# Custom primers and TaqMan probes

**Green benefits**

- **Sustainable packaging—no dry or gel ice, no expanded polystyrene (EPS) coolers**

## Introduction

We are committed to designing our products with the environment in mind—it's part of how we enable our customers to make the world healthier, cleaner, and safer. This fact sheet provides the rationale behind the environmental claim that Applied Biosystems™ custom primers and TaqMan® probes now have more sustainable packaging, due to shipping at ambient temperatures rather than on gel ice.

In order to minimize the adverse environmental impact of packaging and shipping products on gel ice, we investigated the feasibility of shipping our custom primers and TaqMan probes at ambient rather than cold temperatures. We have found, through functional and analytical testing, that shipping these products at ambient temperatures provides the same product quality as shipping these products on gel ice—without impacting long-term stability.

By these actions, we are decreasing packaging and refrigerant, thereby reducing:

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

## Product description

The custom primers and TaqMan probes are a comprehensive set of oligonucleotides for use in a wide range of applications. Custom manufactured to your specifications, the TaqMan probes and unlabeled primers are used for real-time PCR applications like gene expression, copy number variation (CNV), and single-nucleotide polymorphism (SNP) genotyping analyses. We also offer custom 5′ fluorescently labeled primers and primer pairs for fragment analysis applications like microsatellite, amplified fragment length polymorphism (AFLP), single-strand conformation polymorphism (SSCP), and quantitative fluorescence PCR (QF-PCR) analyses. Our primers and probes provide a fast, reliable, and convenient method for generating reproducible results for your research.

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## Green features

### Sustainable packaging

We have been systematically evaluating novel ways to minimize the impact of shipping products on gel ice, and the carbon footprint generated by the distribution of these products. One way we can do this is to ship our custom primers and TaqMan probes at a temperature consistent with their demonstrated stability. The adverse environmental impact of shipping products at reduced temperature is tremendous, with $CO_2$ emissions generated from the manufacturing of coolers themselves and from the addition of refrigerant for transport.

As noted above, our testing demonstrated that our custom primers and TaqMan probes maintain the same quality after shipping at ambient temperatures. This helps us minimize the adverse environmental impact of shipping frozen products by decreasing $CO_2$ emissions associated with everything from the manufacturing of coolers to the addition of gel ice for transport. The annual carbon footprint to manufacture EPS foam and convert it into coolers for our oligonucleotide products is approximately 6 tons [1].

Adding gel ice to each cooler to ensure the product is delivered frozen to our customers further increases the mass and dimensions of each package. Factoring in the number of shipments, average distance traveled per package, and air shipping for most packages, the annual total carbon footprint for transporting frozen oligonucleotides is in excess of 32 tons measured as $CO_2$ emissions [2]. With ambient temperature shipping for custom primers and TaqMan probes, we help divert an annual total of >1,800 kg (>5,000 cu. ft.) of EPS from landfills and incinerators, and reduce the total carbon footprint from manufacture and transport of EPS coolers by 38 tons annually [2].

| Custom primers and TaqMan probes |
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| Custom 5′ fluorescent labeled primers |
| Custom 5′ fluorescent labeled/unlabeled primer pairs |
| Custom 5′ fluorescent labeled/unlabeled di-repeat primer pairs |
| Custom 5′ fluorescent labeled/unlabeled di-repeat + tail primer pairs |
| Custom sequence detection primers |
| Custom TaqMan® MGB probes |
| Custom TaqMan® TAMRA™ probes |
| Custom TaqMan® QSY™ probes |


**References**

1. Data derived from Bousted I (2006) Eco-profiles of the European Plastics Industry. Plastics*Europe*.
2. Reference data derived from US EPA (2008) Climate Leaders, Greenhouse Gas Inventory Protocol Core Module Guidance, Optional Emissions from Commuting, Business Travel and Product Transport.


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