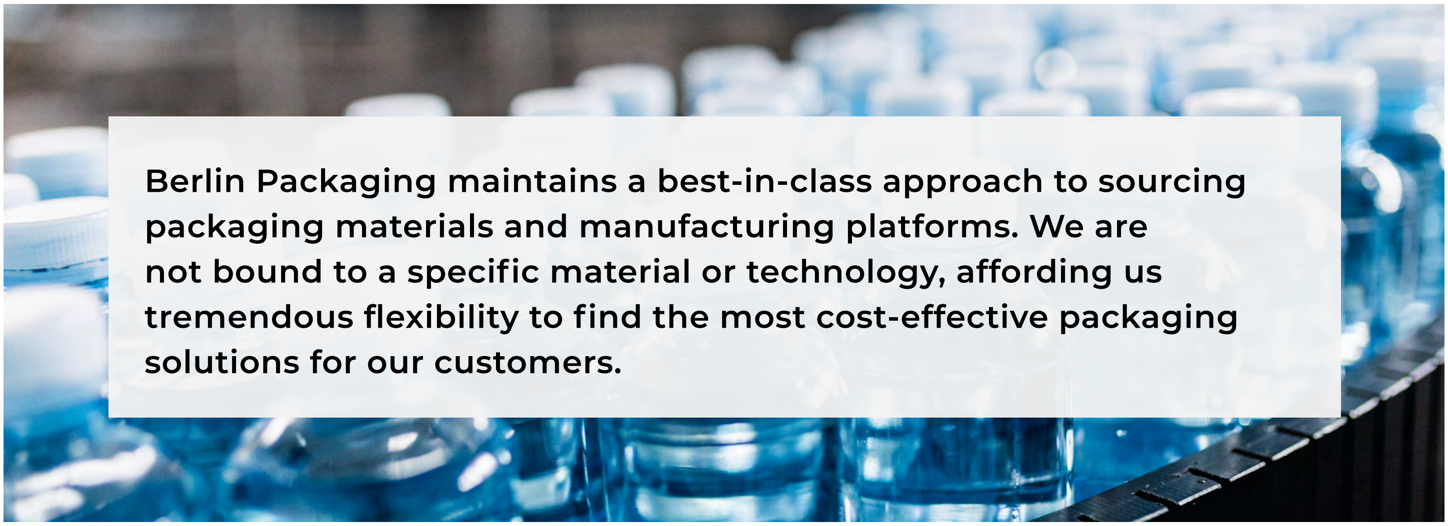
Industry Update September/October 2022

BerlinPackaging.com • 1.800.2.BERLIN

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.

Retreating diesel fuel prices, lower feedstock costs (with the exception of natural gas), and a better balance between supply and demand have put downward pressure on prices for many packaging raw materials. However, energy costs are still significantly higher than a year ago and natural gas is a wild card, given the precarious situation in Europe.

In July, Russia reduced its natural gas flow to only 20% to Europe. This further reduction and shortage have slowed manufacturing output (including plastic resins and chemical feedstocks) on the continent and caused a global spike in natural gas prices. In Europe, natural gas prices are more than 10 times higher than their past 10-year average. In the U.S., commercial prices for natural gas have increased nearly 40% in the first six months of 2022.

Because of the pandemic and the resulting supply chain disruptions and uncertainties about lead times, most companies have sought to have ample supplies of raw material inventory on hand to avoid stockouts and idle manufacturing plants. But that mindset has changed amid fears of a recession, softening demand for many raw materials.

Plastic Resins

Many plastic resins have seen price declines this summer because of slowing demand, more imports, greater supply and inventory, and lower feedstock costs. However, rising energy costs are adding to the operational costs of blow molders and increasing the cost of the final plastic packaging.

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

PET (Polyethylene Terephthalate):
Following a run-up in rates in the first half of the year, PET prices have declined in July and August due to slowing demand and higher inventories of imported material.

Resins & Raw Materials

HDPE/MDPE/LDPE (Polyethylene):
Higher inventories, weakening demand, and new PE production coming onstream later in the year are eroding PE pricing. In response, a major global producer of PE announced a temporary 15% cutback in PE capacity in August.

PVC (Polyvinyl Chloride):
Rising inventories and a leveling off of demand have resulted in price reductions for PVC.

PP (Polypropylene):
Higher inventories, lower demand, and expanding supplies (a new PP plant was commissioned in July and another new facility will start up in the 4th quarter) are moving PP prices downward.

PS (Polystyrene):
Following a sharp price jump in July, PS prices fell in August due to lower benzene costs and improving product supplies.

PCR

Post-Consumer Recycled (PCR):
Prices for post-consumer PET, colored HDPE, and PP bales have fallen this summer due to higher fuel costs, fears of a recession, and end-user seasonal factory shutdowns. It is likely this drop in bale prices will reduce PCR resin costs, at least for the short term.

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.

