Nunc Edge 2.0 96-Well Plates

Introduction

Thermo Fisher Scientific is committed to designing products with the environment in mind. This fact sheet provides the rationale behind the environmental claims that, relative to competitor plates, Thermo Scientific™ Nunc™ Edge 2.0 96-Well Plates generate 4–9% less plastic waste per plate and provide a 37.5% increase in useful capacity, which further reduces the plastic waste a typical user will generate.

Product description

The uniquely engineered Nunc Edge 2.0 96-Well Plate is designed to minimize evaporation of cell culture medium from the plate and the risks associated with the "edge effect" that may occur on a standard 96-well plate. When filled with sterile water or medium, the surrounding moat of the Nunc Edge 2.0 plate acts as an evaporation barrier during extended incubation. This yields viable cells consistently across the entire 96-well plate, enhancing productivity for cell-based assays. Enabling the use of all 96 wells allows users to plan experiments more efficiently, reducing costs and related product waste.

Green feature

Less waste and fewer resources

The "edge effect" on microplates refers to the phenomenon where results from the wells on the edges of the plate are statistically different from those of wells positioned toward the center of the plate. This noise and variability can deteriorate assay performance and contribute to an increase in the failure rate in high-throughput assays.

This is a common concern with standard 96-well plates and can be caused by temperature gradients, evaporation of reagents from the perimeter wells, and/or uneven cell adsorption.

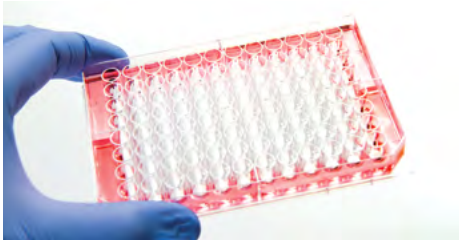

Figure 1. Nunc Edge 2.0 96-Well Plates have a surrounding moat that serves as an evaporation barrier, enabling users to expand their microplate cultures to all 96 wells without concerns over evaporation.

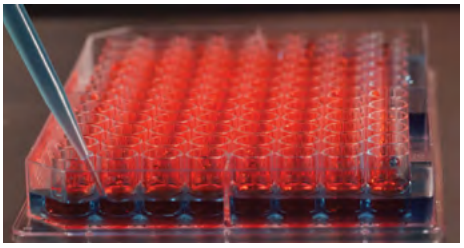

Figure 2. Side view of the moat surrounding the Nunc Edge 2.0 96-Well Plate.

To counteract this edge effect, researchers use various strategies, such as taping plates, preincubation [1], and avoidance of outer wells. These workaround strategies, however, are inefficient in terms of materials, labor, or both. In contrast, by requiring fewer materials and enabling effective use of all 96 wells, Nunc Edge 2.0 plates (Figures 1 and 2) maximize utilization of time and budget, and reduce waste.

Nunc Edge 2.0 plates contain less source material than other suppliers' plates (Table 1). A single plate (with lid) weighs only 59 g, compared to 62–65 g for other suppliers' plates, and similar to a standard Nunc 96-well plate (59 g). Choosing Nunc Edge 2.0 96-well plates over another supplier's product saves up to 9% material per plate. Using less material requires less petroleum feedstock and generates less greenhouse gas emissions.

More importantly, for typical usage of 10 plates per week, the ability to use all 96 wells instead of 60 wells (to avoid edge effect) reduces the number of plates needed from 830 to 520 per year. This reduces waste by as much as 23 kg, or 43% (Table 2), and increases productivity, which means less waste to manage in our customers' labs, and fewer plates to purchase—both of which represent cost savings and reduced environmental impact for our customers.

Designing the Nunc Edge 2.0 cell culture plate to generate less plastic waste, use fewer resources, and improve efficiency in the lab is a win for our customers, our company, and the planet.

Table 1. Comparison of product weight and associated material reduction percentage between Nunc Edge 2.0 plate and cell culture plates from other suppliers.

Plate description	Weight (g)	Material reduction (%)	Cat. No.
Nunc Edge 2.0 96-Well Plate	59	—	167425
Nunc Microwell 96-Well Microplate	59		167008
Nunc Edge 2.0 96-Well Plate	59	9	167425
Eppendorf Cell Culture Plate, 96-Well	65		0030730119
Nunc Edge 2.0 96-Well Plate	59	4	167425
Corning 96-Well Clear Flat Bottom Polystyrene TC-Treated Microplate	62		3596

Table 2. A typical user's reduction in plastic used annually by choosing Nunc Edge 2.0 plates vs. cell culture plates from other suppliers.*

Description	Total material used per year (kg)	Material reduction per year (%)	Cat. No.
Nunc Edge 2.0 96-Well Plate	30.9	43	167425
Eppendorf Cell Culture Plate, 96-Well	53.7		0030730119
Nunc Edge 2.0 96-Well Plate	30.9	40	167425
Corning 96-Well Clear Flat Bottom Polystyrene TC-Treated Microplate	51.4		3596

* Assuming typical use of 10 plates per week with 52 working weeks per year.

References

1. Lundholt BK, Scudder KM, and Pagliaro L (2003) A simple technique for reducing edge effect in cell-based assays. J Biomol Screen 8:566-570.

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

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