

CUTTING PLASTIC, NOT CORNERS

**A 4-STEP ROADMAP TO WEIGHT-OPTIMIZED THERMOFORMED
PACKAGING FOR MEDICAL-DEVICE MANUFACTURERS**

White Paper by Giuseppe Maimone, July 2025



Table of Contents

01

Executive Summary

02

Why Weight Matters Now

03

Three Techniques to Reduce Tray Weight

04

Case Study: Renal-Therapy Tray

05

4-Step Roadmap to Reducing Packaging Weight

Executive Summary

Medical Packaging Impact Overview

Medical device makers are facing mounting pressure: reduce environmental impact, cut shipping costs, and meet tighter product launch timelines. Packaging offers a fast win. Every extra gram removed from a sterile tray saves on material, energy, and budget, without touching the device itself.

Merrill's Packaging regularly reduce plastic use by up to 17% - while maintaining ISO 11607 compliance and hitting delivery deadlines. As industry experts, we share:

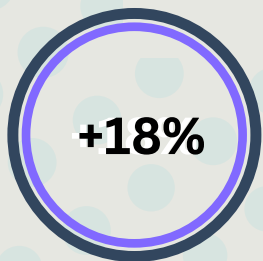
- **Three proven techniques** to cut weight without compromising seal integrity
- **A rapid tooling process** delivers sterile samples in just **9** business days
- **A real-world case study** where we pulled a renal-therapy product launch forward by seven weeks
- **A four-step checklist** you can start using today

Unlike incremental product changes, optimizing packaging weight provides immediate benefits. Merrill's ISO 13485-compliant trays ship in under two weeks - with full ISO 11607 validation, we have multiple manufacturing sites including California and Costa Rica to service OEM's in nearshore countries including Mexico, Puerto Rico and the Dominican Republic.

Packaging & Sustainability Statistics



Reduction in packaging mass pledged by 60+ U.S. health systems and hospitals by 2028 - American Hospital Association



Increase in PETG material prices impacting cost efficiency since 2022 - Plastics Today



Every 1kg of weight reduction lowers material costs and reduces approximately 1.3kg in CO₂e emissions - National Renewable Energy Lab, NREL.gov



ISO 11607 supports material minimization, quality assessment, and regulatory compliance

Three Techniques to Reduce Tray Weight

1

Structural Light-Weighting

Replace flat surfaces with deep-draw ribs and local load islands to maintain stiffness while shaving 0.3–0.5 mm off wall thickness.

2

Material Right-Sizing

Swapping from 0.76 mm PETG to 0.63 mm medical-grade PET reduces weight by around 17%, with no compromise in seal performance.

3

Precision Rapid Tooling

Our hybrid aluminum and 3D-printed tooling enables quick cavity adjustments so engineers can tweak flange depth and corner radius in days—not weeks.

Case Study

Renal-Therapy Tray

"Merrill's hit our weight target without adding a single day to validation."

- OEM Director of Packaging Engineering

This project exemplifies rapid innovation in medical-device packaging. By applying advanced structural light-weighting, material right-sizing, and precision rapid tooling, Merrill's was able to meet strict weight-reduction targets. The renal-therapy packaging launch was accelerated by seven weeks, maintaining full ISO 11607 compliance and validation schedules—helping the client bring their therapy system to market faster without risk or extra cost.

Using a forward looking and collaborative approach, we have combined process optimization and direct engineering into a cohesive team process that delivers robust, compliant trays – at reduced weight and within original timelines.

4-Step Roadmap to Reducing Packaging Weight

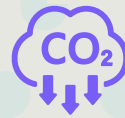
STEP 1



Benchmark:

Weigh your current tray and document seal and burst data.

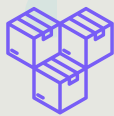
STEP 2



Set Target:

Aim for a 20–30% weight reduction aligned with your quality profile.

STEP 3



Design Sprint:

Join a 48-hour CAD sprint with Merrill's DFM team to approve design changes.

STEP 4



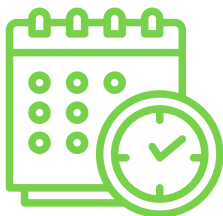
Rapid Tool & Test:

Receive sterile samples in 9 business days; run burst, peel, and drop tests.

Contact

Merrill's Packaging

Giuseppe Maimone
Solutions Engineer



Scan to schedule
a 15-minute
assessment



Giuseppe.maimone
@merrills.com

+1 (415) 718- 5235

Your partner for compliant, light
weight, rapid-turn medical packaging solutions.

www.merrills.com