

Refrigerated tote program highlights



I. Cardinal Health uses standardized packaging for all refrigerated pharmaceuticals:

- A. For years Cardinal Health has followed the industry standard for the packing and shipment of refrigerated pharmaceuticals which was the use of frozen water-based gel-packs inside of insulated containers. This method had challenges for both Cardinal Health and our customers:
 1. Limited reuse life-cycle
 2. Freezing point of water-based gel-packs is 32°F and these melt quickly
- B. A qualified packaging solution is used to maintain product between 2°C - 8°C (36°F - 46°F) for the duration of shipment to our customers.
- C. This moved us away from using a water-based frozen gel-pack to a non-toxic, environmentally friendly, phase change, reusable product.

II. Phase change material in insulated totes:

- A. Phase change panels are used to maintain the temperature inside of the insulated totes. These panels liquefy or solidify at specific temperatures. Phase change materials recharge as ambient temperatures fluctuate, making them ideal for maintaining the 36°F to 46°F degree temperature range for refrigerated pharmaceutical packaging.
- B. Extensive scientific engineering tests were performed using temperature profiles that meet regulatory requirements and expose the packaging to varying summer heat and winter temperature conditions during shipment. These tests were conducted using small and large payloads in both sizes of totes.

III. What you should expect:

- A. Your refrigerated pharmaceuticals will arrive in a performance qualified insulated tote with phase change panels designed and tested to keep your product between 2°C - 8°C (36°F - 46°F) during shipment. Because these panels change phase (liquid to solid) at different temperatures than water, a solid state does not indicate the "freezing" temperature of water (32°F), nor does a liquid state indicate a relative temperature of water. Please see the attached "What you should expect when receiving refrigerated pharmaceuticals" for more detailed information.

IV. Returns:

- A. In the event that you need to return any refrigerated pharmaceuticals, please refer to "How to prepare a return of refrigerated pharmaceuticals" and the tote packing diagram for the size totes that you receive. These are located at cardinalhealth.com/coldchain. A short video can also be viewed on refrigerated returns.

Please review the online documents and contact your Sales Consultant with any questions.

cardinalhealth.com

Cardinal Health
7000 Cardinal Place
Dublin, Ohio 43017