

# Nunc Edge 2.0 96-well plates



## 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 claims that Thermo Scientific™ Nunc™ Edge 2.0 96-well plates generate 5–9% less plastic waste per plate, and that the 40% increase in useful capacity means even less plastic waste generated for a typical user.

## Product description

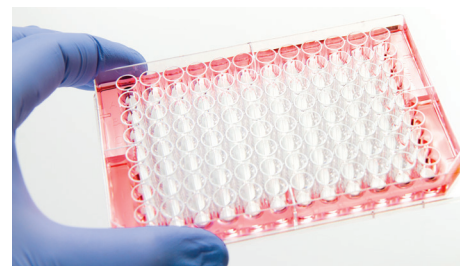
The uniquely engineered Nunc Edge 2.0 plates minimize evaporation that leads to edge effects. When filled with sterile water or medium, the surrounding moat acts as an evaporation barrier during extended incubation to help yield consistent, viable cells across the entire 96-well plate, in turn enhancing productivity for cell-based assays. Enabling the use of all 96 wells allows researchers to plan more efficient experiments, which help reduce cost and product waste.

## Green features

### Less waste and use of fewer resources

The edge effect in microplate-format assays refers to the phenomenon where data obtained from wells at the edges of the plate are statistically different from those obtained from wells toward the center of the plate. This variability can deteriorate assay performance and contribute to increased failure rates in high-throughput assays. This can be due to temperature gradients, evaporation of reagents from the perimeter wells, and/or uneven cell adsorption. To counteract this edge effect, researchers use various strategies

such as taping plates, preincubation [1], and avoidance of exterior wells. However, these strategies can be inefficient in terms of materials, labor, or both. In contrast, Nunc Edge 2.0 plates help to maximize utilization of time and budget and to reduce waste (Figure 1).



**Figure 1.** Nunc Edge 2.0 cell culture plates have a surrounding moat that serves as an evaporation barrier, enabling researchers to expand their microplate cultures to use all 96 wells without concerns over evaporation.

Nunc Edge 2.0 plates use less source material than other plates on the market (Table 1). A single plate (with lid) weighs only 59 g, compared to 62–65 g for plates from other suppliers, and is similar to a standard Nunc 96-well plate (59 g). This is up to 9% less material per plate. More importantly, for a typical scientist currently using 15 plates per month, the ability to use all 96

wells compared to 60 wells (to avoid the edge effect) can help reduce the number of plates needed to as few as 10. The large perimeter moat helps to dramatically reduce well-to-well variability while also reducing the overall evaporation rate to <2% after 7 days of incubation, which helps to ensure cell viability. Therefore, users can achieve a waste reduction of 295–385 g per month (33–39%, Table 2)

while continuing to produce the high-quality results expected from Nunc plates. Over the course of a year, the impact per user adds up to 15 kg CO<sub>2</sub> equivalents in materials alone [2]. This can mean less waste to manage in our customers' labs, and fewer plates to purchase—both of which represent cost savings and reduced environmental impact.

**Table 1. Comparison of weights of Nunc Edge 2.0 plates and cell culture plates from other suppliers.**

Product	Weight (g)	Material reduction (%)	Cat. No.
Nunc Edge 2.0 plates	59	NA	<b>75800-388</b>
Thermo Scientific™ Nunc™ MicroWell™ standard 96-well plates	59	NA	<b>25382-342</b>
Nunc Edge 2.0 plates	59	9	<b>75800-388</b>
Competitor 1 plates	65	–	–
Nunc Edge 2.0 plates	59	5	<b>75800-388</b>
Competitor 2 plates	62	–	–

**Table 2. Comparison of waste generation for a typical user (15 standard plates per month).** Using all 96 wells of Nunc Edge 2.0 plates compared to the central 60 wells for standard plates allows the same number of samples to be analyzed using only 10 plates.

Product	Weight per plate (g)	Number of plates needed	Total waste (g)	Waste reduction (%)
Nunc Edge 2.0 plates	59	10	590	33
Nunc MicroWell standard 96-well plates	59	15	885	–
Nunc Edge 2.0 plates	59	10	590	39
Competitor 1 plates	65	15	975	–
Nunc Edge 2.0 plates	59	10	590	37
Competitor 2 plates	62	15	930	–

## References

1. Lundholt BK, Scudder KM, Pagliaro L (2003) A simple technique for reducing edge effect in cell-based assays. *J Biomol Screen* 8:566–570.
2. Cradle-to-gate life cycle inventory of nine plastic resins and four polyurethane precursors. August, 2011. Prepared for the Plastics Division of the American Chemistry Council by Franklin Associates. <https://plastics.americanchemistry.com/LifeCycle-Inventory-of-9-Plastics-Resins-and-4-Polyurethane-Precursors-Rpt-Only/>

Find out more at [vwr.com/ThermoSciCellCulture](http://vwr.com/ThermoSciCellCulture)

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