

Packaging Case Study

Designed to Meet Performance and Sustainability Goals

ARCEL® advanced foam resin helps manufacturers produce efficient, sustainable packaging. ARCEL resin is a high-performance foam cushioning material that provides superb product protection and smaller cube sizes.

Challenge

Tyco Safety Products, a major manufacturer required an enhanced packaging solution for a damage sensitive electronic product. The new packaging for the Simplex® 4100U Fire Detection Panel was required to:

- Decrease overall cost
- Reduce the total packaging footprint
- Offer superior damage protection

Solution

The ARCEL resin design team worked to optimize the protective packaging for cost and material efficiencies. The engineered solution was designed to meet several goals:

- Withstand multiple drops
- Deliver lower costs per unit
- Be a sustainable solution

The team developed several design options and conducted performance testing to ensure the integrity of the package. With ARCEL resin, Tyco Safety Products was able to reduce its environmental impact throughout the supply chain and help create a positive customer brand experience at a lower total cost.

In this application, ARCEL advanced foam resin:

- Provided protection to help withstand the rigors of shipping
- Delivered significant cube utilization and material source reduction efficiencies
- Met the sustainability goals of the customer

15%
Cube Reduction

16%
Less Corrugated

43%
Lighter Cushion

ARCEL Resin provides real sustainability benefits

Environmental Measures and comparisons for 10,000 units

Tyco Safety Products 4100U Package Based on WRI Emissions Factors	XPE	ARCEL RESIN	Improvement
Corrugated			
Corrugate Usage (tons) Based on box weight	37	31	6
Trees Consumed At 12 trees/ton of virgin corrugated	260	219	41
CO₂ emissions (tons) At 58% recycling rate	145	122	23
Cushion			
Cushion weight per unit (tons)	51.0	29.0	22.0
CO₂ emissions (tons)	15.9	9.1	6.9
From cushion manufacturing (tons)	56	60	-4
Land Freight			
Weight of freight/trailer (lbs) 53 ft. standard	13,886	16,512	2,625
Ton-Miles of Road Freight	315,600	300,215	15,385
CO₂ emissions (tons) Based on WRI Emissions Factor 0.2639 lb C)2 ton/mile	42	40	2

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