

ARCEL[®] Resins a Styropek Expandable Styrenics Product



INDUSTRY FOCUS

Flat-Panel Televisions

Manufacturers of flat-panel televisions can realize exceptional benefits by using ARCEL resin for package cushioning. This Industry Focus shows how ARCEL resin meets the challenge of shipping these valuable goods, and what specific savings you can expect.

The high cost of "foam insurance"

Shipping flat-panel televisions poses a challenge for the manufacturer or logistics manager: they are bulky to ship, and prone to damage if packed or handled incorrectly. Expandable polystyrene (EPS), the most common material used to protect televisions in the carton, doesn't always get the job done. In fact, it's often called a "one-drop" foam since it's not engineered to withstand the multiple drops that often occur in the supply chain, and that can cause packaging failure and damaged goods. To reduce this problem, designers often over-engineer packaging by increasing the amount of EPS in the design. While this kind of "foam insurance" protects against damage, it increases the package cube—multiplying supply chain costs at each stage where the products are stored or shipped.



Product returns in the consumer electronics industry run \$10 billion annually. Buyers of high-value goods may return items with broken cushioning—whether damaged or not.

The difference with ARCEL Resin

With ARCEL resin, you don't have to choose between overengineered packaging or under-protected products. Lean and resilient, ARCEL resin provides strong protection at a small cube size. ARCEL resin's toughness helps guard products even through multiple drops, without cracking or flaking. On top of that, ARCEL resin's compactness allows the shipment of additional units on each truck or ocean container. For example, it can reduce the package size of a large flat-panel television by as much as 50% - instantly doubling the capacity of every shipment.

The upside to downsizing with ARCEL Resin

ARCEL resin delivers three benefits. By increasing the capacity of every container, truckload, and pallet, it delivers savings throughout the supply chain. By resisting damage, it reduces customer returns that stem from broken cushioning. And by reducing packaging, it offers a more sustainable alternative that will cut energy used in manufacturing, lower fuel consumption and emissions, and reduce the waste stream for foam and corrugate.

This Industry Focus is one in a series demonstrating how ARCEL[®] advanced foam resin offers packaging benefits to specific industries for high-value, damage-sensitive goods.

ARCEL resin is a high-performance resin for carton cushioning that provides superb protection and reduced cube sizes.

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What kind of difference can ARCEL resin make?

For a large flat-panel television, cushioning made with ARCEL resin can reduce the cube of the carton by a dramatic 40%. Here's a detailed comparison showing what kind of savings that can yield—in space as well as dollars.



Using conventional cushioning foam (left), a large flat-screen television with its stand can be packed with only two units to a standard pallet. Switching to ARCEL resin (right) and removing the stand allows for cartons approximately half the size, easily doubling the yield.



Traditional Foam ARCEL Resin Traditional Foam ARCEL Resin Change

Size Comparison	With Stand		Without Stand		
Length (in.)	51.5	47.25	51.5	47.25	4.25
Height (in.)	34.0	31.5	32.5	29.5	3.0
Width (in.)	14.1	13.3	10.0	8.0	2.0
Units per 40 ft. container ¹	180	210	249	360	111
Units per 48 ft. trailer ²	100	252	200	420	220
Cost Comparison ³	With Stand		Without Stand		
Shanghai to Long Beach	\$16.67	\$14.29	\$12.05	\$8.33	\$3.72
Long Beach to Chicago	\$15.00	\$5.95	\$7.50	\$3.57	\$3.93
Environmental Impact ⁴	With Stand		Without Stand		
Truckloads/100,000 units	-	-	500	238	262
Diesel Fuel (gal.)	-	-	173,390	82,567	90,824
CO ₂ Emissions (tons)	-	-	1,925	917	1,008
Trees Consumed	-	-	3,830	3,286	544

1 Without Pallets
2 With Pallets

3 Cost comparison data shown here are the result of a model, and are provided only as an illustration. Actual costs may vary.
4 Environmental impact calculated per 100,000 units with fixed ratio of 'Units per 48 ft. trailer.' Based on 2,050 mile haul from Long Beach to Chicago

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