



### **Wal-Mart's New Pharmacy Packaging Solution Maintains Temperature, Saves up to 50% on Shipping Costs**

James Soucey, Director of Clinical Services for Wal-Mart Specialty Pharmacy (WMSP), had a problem with Hawaii. Logistics and temperature were wreaking havoc on the WSMP shipments of high-value, temperature-sensitive prescription drugs to patients there. The shipments were arriving to the patient too warm, which denatured the protein-based biological product, and therefore rendered the medication ineffective.

The problem was two-fold. First, the common carriers used to transport the medications often held the shipments at the main Hawaii hub until there were enough packages to warrant a delivery to outlying islands. This time delay caused the shipment to exceed the cold-chain capacity of the packaging. The second issue was the availability of the patient to receive the shipment. Even though the WMSP staff was diligent in calling intended recipients to ensure they would be home when the drugs were set to arrive, sometimes things came up, people were not home when they said they would be, and the package containing the medication would sit on a doorstep for hours at a time in the hot sun. This would exceed the ambient temperature buffering capacity of the packaging.

"We saw an increasing number of 're-ships' occurring, and at a cost of sometimes \$1,500 for new medication, we needed a solution," Soucey said.

The logistics/temperature conundrum was not isolated to Hawaii. Alaska had similar logistic depot procedures and temperature extremes. Freezing proteins is as deleterious as overheating them. Temperature becomes an issue anywhere in the United States where it gets hot in the summer and cold in the winter. Soucey knew he would never be able to change the weather, so he re-assessed Wal-Mart's packaging method for temperature-sensitive pharmaceuticals. This included not only cold-chain products that required maintenance of 2-8° C, but also for controlled room temperature that require maintenance of 20-25° C. An example of this latter group of products is GLEEVEC®, an oncology drug that can cost upwards of \$8,000 for one therapy cycle. If GLEEVEC is subjected to extreme heat, the medication will melt together like gummy bears.

#### **An Age-Old Problem, a New-to-Market Solution**

Wal-Mart Specialty Pharmacy, which ships about 100,000 temperature-sensitive packages each year, had been using a packaging system very typical for the industry (i.e. corrugated cardboard shells, EPS (Styrofoam) insulation, and water-based gel packs). This packaging was inexpensive, but not always effective. They tried more expensive coolers and pre-qualified urethane shippers, but found these systems performed less satisfactorily than the original box.

Soucey also wanted to minimize the use of EPS because of its harmful effects to the environment. A customer even wrote him once, complaining of the piles of Styrofoam now sitting in his garage that he didn't know what to do with. So, the search for a new solution continued.

What he found was a new packaging configuration in two iterations that maintained a cold-chain prescription's temperature for four days and a room temperature prescription's temperature for more than five days. This packaging also saved the pharmacy 50 percent on shipping costs.

This solution came about because Soucey remembered reading about a reusable packaging called GREENBOX, made by Minneapolis-based Entropy Solutions. The GREENBOX used vegetable oil-based phase change materials instead of gel packs and a reusable insulation panel that claimed to have a thermodynamic insulating capacity 10 times greater than Styrofoam. He decided the packaging warranted further investigation, so he initiated a validation procedure that entailed sending temperature-monitored test shipments to customers in Hawaii and Alaska. The WMSP staff utilized TempTales from Sensitech to monitor both ambient and medication temperatures throughout each shipment's transit.

"Our customers were happy to receive their medication at the right temperature in a GREENBOX," Soucey said. "And when they were through with the box, they'd put it out on their doorstep for the postman to pick up. No muss, no fuss."

WMSP was able to save on shipping costs because the medication could maintain the proper temperature for more than three days, which allowed them to ship via two-day or three-day air versus next-day air.

"It costs us about 50 percent less to ship GREENBOX to outlying areas like Hawaii and Alaska than it does typical cardboard packages," Soucey said.

Wal-Mart found they also were able to ship larger amounts of payload in smaller overall containers, which further reduced their distribution related expenses.

#### **Achieving Controlled Room Temperature**

Soucey was extremely satisfied with the GREENBOX results for cold-chain delivery, and decided to approach Entropy about finding another solution to his room temperature-sensitive packaging needs. Could the power of Entropy's non-toxic phase change materials be used to ship just one pill bottle at controlled room temperature? And, could it be done in an even smaller package to further reduce shipping costs? The Entropy team delivered the perfect solution: the GREENBOX Inflater Pack.

Now when Wal-Mart Specialty Pharmacy ships Xeloda, another oncology drug, it does so in a cushioned envelope that inflates to double its size when two spots are punctured on each side of the package. The pill bottle is wrapped with a "pillow panel" containing Entropy's E23 phase change material, which keeps the medication at controlled room temperature for the duration of its shipment. Soucey said that until the Inflater Pack came along there just was not a viable solution for maintaining room temperature, though it was mandated by the Parenteral Drug Association's (PDA) Technical Report 39, as well as the U.S. Pharmacopeia (USP) Chapter <1079>.

"Approximately 15-20 percent of our medications must be kept at room temperature – if they get warmer or cooler, they lose their efficacy," Soucey said. "Keeping a medication at controlled room temperature during shipment has been mandated by federal and state regulatory commissions for years, but it just wasn't possible given the options on the market. Wal-Mart did the very best it could, but now we have an increased level of confidence when we ship using the E23 panels and the Inflater Pack."

Like the GREENBOX, shipping medication using the E23 panels and the Inflater Pack costs the pharmacy about 50 percent less than their previous packaging system.

#### **A Responsibility for Safety**

Soucey says ensuring a package arrives at the right temperature – whether it be refrigerated or at room temperature – is a responsibility not to be taken lightly. Consumers do check the temperature of their medications when they arrive, and if a prescription should fall "out of spec" during transit, it could lead to health complications. For example, if Tetracycline, a drug commonly

used to treat skin conditions, falls out of spec and is still consumed by the patient, he or she could experience cardiac and dermatological complications.

“It’s an ethical issue, really,” Soucey said. “Wal-Mart believes it needs to take every precaution to ensure our prescriptions arrive when we say they’re going to, and at the right temperature.”

That includes partnering with a logistics company to implement a “guardian angel” program to “rescue” any misdirected packages that would otherwise not arrive on time and within specification at the patient’s home or business.

The WMSP team also prides itself on being a “high-touch” pharmacy dedicated to getting the proper medication to the patient in the proper condition at the proper time with the proper support to produce the best healthcare outcomes. To meet those goals, WMSP has certain practices in place, including, but not limited to, having a clinical staff available 24 hours a day to answer therapy-related questions, placing a refill-reminder call to the patient to ensure persistence with therapy, and working closely with the patient’s doctor to ensure the patient’s therapy is optimized.

### **The Future is Green**

Soucey does not worry about Hawaii these days ... or Alaska, Florida, Oklahoma, or Maine for that matter. He knows that wherever the medication is headed, GREENBOX and the Inflater Pack will maintain the proper temperature required for the medication from the time it is shipped up to the time the patient opens the package. And there won’t be any more customers complaining about Styrofoam, either. GREENBOX is completely reusable – all the way from its plastic outer shell to its Thermal-Lok insulation panels to its E-Packs, which contain its phase change materials. The fact Wal-Mart can use the box dozens of times means the pharmacy is adhering to Wal-Mart’s strict corporate social responsibility (CSR) initiatives and its goal to reduce packaging waste.

“It’s our job to make sure we protect our customers’ prescription medicines every step of the way,” Soucey said. “Including the all-important last mile, which means all the way from pharmacy to home.”