AmerisourceBergen

Cold chain FAQs

A contraction of the

Q: What do you mean by cold chain?

A: Cold chain is an industry term that is commonly used to refer to anything related to refrigerated product picking, packaging, and shipping.

Q: What should I expect when I receive my shipment?

A: As refrigerated product moves throughout the network, our insulated coolers are packaged with a combination of frozen and/or refrigerated gel packs, packaged according to the corresponding qualification, ultimately ensuring refrigerated product temperature is maintained while in transit.

• Once these packages start their journey, the frozen gel packs will begin to thaw to maintain proper temperature and the refrigerated gel packs will act as a buffer to protect against any excess cold temperature.

When you receive your product, the gel packs should be cool to the touch, which is expected and normal to maintain proper refrigerated temperatures.

Q: How can I ensure my product is the proper temperature when received?

A: To properly check the temperature of your product, we'd encourage you to use a calibrated thermometer and temperature probe to obtain an accurate internal reading of your refrigerated product. Please be sure to use a probe that allows the cooler to be closed, which should increase the accuracy of the reading; we do not recommend using an infrared thermometer, as the cooler wouldn't be closed using this option.

There are three factors to ensuring the reliability and integrity of your delivered product:

- 01 Appropriate number of gel packs are included in the cooler. Please refer to the cold chain packout guide to learn more.
- 02 Gel packs and refrigerated product are cool to the touch, not frozen.
- 03 Your product was delivered by 10:30am local as expected.

Q: What temperature are cold chain products stored at?

2

A: Cold chain biologics are stored and shipped within a 2°C – 8°C; 35.6°F – 46.4°F environment.

Q: What does it mean that AmerisourceBergen follows ISTA standards?

A: AmerisourceBergen has qualified and validated our refrigerated packaging solutions according to the International Safe Transit Association (ISTA) standards, ensuring proper refrigerated product temperature is maintained while in transit to our customers. ISTA standards are designed to evaluate the effects of external temperature exposures, including heat and cold profiles developed from data gathered in real world transport, of individual packaged-products shipped through a parcel delivery system. For additional information please refer to https://ista.org/docs/7Eoverview.pdf.

To adhere to standard operating procedures, we have continued education, training, audits, and controls at the distribution centers to monitor and ensure compliance.

Q: How long is product integrity qualified for cold chain shipments to maintain the proper refrigerated temperature?

A: All packages have been qualified to perform a minimum 24 hours in both summer and winter months when tested against industry standards ISTA 7D (cold) and ISTA 7E (hot). Please refer to the cold chain packout guide to learn more.

Q: What about weekends, how do the Friday orders that arrive Monday work?

A: Friday orders are picked and packed on Friday, then placed back into the refrigerated, temperature-controlled environment in the distribution centers until Sunday. The carriers pick them up Sunday evening for delivery Monday.

Q: How does AB validate performance of its coolers and packaging?

A: We partner with Jarden Life Sciences to perform Operational Qualification (OQ) Testing, we follow to ISTA standards, and are reviewed by the HDA. Please refer to the cold chain packout guide to learn more.

Q: With the weather varying by state, how do you determine which packout is used?

A: We have designated seasons to determine which packout is used.

Summer: May-October

Winter: November-April

3

Q: How do insulated coolers work to maintain product temperature?

A: Refrigerated product is properly maintained because of the insulation that the EPS (Styrofoam) cooler provides, coupled with the energy that is gathered and slowly released by our gel packs as the product moves through the network.

- Each cooler size utilizes a specific number of gel packs, packaged in a correct manner, to ensure product isn't getting too cold (commonly referred to as freeze shock) or too warm while in transit. Please refer to the cold chain packout guide to learn more.
- Additionally, we adjust the conditioning of our gel packs (frozen and refrigerated) during the year to account for the change in ambient temperature.
- During the winter months, we use frozen and refrigerated gel packs to account for the colder ambient temperature, ensuring product doesn't get too cold while in transit.
- During the summer months, we use frozen gel packs to account for the higher ambient temperature, ensuring the product stays cold enough while in transit.

Gel packs are conditioned in a blast freezer and during this time, they absorb the frozen temperature, which can be thought of as "energy". As time elapses while the package is on its journey, the gel packs will slowly begin to thaw, releasing the appropriate amount of "energy" into the cooler needed to maintain product temperature.

Q: What are legitimate reasons to call with a concern for your product integrity?

A: Package was not delivered in 24-hour delivery window.

4

- Carrier (UPS or FedEx) left package outside or in a location that may not be the norm for your practice.
- Package did not contain the correct number of gel packs. Please refer to the cold chain packout guide to learn more.

Q: Why does the specialty network have different packouts by distribution location?

A: Due to the regional sourcing of materials and various distribution strategies we manage, the specific coolers currently utilized varies by distribution location. We are committed to continuously look for opportunities to ensure continuity across our network and further harmonize the coolers we use.

AmerisourceBergen

We are united in our responsibility to create healthier futures.