Industry Update November/December 2022

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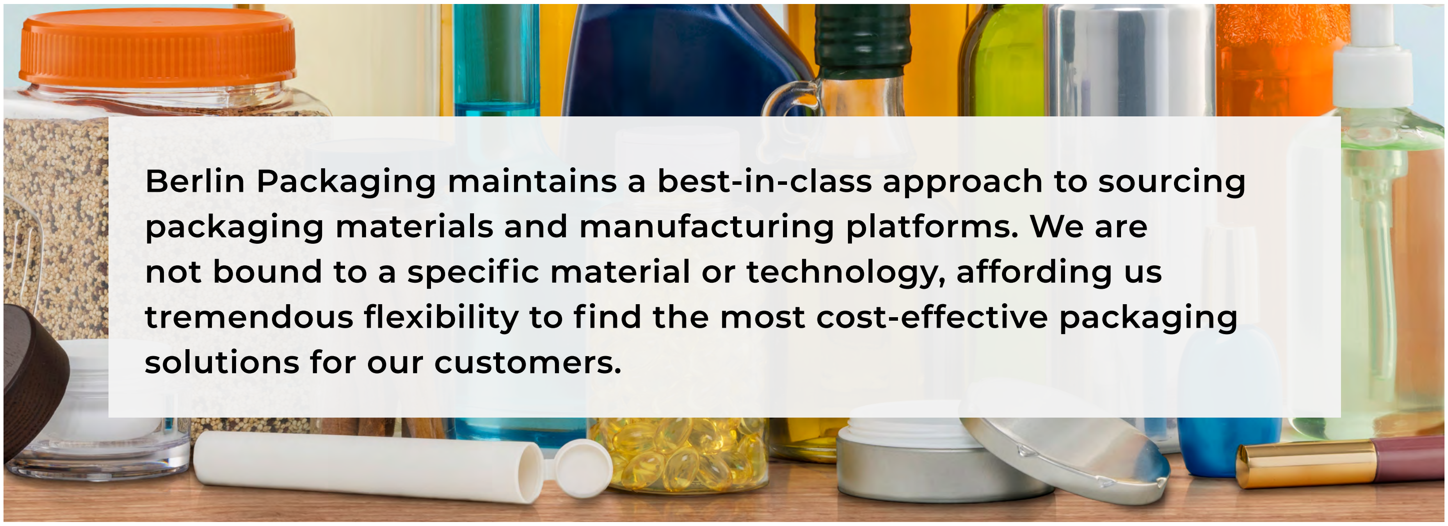
Resins & Raw Materials



Berlin Packaging maintains a best-in-class approach to sourcing packaging materials and manufacturing platforms. We are not bound to a specific material or technology, affording us tremendous flexibility to find the most cost-effective packaging solutions for our customers.

Softening demand, improving supplies, and lower feedstock costs are keeping packaging raw material prices in check. But high energy rates (diesel fuel and natural gas), persistent inflation, transportation and warehousing challenges, and rising labor wages are elevating operational costs and upholding pricing.

The pandemic and subsequent restaurant and entertainment closures (plus personal and business travel suspensions) prompted consumers to spend more on at-home goods and less on away-from-home services. That two-year dynamic has now reversed course, resulting in purchase cutbacks on packaged goods, electronics, furniture, and home & garden supplies. High inflation and recession worries are also restricting consumer spending.

Plastic Resins

Slowing demand, more imports, ample supplies and inventories, and reduced feedstock costs are putting downward pressure on plastic resin prices. However, the cost of colorants, liners, energy, wood pallets, and labor continues to escalate. And the superfund excise tax, which took effect in July, is being passed along to customers of virgin resins.

Here's a brief rundown of the current market conditions for various resins:

1 **PET (Polyethylene Terephthalate):**
High inventories of imported material, slower-than-expected demand, and a decrease in raw material costs have reduced PET prices.

2 **HDPE/MDPE/LDPE (Polyethylene):**
Weak demand and plentiful supplies have led to decreased PE prices. Moving forward, prices may stabilize due to production cutbacks, lower inventories, and rising natural gas costs.

Resins & Raw Materials

PVC (Polyvinyl Chloride):
Decreased demand and excess inventories are driving PVC costs down.

PP (Polypropylene):
Weak demand and a surplus of inventory have led to decreased PP prices.

