

Case Study: Solving Logistical Challenges Through Reclamation

Logistics contractors worked with Sonoco ThermoSafe to rationalize a complex and failure-prone supply chain

There is an impending need for experience and expertise when it comes to importing and re-distributing the essential medicines, diagnostic panels, reagents with exceedingly short expiration, vaccines, and other biological products to austere locations. The logistics to supply to these regions are complicated and highly challenging so in many cases, it is necessary to identify and outsource these services to a qualified and highly experienced logistics and fulfillment organization.



Risks Addressed

The risks of supplying critical, temperature sensitive products to these underdeveloped and remote locations are numerous and can include:

- Transportation infrastructure and support vehicles throughout many regions can be damaged, unreliable, under construction, or subject to unexpected road closures. Thus, reliable lines of transportation and refrigerated storage can be extremely limited and in many areas, non-existent.
- Drug product manufacturers are sometimes unable or lack the means to export their products directly and ensure clearance through complex, often corrupt and overwhelmed customs, without experiencing extensive delays and rendering the products unusable.
- Some bulky, single-use, dry ice shippers or refrigerated truck transport for shipments to remote locations are not only expensive but they also lead to many failures.
- Single-use containers can be prohibitively large for regional aircraft and make distribution to remote areas very challenging. At the same time, smaller packages reduce effectiveness of the payload, which increases cost and risk, with more packages needed per shipment just to cover demand.
- Large quantities of dry ice are necessary to protect the product and HAZMAT certified personnel are required to ensure the proper packing and documentation. The hazardous nature of the payload and the size of the containers often result in shipment delays or cancellations due to air transportation related constraints.
- 2° to 8°C products packed using wet ice or gel packs in parcel size boxes require replacement along the way. Leaks or damaged packaging are a frequent occurrence.



- The product’s journey could be preceded by several physical hub stops along the supply chain before it becomes available for use.
- Availability of shippers, certified local personnel, and refrigerants cannot be relied upon when aircraft is arriving and/or departing.

Collectively, the above pitfalls contribute to travel times often exceeding 21 days and cold chain shipment failures of 20–25%, posing a serious risk to health, quality of life, and the safety of our citizens abroad.

Solutions Identified

CHSi enlisted the expertise of Coldchain Technology Services (CTS) (San Antonio, TX), an exclusive partner of Sonoco ThermoSafe that operates cGMP storage, reclamation and fulfillment facilities specializing in the use of high performance, reclaimable, and reusable temperature-controlled shipping solutions. Their discrete customer directed fulfillment services presented an opportunity to mitigate many of the risks inherent to the logistical environment facing CHSi.

CHSi needed an overall shipping process adaptable to the dynamic conditions of its diverse business areas. Transit times to some remote areas of the world can be very unpredictable, due to local laws and regulations, and cultural and political factors. CTS demonstrated and recommended the component driven nature of the ThermoSafe Greenbox® shipping system. The dimensions of the shippers, ease of assembly, range of maintainable environments, duration, and the nonhazardous nature of their PureTemp® phase change materials were all seen as advantageous attributes for CHSi. Sonoco ThermoSafe’s reusable product solutions and CTS’s reclamation experience, with hundreds of thousands of shippers recovered, along with a qualified system of sanitization and fitness performance testing prior to reuse, worked together to develop a closed loop system for using and recovering the most advanced and secure thermal management system available for moving critical temperature-sensitive products around the globe.

CTS’s comprehensive SHIP2Q® process (Safe Hygienic Irradiation Performance Process & Qualification), would ensure fitness, thermal reliability, and cleanliness of the system components within the manufacturer specifications equal to new “off-the-shelf” shipper systems. The systematic SHIP2Q® process meets all cGMP and cGDP compliance standards and generates shipper specific track & trace documentation key to any deployment and reuse (learn more at www.thermosafe.com/reclamation). SHIP2Q® applied a system of control over the recovery and reuse phase of the logistics loop. CHSi is able to recover and reuse the Greenbox® shipper, amortizing its total cost across numerous shipments making it cost-neutral in the first few cycles. Some specific Greenbox® shippers have made a 16,000-mile loop more than 20 times (or 320,000 miles).

The switch from active refrigeration units, dry ice containers and inferior passive package components to the Greenbox® shipping system also allows CTS/CHSi to use commercial freight carriers and multiple aircraft equipment instead of expensive specialty carriers and dedicated service providers previously required.



Comprehensive Health Services, Inc. (www.chsmedical.com) has extensive experience in all of the medical service areas. CHSi capabilities have been built through solid performance in providing this array of medical services to both commercial and government customers. Since 2007, CHSi has been a dynamic presence in support of medical services operations in the Middle East and other international locations. CHSi services focus on Level I medical support to maintain the health and medical readiness of the workforce.



Advantages gained

Together, Sonoco ThermoSafe, CTS and CHSi have designed and implemented a closed-loop fulfillment and reclamation solution that extends more than 16,000 miles and confidently boasts a 99% return rate for the shippers.

- The implementation of Sonoco ThermoSafe's Greenbox® shipping system, application of CTS's SHIP2Q® process and fulfillment services, CTS's comprehensive SHIP2Q® process ensures each shipper's thermal performance during reuse every time. This seamless coordinated effort has reduced the cold chain failure rate by more than 98%.
- The PureTemp® phase change materials and reusable containers can be used as redistribution packages. These smaller sized Greenbox® shippers are easier to load into small aircraft cargo bays and since the PureTemp® phase change materials are vegetable oil based, the need and expense of hazardous materials classification and declaration is not required. CTS simply takes advantage of the Zero Bench Time™ attributes of the PureTemp® panels while following a simple packing configuration that ensures temperature continuity during re-shipment.
- Using commercial freight carriers and legacy carriers has given CHSi much greater flexibility and a larger customer service and communications pool to draw from and require no additional logistical support along the way.
- The reusable Greenbox® shipping systems are also an environmental advantage to CHSi. The return of the reusable VIP containers to the CTS reclamation center eliminates the concern and expense for shipping waste out of the country or leaving residual EPS or PUR in these austere locations. Greenbox® can be shipped at regular freight costs, eliminating the need for expensive and unreliable refrigerated trucks.

Through a dedicated and coordinated effort, CHSi has been able to reduce the risk to lifesaving medicines in austere locations, solve a wide variety of unique shipping and transportation challenges, provide greater control of the supply chain, improve visibility of the product, and reduce landfill waste and save money, but more importantly lives.