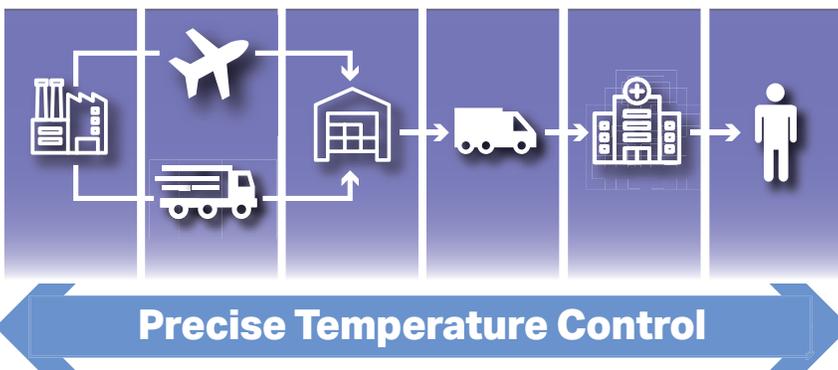


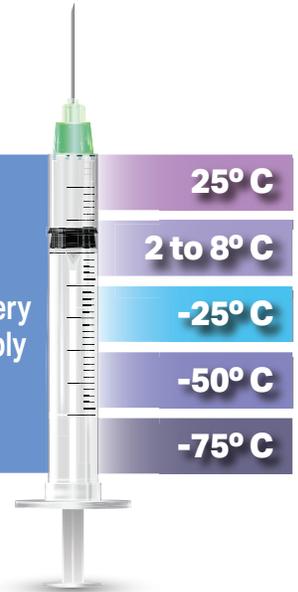


# Apollo™

SEAMLESS UNIVERSAL COLD CHAIN PLATFORM  
WITH BioPCM® INSIDE



Product temperature is precisely controlled at every step of the supply chain, from -75°C to 25°C



The COVID-19 pandemic is heavily impacting global supply chains, including healthcare. The distribution of future vaccines or therapeutics for fighting COVID-19 will require unprecedented levels of logistics planning. Maintaining COVID-19 vaccines within specific temperature ranges will be especially critical for protecting efficacy of the vaccines, posing a significant challenge in many parts of the world. The World Health Organization has estimated that up to 50% of vaccines are wasted globally every year, in large part due to lack of temperature control and the logistics to support an unbroken cold chain. An estimated \$35 billion of biopharma products are lost annually to temperature-related supply chain issues.

Phase Change Solutions (PCS) is a leader in enabling cold chain transportation and storage of temperature-sensitive pharmaceuticals and vaccines. Millions of packages have been safely shipped using BioPCM®, PCS' proprietary family of phase change materials.

To accommodate the wide range of temperature requirements of various vaccine manufacturers and logistics companies, PCS has developed an innovative platform of BioPCM® based solutions that support a range of temperatures from -75°C to 25°C. Designed to maximize safe shipment time periods, Apollo™ optimizes energy usage in supply chain infrastructure from the manufacturer to the consumer. Apollo™ uses smart nesting of BioPCM® solutions in combination with other components, such as insulated shippers, to provide modular and versatile solutions for a wide range of cold

chain situations across the globe. For vaccines packaged by the manufacturers according to strict FDA and other regulations, the Apollo™ platform ensures risk mitigation from the manufacturer to the vaccine recipient and provides standardization of temperature control across the entire supply chain.

The Apollo™ range of solutions can be seamlessly integrated with a variety of packaging options across the entire supply chain — from product shipment to healthcare providers to vaccine administration. PCS' collaborative business model is built on strategic partnerships with logistics providers and pharma companies to ensure that COVID-19 vaccines are delivered intact, minimizing potential temperature excursions proactively. Additionally, Apollo™ offers the possibility of reducing or completely eliminating the need for dry ice in cold chain packages, which can significantly increase the number of packages that can be safely shipped by air, while reducing environmental impact.

  
**PHASE CHANGE**  
SOLUTIONS™

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