PS (Polystyrene):
Plentiful supplies and declining raw material costs have led to decreased PS prices.

Post-Consumer Recycled (PCR):
October prices for post-consumer PET scrap, colored HDPE, and PP bales remain depressed, with PET down more than 60%, colored HDPE dropping more than 85%, and PP falling more than 80% in the past 12 months.

Glass

Glass container capacity is starting to open up in North America due to higher-than-expected inventories of finished products at retailers. Outside of highly constrained glass container capacities in the UK/EU due to the war in Ukraine, most global regions have adequate open capacity.

High energy surcharges are expected from all glass container manufacturers in the EU due to scarce energy supplies as a result of shutdowns of Russian natural gas pipelines and predictions of a harsh winter. Globally, glass container manufacturing costs are increasing due to the high costs of energy (natural gas) and inflated costs for soda ash — a key raw material for glassmaking.

Resins & Raw Materials

Although Berlin Packaging cannot control the price of raw materials, we do offer multiple value-added services and income-boosting solutions to help our customers Package More Profit.® Over the past few years, Berlin Packaging has added more than $200 million in profit to our customers as a unique benefit of doing business with us.

Aluminum

Market forecasters predict global aluminum container sales will increase 4–5% annually throughout the decade. This growth will be driven by beverages (alcoholic, energy drinks, teas, sparkling waters, and soft drinks), food, and personal care products. Aluminum's durability, lightweight, and recyclability are making inroads in applications formerly ruled by glass and plastic packaging.

100% Recycled Aluminum Can

In Japan, a brewer recently introduced the world's first 100% recycled aluminum can for two limited-edition malt products. Manufacturing the 350-ml can with a stay-on tab produces 60% less carbon dioxide emissions than a conventional aluminum can.

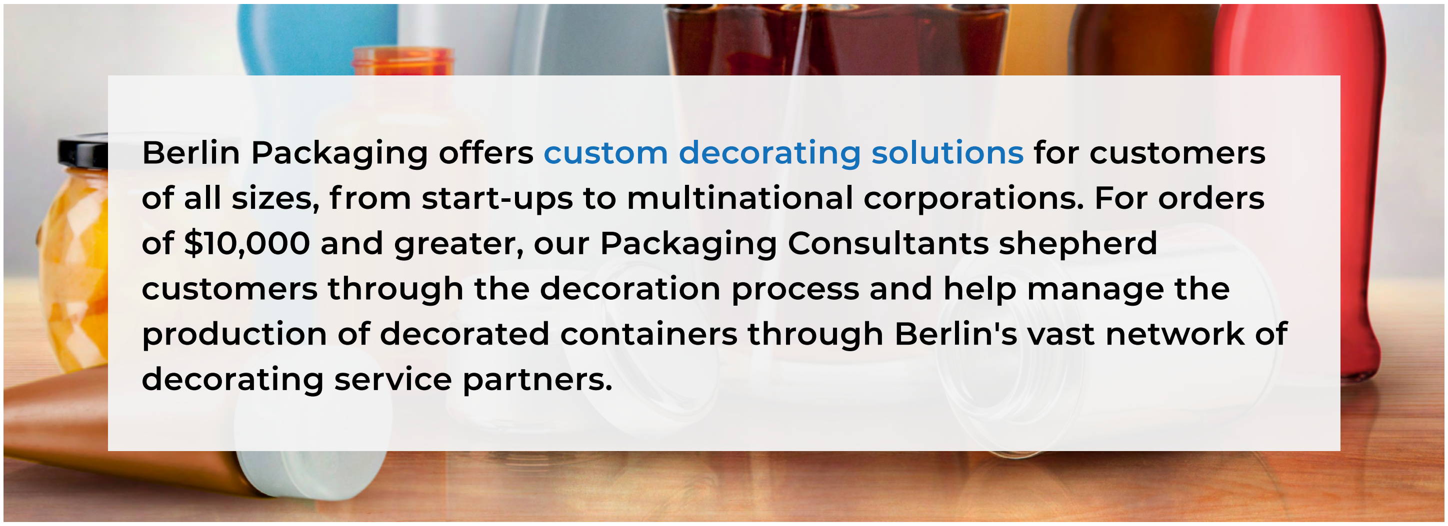
Steel

Recycling of steel packaging in Europe reached an all-time high of 85.5% in 2020 (latest data), representing a 1.5% increase over the prior year and the 10th consecutive year of recycling rate gains, according to data from the Association of European Producers of Steel for Packaging. In the U.S., the recycling rate for steel containers stood at 62% in 2019, according to an estimate from the Steel Recycling Institute.

