, the company was seeking a single-blister solution – one that would safely contain toxic topical flea & tick liquids while offering the mandated F=1 child resistance. Key goals included improved ease of use, reduced packaging materials, diminished production complexity and, due to the decrease in sourced materials, elevated supply chain simplicity.

Specifically, the single-blister setup would allow the company to reduce the total number of materials (two instead of four) and require one packaging machine line rather than two. The new package approach would reduce materials costs, lessen labor needs and eliminate extra equipment, leading to a significantly decreased overall packaging expense while improving the user experience.

Housing these highly migratory products would require a fresh materials approach: the current primary blister couldn't offer adequate child resistance, nor could the secondary packaging provide sufficient barrier protection. The search began for a total package solution that combined film and foil material laminations capable of top-tier CR performance and the ability to pass accelerated stability tests. As a longstanding packaging partner, TekniPlex Healthcare was the company tasked with devising a solution.



**40%**  
**REDUCTION**  
IN MATERIAL COSTS



**\$1M**  
**SAVINGS**  
IN ANNUAL  
PACKAGING-RELATED  
COSTS



## SOLUTION

Working backwards from the existing two-step packaging materials, it was determined that adding polyethylene terephthalate glycol (PETG) skins to the film structure would greatly enhance child resistance of the formed blister. The lidstock was more problematic, because the current material was shown to delaminate when exposed to the customer's new products. This delamination caused the package to fall short of requirements for F=I child resistance.

Realizing that combining existing solutions was not the answer, TekniPlex Healthcare developed a new lidding solution that incorporated an extruded ionomer layer between the foil and sealant layer. Using the ionomer as the barrier layer, TekniPlex Healthcare successfully stopped the migration and delamination in the lidding.

In short order, TekniPlex Healthcare had most of the problem solved; more precisely, it had exactly six-sevenths of the problem solved. The upgraded lidding stock and thermoforming film TekniPlex Healthcare proposed was ideal for six of the seven new products.

This left one outlier that was more of a challenge. During accelerated stability testing, the seventh product caused materials delamination and product leakage. It was difficult to ascertain whether the damage was occurring to the film or the lidstock – or to explain why this product reacted more aggressively than its six siblings. For the line's launch to move forward, it was clear that a novel materials solution was needed.

To tackle the issues with the final product, TekniPlex Healthcare undertook an immersion experiment to evaluate the materials, lamination process, and product interaction issues. TekniPlex Healthcare's position as a supplier of both films and foils gave it the in-house ability to thoroughly explore options as their team of experts moved toward a solution that would clearly define cause and effect.

Via testing, TekniPlex Healthcare discovered the migratory culprit: the final formulation that presented the packaging problem had a higher percentage of a solvent called benzyl alcohol. Investigating the interaction between that chemical and its packaging materials, TekniPlex Healthcare found that neither PETG nor a certain solvent adhesive in the laminate structure were compatible with benzyl alcohol.

TekniPlex Healthcare brought four possible packaging solutions to the table, each capable of meeting the product's barrier protection requirements. Conveniently, three involved laminated applications achievable using the same lidstock as the other six new products. The fourth option entailed a co-extruded blister requiring a different lidding variation.

Each solution would allow this family of challenging products to pass accelerated stability trials, so that the entire seven-product line could proceed to child-resistance testing.

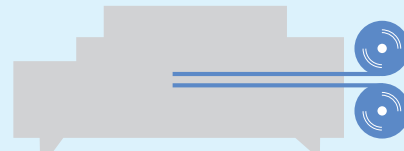
The single-blister solution **eliminated 50%** of materials and machinery.



**Two Machines: Four Layers**

### SOLUTION

**One Machine:**  
Two Layers



## SOLUTION - CONTINUED

Ultimately, six of the seven products were brought to market following child-resistance protocol testing. In addition to reducing materials costs by 40%, converting to the single blister format improved operational efficiencies by 50%, since the process could now be completed on one packaging line pass rather than two. All totaled, the new format equated to an annual packaging-related savings approaching \$1 million per year.

While the seventh product ultimately was not brought to market, even this was a success: presented with TekniPlex Healthcare's sound materials science, the veterinary products manufacturer was able to make an extremely informed decision – albeit a painful one.

In this case, it was decided that the product simply couldn't be housed in a single-blister setup without unenviable measures. That product was ultimately abandoned, and the six others brought to market in packages that allowed for enhanced safety, reduced material consumption and waste, more efficient packaging processes, enhanced cost-savings and a more user-friendly, single-blister solution for consumers.

TekniPlex Healthcare offered several unique solutions capable of meeting the requirements for barrier protection which **significantly decreased** overall packaging expense.

## BENEFIT

- **\$1 million** in annual packaging-related savings.
- Production process simplified from **two packaging lines to one**.
- A single blister solution was developed to achieve **primary blister protection and F=I level child resistance**.
- Solution significantly **decreased overall packaging expense** and **improved user experience**.



The customer was using a blister-in-blister method, but **a single-blister solution** was desired – one that would safely contain toxic topical flea & tick liquids while **offering the mandated F=I child resistance**.

## ABOUT TEKNIPLIX HEALTHCARE

TekniPlex Healthcare deploys world-class material science expertise to deliver value in creating products for medical devices, diagnostics, and drug delivery. With a deep understanding of the needs of end-users, our offerings ensure we provide innovative solutions at the point of patient care. For more information about TekniPlex Healthcare and our solutions, visit [www.Tekni-Plex.com/healthcare](http://www.Tekni-Plex.com/healthcare).