



Power Off, Covers On: How Silverskin® Protects Pharma Freight

A global biotech company regularly faced challenges when shipping temperature-sensitive pharmaceuticals in 40-foot ocean reefers between US and EU ports. Citing power outages at sea and during downtime in dock, the company needed an innovative thermal solution that was capable of mitigating temperature exchange and minimizing stock wastage.

As a global pioneer with local manufacturing and distribution to call upon, CSafe was in a position to conduct comprehensive testing and trials in live chambers, and act on the findings to provide a solution that would counteract the challenges.

They were also confident of being able to reduce environmental impact and operational costs in the process.

The Opportunity

Carried by container ships, the function of reefers (or refrigerated containers) is to transport temperature-sensitive goods — in this case pharmaceuticals — and maintain the cargo at its stated label-claim temperature throughout transit, even in the most difficult conditions.

Reefer containers are designed to distribute chilled air from the floor, so a consistent and uniform supply flows through the cargo, removing heat and gases.

Humidity control equipment also “opens and closes” to repel and release any excess water inside the box.

Both fuel and electric-powered generators are attached to reefers to enable cooling to take place. This can, however, come with risks. In this particular study, power outages occurred whilst at sea and also during loading and unloading at port. Temperature excursions ensued, and too frequently to ignore.

Approaching CSafe to tackle the on-going issue enabled this biotech company to find an affordable, proven, high-performance solution that would maintain the integrity of their cargo — and one that would be supplied locally.

The Breakthrough

Leveraging state-of-the-art testing and simulation capabilities, CSafe put their technical team into action. They were able to assess the different thermal possibilities inherent in load and product mass, packaging configuration, sunlight differentials, windchill and exposure. Risk analysis was conducted and after months of desktop simulations, chamber testing and live trials, the Silverskin QLT SQ6 pallet cover was found to be the most fitting solution based on performance test data.

This thermal quilted blanket system employed six compressible layers of strong, flexible, reflective insulating foil that provided an effective secondary barrier against temperature changes within the ocean reefer. Tamper-evident and less sensitive to corrosion, the solution was also designed to allow the reefers’ temperature-control fans and ambient air circulation to function properly.

This level of protection for the pharmaceutical cargo would also extend to other potentially challenging points in the cold chain, such as time at customs clearance or in the “final mile” of delivery.



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700 boxes of
drugs per reefer



10 hours of
critical secondary
protection



0 product losses

The Pay-Off

The SQ6 insulated thermal covers have been able to withstand all the transportation handicaps and risks in the client's US-EU shipping lane. Aligned to new GDP regulations, consignments have maintained their product ship-to label-claim temperature of +2°C to +8°C, even during power outages, for up to 10 hours. Aside from allowing enough time for the shipments to move between risk points, temperature exchange during breaks in the cold chain were also significantly slowed down by using the least amount of energy possible, minimizing environmental impact and ensuring door-to-door temperature compliance.

Additionally, risk has effectively been minimized by safeguarding the temperature-sensitive cargo against exposure to direct sunlight, radiated heat, wind chill, sub-zero temperatures, dust, damage, moisture and contamination. The net result? Patient safety has been optimized. And product wastage hasn't just been reduced, it has been eliminated.

The innovative composition of the Silverskin QLT SQ6 pallet covers also offered an ideal balance between thermal performance and weight, thereby providing logistical, storage and cost-saving benefits through the delivery process. The covers represented an affordable, high-performance option for multi-modal temperature control transport.



“So much innovation and tech is involved in the design and manufacture of CSafe pallet covers, that they were able to neutralise the power outages without interfering with the operational side of the reefers. The pharma cargo, the budgets and the environment were all protected.”

The Customer, Global biotech company

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