Pulp & Paper

Following a steady rise since the start of 2021, producer prices for pulp, paper, and corrugated products have begun to stabilize in the past three months (July through September). Meanwhile, in the recycling markets, the average price for old corrugated containers (OCC) plummeted in the past few months, dropping to $38 per ton in October. In October 2021, the average OCC price was $164 per ton. Over the past four years, OCC prices have averaged $82 per ton.

Custom-Decorated Stock Packaging



Berlin Packaging offers custom decorating solutions for customers of all sizes, from start-ups to multinational corporations. For orders of $10,000 and greater, our Packaging Consultants shepherd customers through the decoration process and help manage the production of decorated containers through Berlin's vast network of decorating service partners.

Brand owners in search of packaging for their products typically encounter two basic choices: stock packaging or custom packaging.

Stock packaging presents an attractive option because of its cost (generally less expensive than custom packaging), familiarity (think canned foods), and availability (mass production, sufficient quantities, small and large orders). It's also reliable, with a proven track record of high quality and manufacturing efficiency. But stock packaging may not meet all the needs of the product or brand.

A custom package is unique and can be designed to personify the brand and stand out on a crowded shelf and highly competitive product category. But custom packaging comes with added costs — mold tooling, design costs, prototypes, etc. — that may be out of reach for some brand owners. Moreover, custom packages usually shoulder longer lead times compared to stock packages.

While not as well publicized as a stock or custom structure, a third option — custom-decorated stock packaging — balances cost and convenience with individuality and style. Through the use of decorative techniques, novel label designs, custom closures, and other accessories, stock containers can be transformed into one-of-a-kind packages that rival their custom-format cousins.

Custom-Decorated Stock Packaging

Resins & Raw Materials | Custom-Decorated Stock Packaging | Ocean Freight | Domestic Transportation

Case Study - Branch Basics

Branch Basics, which markets a line of plant- and mineral-based cleaning products, is a good case in point. The home care company enlisted Berlin Packaging's Studio One Eleven® innovation consultancy to help them develop packaging for their nontoxic, spray-cleaning products.

Studio One Eleven selected a Boston round glass bottle and an all-natural trigger sprayer and customized the stock components to create a more premium aesthetic and superior user experience. Ceramic printing on the bottle communicates the different cleaning tasks: Streak-Free, All-Purpose, and Bathroom. A white silicone boot with a debossed company logo and name adds style and protection while signaling cleanliness. A color-coded ring at the neck enables easy differentiation between the three cleaning applications.

Custom-Decorated Stock Packaging

Case Study - Onnit Labs

Berlin Packaging and Studio One Eleven captured a gold award for best use of stock components in the 2022 NACD Packaging Awards competition for Onnit Labs' Alpha Brain Black Label dietary supplement packaging design. Because of the products' ultra-premium position and higher price point, Studio One Eleven chose a stock black glass bottle to differentiate it from everyday supplements and added a tidy label design with simple graphic elements. The cap features a metallic Onnit Labs logo for added branding.

To further elevate the product, Studio One Eleven designers created a secondary package that mimics the shape and label elements of the bottle. The matte black tube opens like a gift to reveal the striking glass bottle inside. Interior silver foil near the tube's base adds an element of surprise and luxury.

Custom-Decorated Stock Packaging

Decorating Techniques

Decorating techniques transform ordinary stock packaging into works of art and amplify a brand's message and identity. The addition of different hues, textures, and visual effects dramatically alters the appearance and appeal of standard packaging without changing its functionality.

