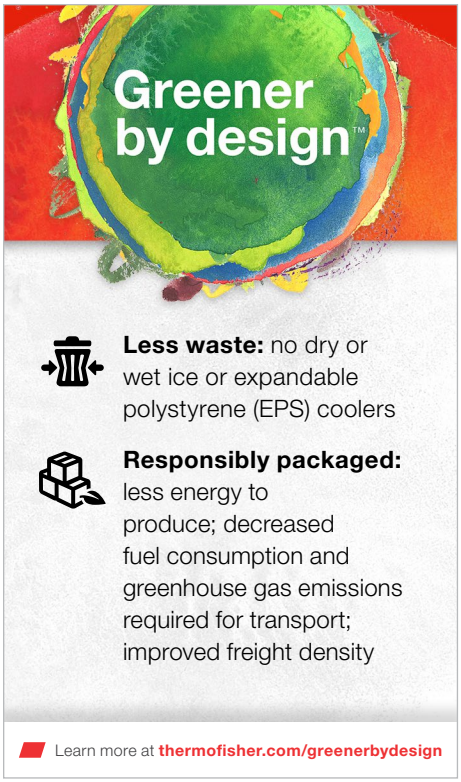
E-Gel and standard DNA ladders



Introduction

At Thermo Fisher Scientific, we are committed to designing and delivering our products with the environment in mind. This fact sheet provides the rationale behind the environmental claims that our E-Gel and standard DNA ladders are responsibly packaged and reduce waste when shipped at ambient temperatures.

To minimize the adverse environmental impact of packaging and shipping products on cold gel packs or dry ice, we investigated the feasibility of shipping our Invitrogen™ and Thermo Scientific™ DNA ladders at ambient rather than cold temperatures.

Through functional testing, we have found that product quality and long-term stability are unaffected by ambient shipping. By eliminating the use of cold gel packs and dry ice for shipping these products, we are decreasing packaging and refrigerant, thereby reducing:

- Packaging waste
- Energy used to manufacture the packaging
- Fuel use and greenhouse gas emissions associated with transport and packaging

Product description

We supply a wide range of DNA ladders and markers for accurate size and mass estimation of DNA fragments between 10 bp and 12 kb. DNA ladders are designed for a wide range of applications and can be stained with ethidium bromide, Invitrogen™ SYBR™ Safe gel stains, and other DNA stains, including radiolabeling. Ready-to-use Invitrogen™ E-Gel™ DNA ladders are premixed with loading buffer and formulated for maximum performance on Invitrogen™ E-Gel™ Precast Agarose Gels.

Green features

Less waste and responsibly packaged

The adverse environmental impact of shipping products at low temperature is tremendous—increasing CO_2 emissions generated from manufacturing EPS coolers and refrigerant, packaging size (thus reducing freight density), and fuel consumption due to added refrigerant weight. We have been systematically evaluating ways to minimize the carbon 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.

Previously, we used more than 1,600 kg of polystyrene to manufacture coolers for DNA ladders every year. The annual carbon footprint to manufacture that quantity of EPS and convert it into coolers is approximately 5.5 tons of CO_2 per year [1]. By shipping these products at ambient temperatures, we will help divert over 5,500 cubic feet of EPS waste from reaching our landfills and incinerators each year, and will reduce the total annual carbon footprint from transport and packaging by over 34 tons—roughly the same as taking seven cars off the road every year [2,3].

Functional and stability testing demonstrated that DNA ladders, when exposed to simulated ambient shipping conditions, performed identically and retained stability comparable to controls shipped on cold gel packs or dry ice [4].

References

1. Data derived from Bousted, I, Eco-profiles of the European Plastics Industry POLYSTYRENE (Expandable)(EPS). PlasticsEurope, June 2006.
2. Data derived from U.S. EPA, Climate Leaders, Greenhouse Gas Inventory Protocol Core Module Guidance (optional emissions from commuting, business travel and product transport).
3. U.S. EPA Greenhouse Gas Equivalencies Calculator, epa.gov/cleanenergy/energy-resources/calculator.html, accessed 31 January 2014.
4. For the detailed results of ambient shipping stability and performance testing of DNA ladders, visit: tools.thermofisher.com/content/sfs/brochures/DNA-Ladders-WhitePaper.pdf

Find out more at **thermofisher.com/ambientshipping**

invitrogen