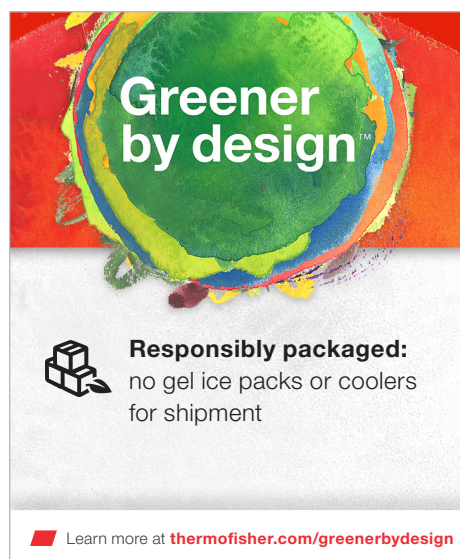


Ambient shipping for antibodies



Introduction

We are committed to designing our products with the environment in mind. This fact sheet provides the rationale behind the environmental claims that Invitrogen™ antibodies are responsibly packaged when shipped at ambient temperatures using a 100% curbside recyclable paper packaging.

To minimize the adverse environmental impact of packaging and shipping products on cold gel packs, we investigated the feasibility of shipping Invitrogen antibodies at ambient rather than cold temperatures.

Through functional testing, we have found that product quality and stability are unaffected by ambient shipping. By eliminating the use of cold gel packs for shipping these products, we are decreasing packaging and refrigerant, thereby reducing packaging waste and reducing emissions during transport.

Product description

Antibodies are essential tools for many research applications. Invitrogen antibodies are designed to dependably detect your protein of interest by undergoing advanced verification testing for many applications such as western blotting, immunocytochemistry, flow cytometry, and immunoprecipitation.

Our portfolio of Invitrogen antibodies has more than 233,000 products that include primary and secondary antibodies with conjugates from various dye classes and isotype controls.

Green feature

Responsibly packaged

The adverse environmental impact of shipping products at low temperature is significant. We have been systematically evaluating ways to minimize the footprint of shipping refrigerated products. One way we can do this is to challenge the perceived requirements for refrigerated shipping, and when the data support a change, we ship products at a temperature consistent with their demonstrated stability.

We conducted a study focused on the stability of research-use antibodies supplied in various formats, buffers, and preservatives. Stability was assessed across time and under various temperature stressors. Using a statistically significant product sample set, we demonstrated a 100% pass rate based on set criteria and validated that this wide range of products can be shipped and maintained at ambient temperature conditions for up to 7.5 days [1].

In addition to being able to transition antibody shipments to ambient temperature, we are also implementing 100% curbside recyclable paper packaging that reduces packaging weight by at least 90% and significantly reduces carbon emissions during transport.

Invitrogen antibodies have previously been primarily shipped in a fully paper-based and recyclable cooler, which has improved sustainability benefits when compared to traditional expanded polystyrene (EPS) coolers. Greenhouse gas emissions-based impact is further reduced by transitioning to fully paper-based and 100% curbside recyclable packaging that consists of either a padded envelope or a box. The current shipping method using a paper-based cooler and gel ice packs has a mass of ~1.5 kg as compared to the new paper-based envelope that has a mass of 0.046 kg or shipping box that has a mass of 0.15 kg. This is a

minimum of 90% reduction in shipment packaging mass. Use of the paper envelope or box reduces overall size, weight, shipping density, and source emissions when compared to the current shipping method.

Based on our shipment data for these products in 2023, by transitioning to ambient shipping for selected antibodies and reducing the packaging mass, these changes have the potential to eliminate more than 98,000 kg of paper and 200,000 kg of gel ice packs from circulation. Additionally taking into account these raw material reductions and average air and ground shipping data, the total footprint for packaging materials and emissions from transporting the antibodies could result in a reduction of approximately 500 metric tons of CO₂ equivalents (MTCO₂e) per year [2–4].

Through functional and stability testing, we have demonstrated that antibody products distributed with ambient-temperature shipping conditions perform identically to those shipped with cold-chain temperature conditions and maintain long-term stability.

Transitioning Invitrogen antibodies to ambient shipment in a 100% curbside recyclable paper packaging is a win for our customers, our company, and the environment.

References

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2. U.S. Environmental Protection Agency. Documentation for greenhouse gas emission and energy factors used in the waste reduction model (WARM). www.epa.gov/sites/default/files/2020-12/documents/warm_containers_packaging_and_non-durable_goods_materials_v15_10-29-2020.pdf
3. U.K. Department for Energy Security and Net Zero. Greenhouse gas reporting: conversion factors 2023. www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023
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 Find out more at thermofisher.com/antibodies

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