Here are several decorating options that can be applied to glass, plastic, metal, and/or paperboard substrates:

- **Acid etching** changes the opacity of glass from clear to translucent, providing a deep, rich, velvety, or frosted appearance and a soft silky feel to the glass surface.
- **Ceramic printing** uses ceramic inks and heat to fuse with the glass. It's scratch resistant and diffuses light.
- **Digital printing** enables personalized or individualized packaging with superior print quality.
- **Flexographic or flexo printing** works well with laminate tubes and some pressure-sensitive labels. It is fast, uniform, and high quality, allowing for detailed graphics.
- **Hang tags** are paperboard die-cut labels that attach to the neck of a bottle.
- **Hot foil and ink stamping** use lithographic printing to transfer pre-dried ink or foils to a surface at high temperatures. They're used widely on plastic and paperboard.
- **Labeling** offers an economical method to brand a stock package, such as a jar, aluminum can, or wine bottle. Common labeling systems include die cut, heat transfer, in mold, pressure sensitive, and shrink sleeve.
- **Metallizing** applies a metal coating or finish to glass or plastic containers and components.
- **Vacuum metallizing** involves heating the coating metal to a boiling point in a vacuum chamber. The condensation deposits the metal onto the substrate's surface. The final coating provides a shade of color and a protective layer for the metal.

Custom-Decorated Stock Packaging

DIY Labels

For customers with smaller budgets or speed-to-market demands, Berlin Packaging offers a do-it-yourself (DIY) labeling option. Called Easy Online Labels, the program enables customers to create custom labels online by uploading their own artwork or modifying the text from dozens of predesigned label templates.

Customers can choose from circles & ovals, squares & rectangles, special shapes, text labels, and tamper-evident strips — all with multiple color options. Labels are available in sheets, rolls, and DIY custom die-cut rolls. Sheet labels are made from vinyl (peel & stick), and roll labels are constructed of BOPP (biaxially-oriented polypropylene). Both labels are printed on a 4-color digital press (CMYK).

Ocean Freight

As port delays and congestion persist in North America, Berlin Packaging continues to proactively search for alternate routings and provide real-time visibility of the global freight market to help our customers minimize any disruptions to their supply chains.

Trans-Pacific ocean freight rates continue to decline as import volumes remain well below their usual peak season numbers. In response to low inbound demand to North America, ocean carriers have reduced capacity (i.e., blank sailings) to balance supply and demand and maintain rates. The uptick in blank sailings is negatively influencing schedule reliability.

In September, schedule reliability or on-time performance was 32% on the West Coast and 21% on the East Coast. For all global trade lanes, schedule reliability is about 45%. In 2019 before the pandemic, schedule reliability worldwide ranged from a low of 73% to a high of 83%.

While ocean freight rates to North America are improving, carrier cancellations, congestion at some East/Gulf Coast ports, long rail dwell times at some West Coast ports, and coronavirus lockdowns in Asia are impeding supply chains.

China's zero-COVID policy is hampering trucking and port activities in its key transportation hubs of Ningbo, Shanghai, and Tianjin. Most ports are open but moving goods from the manufacturers to the ports remains a challenge with cross-province trucking restrictions.

North American importers brought in many goods ahead of schedule in the first half of the year to counter shipping delays and avoid stock shortfalls for the holiday season. But consumer spending slowed down, and the economy slumped, leaving retailers with higher-than-expected inventories. Retailers are canceling orders and buying cautiously, constraining imports. The National Retail Federation predicts imports will fall nearly 7% in Q4 2022 compared to the same quarter last year.

Ocean Freight

As a Customs Trade Partnership Against Terrorism (CTPAT) Certified importer, Berlin Packaging and our customers reap multiple benefits, such as reductions in customs freight examinations, "front of the line" status during inspections/exams, shorter wait times at the border, and more.

Port Activity

A potential dockworkers' strike and long port dwell times on the West Coast have shifted many container shipments from Asia to East and Gulf Coast ports. In September, the port of Los Angeles (LA) handled the fewest number of import containers since 2009, while its sister port of Long Beach (LB) posted a monthly import low not seen since 2016.

Even with ship volume down at LA/LB, the ports are not operating smoothly. In mid-October, terminal dwell times were averaging 3–8 days, and rail dwell times were running 4–12 days.

Tensions appear to be rising between the West Coast dockworkers union and port terminals management as contract negotiations continue to drag on with no resolution in sight. Dockworkers have been without a contract since July. This uncertainty is prompting ocean carriers to avoid West Coast ports.

Congestion at East/Gulf Coast ports is causing delays at Houston and Savannah. In mid-October, ships awaiting berths in Houston were anchored for up to 22 days. In Savannah, that number reached as high as 17 days. In September, the port of Houston recorded its second busiest month ever for cargo containers.

