

# GlutaMAX Supplement



## 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 Gibco™ GlutaMAX™ Supplement utilizes sustainable packaging principles to reduce packaging waste. In order to minimize the adverse environmental impact of packaging and shipping products on dry ice, we investigated the feasibility of shipping and storing the GlutaMAX Supplement at ambient temperature.

Through ambient temperature shipping and storing, we aim to decrease the volume of 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

GlutaMAX Supplement is an alternative to L-glutamine, with increased stability that improves cell health. GlutaMAX Supplement is suitable for both adherent and suspension culture of mammalian cells, with no adaptation required. GlutaMAX™ Supplement is offered as a 200 mM solution of L-alanyl-L-glutamine dipeptide in 0.85% NaCl. GlutaMAX Supplement is also included in a variety of media formulations. Compared to L-glutamine, GlutaMAX Supplement:

- Minimizes toxic ammonia build-up
- Improves cell viability and growth
- Remains stable across a wide range of temperatures

## Green features

### Sustainable packaging

The adverse environmental impact of shipping products at low temperatures is tremendous, causing increased CO<sub>2</sub> emissions generated from the manufacturing of EPS coolers and refrigerant, increased packaging size, reduced freight density, and increased fuel consumption due to the added weight of the refrigerant. 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 requirement for refrigerated shipping. When our data support a change, we ship products at a temperature consistent with their demonstrated stability.

The annual carbon footprint to manufacture EPS and convert it to coolers for our GlutaMAX Supplement is approximately 9 tons. It takes nearly 20 barrels of crude oil equivalents and 49 MWh of energy annually to make the EPS coolers that are used to ship GlutaMAX Supplement [1].

On an annual basis, over 120,000 pounds of dry ice are added to the EPS coolers containing the product to ensure that it is delivered cold to our customers, further increasing the mass and dimensions of each package. Factoring in the number of shipments and average distance traveled per package, and the fact that most packages are shipped via air, the annual total

carbon footprint for transporting the GlutaMAX Supplement is in excess of 94 tons (measured as CO<sub>2</sub> emissions) [2].

By “going ambient” for the GlutaMAX Supplement, we would help divert an annual total of nearly 2,000 kg (2,700 ft<sup>3</sup>) of EPS from landfills and incinerators, and would reduce the total carbon footprint by over 103 tons annually. Functional and stability testing demonstrated that GlutaMAX Supplement exposed to simulated ambient temperature shipping conditions performed identically to and retained long-term stability comparable to those shipped on dry ice.

### References

1. Data produced using COMPASS™ (Comparative Packaging Assessment) online software tool (v1.1, <https://www.design-compass.org/>)
2. Reference data derived from U.S. EPA, Climate Leaders, Greenhouse Gas Inventory Protocol Core Module Guidance (Optional Emissions From Commuting, Business Travel and Product Transport).

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