

TRANSPORTATION PACKAGING

Tracking Cold- Chain Quality

Pharma firms focus on logistics, as new shipper solutions extend cargo protection.

By David Vaczek
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As pharmaceutical companies devote more attention to cold-chain logistics, transport product and solutions providers are stepping up specialized services to support safe product delivery and limit costs.

Regulatory and best practice guidance will support quality and cost control as supply-chain partners work in concert to establish that product is appropriately handled, stored and transported.

SEVEN-DAY PROTECTION

Newer shipper solutions promise cost-effective shipping for longer durations. Minnesota Thermal Science (MTS; Plymouth, MN) has launched new solutions for payloads requiring refrigerated and frozen shipment, in rebranding its shipper systems as the Credo line.

MTS shippers protect product over extended periods, feature high payload efficiency, and minimize package weight. PCMs are held in a Thermal Isolation Chamber (TIC) system that is typically coupled with vacuum insulation panels (VIPs).

In the line of Series 4 shippers using 4°C PCMs, the new Credo 4-2168 keeps product within 2° to 8°C, or 1° to 10°C, for seven days. VIPs feature a Mylar wrap over a silver liner to add performance and make the panels less vulnerable to puncture. VIPs used in Credo systems stand up to two years of use if they are not abused, says Karl Schlenker, vice president, sales.

"The Credo 4-2168 is the longest duration passive thermal shipper available," Schlenker says. "We call it an international shipper because even if it is held up in customs, the payload will arrive in spec. For ground freight, you can go next-day shipping without a refrigerated truck, so the cost-savings are substantial."

The unit features a box-in-box design, with one set of VIPs surrounding the TIC. A second set surrounds a second card box inside the TIC. The 2-l volume TIC in the 4-2168 "continuously deflects the BTUs as they penetrate," Schlenker notes.



Minnesota Thermal Science combines its Thermal Isolation Chamber (TIC) system with vacuum insulation panels (VIPs) for temperature sensitive shipments.

For frozen-temperature shipments, the Credo Series 50M avoids the need for dry ice or liquid nitrogen canisters. The TIC and VIP-configured shipper holds -50°C temperatures for up to three days, with 17 L of payload space. Temperatures of -18° or colder are held for up to a week, Schlenker says.

MTS features design consulting and prototyping services that include validating shippers to ISTA test procedures in an ISTA-certified lab. The company developed a system for LifeCell (Branchburg, NJ), a tissue-processing and -recovery company that uses a TIC with a custom PCM for 0° to 10°C shipping. Custom insulation was used to address the customer's concerns about potential VIP leakage.

"LifeCell came to us with its own set of test protocols. It needed assurance of performance in extreme hot and cold temperatures. It was using a corrugated box with 20 lb of wet ice in a plastic bag. Carriers were experiencing ruptured containers," Schlenker says.

MTS manages LifeCell's container inventory, receiving pallets of empty boxes in Plymouth for inspection, sterilization, and reuse. MTS also manages the box inventory at the company's tissue recovery centers around the country. The LifeCell Shipper has enabled LifeCell to reduce costs by shipping the 25–40-lb tissue cargos for next-day delivery, Schlenker says.

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