A system-wide rail strike may once again be a possibility this fall as two unions voted to reject the contract agreement. As of October 31, six of the 12 unions (representing about 20% of all railroad-related workers) have ratified the new agreement. Two of the largest unions have yet to vote. If any union calls a strike, the other unions will likely honor it, creating a broad work stoppage.

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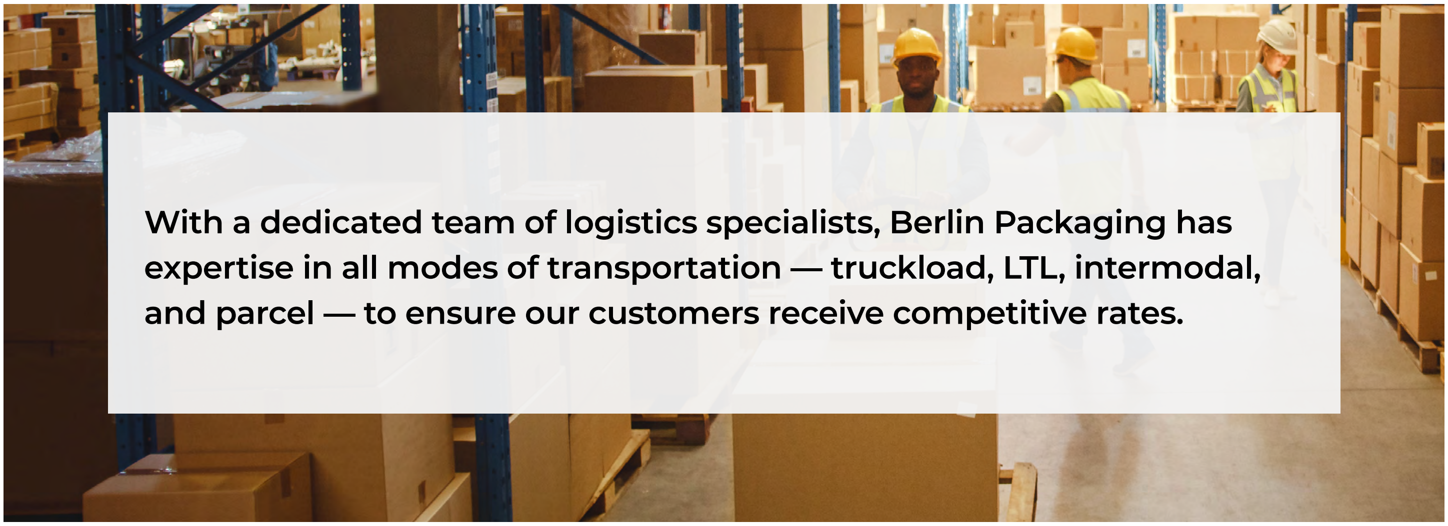


With a dedicated team of logistics specialists, Berlin Packaging has expertise in all modes of transportation — truckload, LTL, intermodal, and parcel — to ensure our customers receive competitive rates.

Transportation costs in North America have been nearly flat since the late summer. Capacity continues to loosen, putting downward pressure on rates. However, high diesel fuel costs and fuel surcharges continue to bolster transportation costs.

Several broad economic factors are impacting the transportation industry. Consumers have shifted their purchases to more services and fewer goods. High inflation and fears of a recession have dampened consumer spending. Forward buying and overbuying by retailers in the first half of the year have resulted in excess inventories, canceled orders, and shrinking import shipments.

In mid-September, a rail strike was averted when two of the largest railroad unions reached a tentative agreement with the freight railroads. Since then, two unions have voted to reject the deal, setting up the possibility of a rail strike in late November or early December. Such a strike would likely cost $2 billion per day in lost economic output. As of October 31, only six of the 12 railroad unions (representing about 20% of all railroad-related workers) have approved the agreement.

Truckload

Line-haul costs per mile for dry van spot market shipments have been steady since Labor Day — averaging $2.17 in mid-October and down from $3.14 in October 2021. Spot rates are about 60 cents per mile less than contracted rates.

Van load-to-truck ratios — an indicator of demand (no. of loads) and capacity (no. of trucks available to carry those loads) — have fallen below 4:1 for the past four months (June through September) and nearly touched 3:1 in mid-October. The last time the ratio was this low for four consecutive months was March through June 2020 — the beginning of the pandemic. Lower ratios usually signal a decrease in rates.

