

## Cost Reduction

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### Problem:

One of our major generic pharma MNC clients had their formulation packed in Aclar. They wanted to scale down to a more cost effective option without compromising on barrier properties.

### Bilcare Approach:

We studied their target formulation with our unique and scientific study method, Bilcare Optima and determined the sensitivity of the said formulation. Based on the formulation's barrier requirement we determined a package which is cost effective than Aclar yet retained all functional properties.

### Bilcare Solution:

The identified film, which successfully replaced Aclar, was Bilcare Zymax, confirmed by a 6-month stability study, wherein the product was stable in Bilcare Zymax.

Cost associated with over packaging may not be an issue for innovator but it is not feasible for a generic player to follow the suit, hence 'optimal' packaging is needed.

## New Molecule

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### Problem:

A pharma company wanted to select blister packing for one of their reputed oncology brands. The packaging was supposed to provide barrier protection to the formulation during a 6 month Accelerated Stability Study (ASS) and 2 years Real Time Study.

### Bilcare Approach:

Formulation evaluation study for 3 separate batches of the product in question were done. Bilcare Optima once again proved crucial as it helped identify an optimal package, which met the stringent requirements of the product.

### Bilcare Solution:

Through Bilcare Optima the packaging material identified was Bilcare T019, which was confirmed by the said 6 month ASS and 2 year Real Time Study wherein the formulation was absolutely stable.

## Formulation Optimization

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### Problem:

An Indian herbal product giant had a set 5 different formulations for their herbal product and was unable to identify the best one.

### Bilcare Approach:

We studied the sensitivity of all the 5 formulations in question with respect to various environmental factors, individually and in combination. We were able to identify the most critical parameters affecting the formulation stability.

### Bilcare Solution:

Based on the sensitivity profiling study Bilcare was able to identify the most stable formulation of the 5 which was selected by the Herbal giant as their final formulation.

## Bottle to Blister conversion

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### Problem:

Most of our US pharma clients prefer to have their formulations blister packed as it is widely accepted by the retailers in US. Stability study for such a conversion from bottle to blister is very time consuming.

### Bilcare Approach:

Bilcare studies the sensitivity of the formulations. Each formulation has unique 'fingerprint' sensitivity. Based this sensitivity study Bilcare Optima suggests a packaging which would protect the formulation equally well in blister pack as in a bottle. Advanced Thermoforming Simulations study the effect of dimensional aspects of the capsules/tablets on the film upon thermoforming.

### Bilcare Solution:

Bilcare Optima and Advanced Thermoforming Simulation for all bottle to blister conversions.

## Formulation Evaluation

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**Problem:**

Issues wherein the formulation passes the regulatory ICH guidelines but fails in the field especially in tropical regions.

**Bilcare Approach:**

To evaluate the formulation in conditions for all 4 climatic zones of the world, ensuring total protection of the formulation through the packaging material thus selected.

**Bilcare Solution:**

Bilcare Optima, which considers all 4 climatic regions during formulation evaluation.

## Hardness and Gas liberation tendency

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### Problem:

No method is available in USP/IP/BP etc, which can determine whether a tablet would withstand the force applied on it during pushing it out of the blister. In addition, no method is available to quantify the amount of gas liberated by a formulation to know its exact gas-liberating tendency.

### Bilcare Solution:

In-house developed instruments, which can calculate the exact hardness, needed to push the tablet through the blister pack and quantify gas liberation tendencies of formulations to suggest an appropriate packaging material.

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