Domestic Transportation

Berlin Packaging maintains strong and enduring partnerships with local carriers, resulting in best-in-class service and competitive costs that benefit our customers.

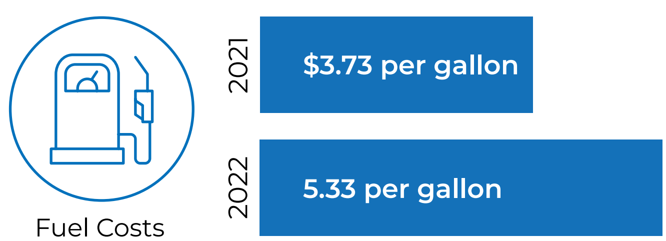
Core retail sales data compiled by the National Retail Federation (NRF) rose 0.3% from August to September, while overall sales reported by the U.S. Census Bureau remained flat. According to the NRF, store categories showing month-over-month gains include grocery and beverages, health and personal care, clothing, and online. Stores with month-over-month declines include furniture, sporting goods, building materials/garden supplies, and electronics.

With retailers fully stocked for the upcoming holiday season, the NRF reports that retail imports at major U.S. container ports are expected to fall to their lowest level in nearly two years by the end of 2022. On a year-over-year basis, import volumes are anticipated to drop 9.4% in October, 4.9% in November, and 6.1% in December, predicts the NRF.

In mid-October, the average price for diesel fuel in the U.S. was $5.33 per gallon — more than $1.60 higher than one year ago. Diesel prices jumped about 50 cents per gallon in October, suggesting there may be a realignment between diesel fuel costs and crude oil prices due to lower sulfur fuel requirements for maritime shipping.

Less-Than-Truckload (LTL)

U.S. manufacturing output increased 0.4% in September, with the consumer goods segment posting a 0.6% gain, according to the Federal Reserve. LTL shipments, which correlate to manufacturing activity, should remain strong in the near term. While imports are declining, warehouses remain stocked with merchandise. Moving those goods to market throughout the holiday season should underpin LTL volumes and rates.



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Parcel

About 85% of online shoppers will stop purchasing from a retailer following a poor delivery experience, according to a recent consumer survey by logistics technology firm FarEye. Factors contributing to a substandard experience include high shipping costs, late deliveries, tracking inabilities, and difficult return processes.

The survey also revealed strong consumer interest in sustainability, with 56% of respondents desiring to know the carbon emissions impact of their delivery. This environmental appeal presents an opportunity for e-commerce packaging to communicate its sustainable attributes, such as reduced material usage, efficient design and shape, post-consumer recycled content, recyclable materials, and refill/reuse containers.

Given the current macroeconomic conditions, some parcel carriers are predicting a slowdown in parcel shipping demand this holiday season. However, peak season surcharges are already in place, making it highly unlikely that rates will be influenced by any softening in demand and improvements in capacity.

We Believe Anything Is Possible®

With over 100 years in the packaging industry, more than 2,000 packaging professionals and a global network of suppliers and warehouses, we offer 50,000+ SKUs of plastic, glass, and metal containers, closures, and dispensing systems across all markets for customers just like you.

Our Business Model

Berlin Packaging is not a distributor. We're not a manufacturer. And we're not a packaging consultancy. Instead, we're all three at the same time. We are best-of-breed amongst manufacturing, distribution, and value-added service providers. We are the world's largest global Hybrid Packaging Supplier®.

Hybrid **Packaging** Supplier®

Best Elements of a Manufacturer + **Distribution & Logistics** + **Value-Added Specialty Services**

Global Capabilities

Our mission is to improve our customers' net income through packaging products and services. With 130+ locations on four continents and a network of suppliers around the world, we leverage our global scale and capabilities to further our mission – and bring unique value to customers of all sizes at the local level – where it matters.

Specialty Services

We offer value-added services specialized to best address all your packaging needs.

Brand Strategy & Design – Quality Advocacy – Global Capabilities – Warehousing & Logistics – Financing & Consulting – Sustainability Solutions

Operational Excellence

- ISO 9001 Certified
- Dedicated Quality Service Division
- Industry-leading customer thrill scores
- Sustainability and safety focused

Visit our website or call the number below to be contacted by a Packaging Consultant.

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