Glass

Some glass container manufacturers have reduced their packing services and moved exclusively to bulk. Berlin Packaging offers full-service repack services that can help our customers run more efficiently. We can hold the package, carton, and partition and pack on-demand — reducing lead times and mitigating risks to the supply chain.

Aluminum

Driven by the packaging sector, demand for aluminum was up 6.6% to 14.1 billion pounds in North America through the first half of the year. Domestic producer shipments of aluminum containers and packaging increased 13.1% through June 2022, as companies and consumers increasingly look to aluminum for sustainable packaging solutions.

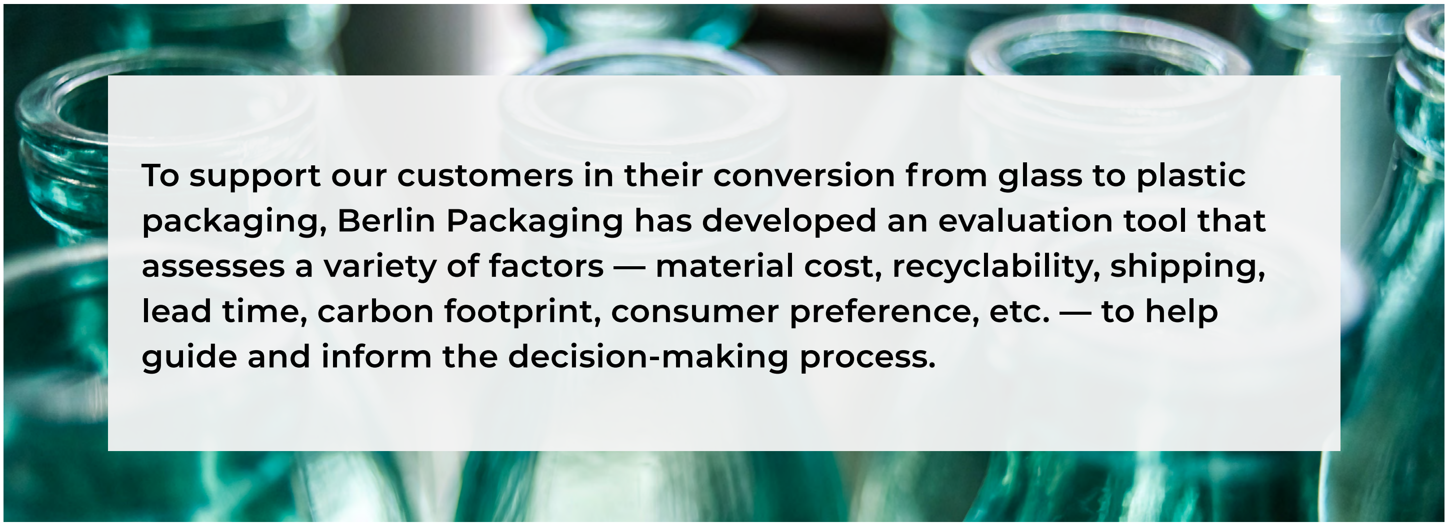
Steel

While commercial production may be several years away, green steel may offer brand owners a new packaging material with a low-carbon or zero-carbon footprint. What is green steel? It's steel made by using either electricity or hydrogen that avoids the use of coal and eliminates or reduces greenhouse gas emissions.

Pulp & Paper

Due to increasing demand for e-commerce packaging and rising operational costs, the producer price for pulp, paper, and corrugated products has risen 18% in the past 12 months.

Glass to Plastic Conversion



To support our customers in their conversion from glass to plastic packaging, Berlin Packaging has developed an evaluation tool that assesses a variety of factors — material cost, recyclability, shipping, lead time, carbon footprint, consumer preference, etc. — to help guide and inform the decision-making process.

Consumer packaged goods companies have multiple decisions to make prior to launching a new or revamped product. One of those decisions involves the packaging material, such as glass versus plastic.

As consumers and policymakers increasingly scrutinize the merits of packaging, it's critically important for brand owners to evaluate all facets of their packaging materials. Let's compare glass and plastic packaging substrates, looking at their advantages and drawbacks.

Glass Packaging

Glass is transparent, heat resistant, has excellent barrier properties, and will not react chemically or physically with the product. Consumers like glass packaging for its premium appearance and feel, product quality, reusability, and recyclability.

But glass is heavy, and it adds to freight costs. Because of its weight, fewer glass containers can be shipped per truckload — both inbound and outbound (pack out) — than plastic containers.

Glass breakage on filling lines can result in considerable downtime for cleanup prior to restart. Breakage is also a concern for consumers, especially children.

Glass capacity remains tight in North America and around the globe. As a result, about 25–30% of glass packaging is imported into the U.S. Lead times are longer for glass than plastic packaging. Glass containers from overseas carry the cost burden of premium ocean freight surcharges and rates, and glass packaging from China is subject to a 25% tariff.

While glass can be infinitely recycled, its recycling rate in the U.S. is about 33%, comparable to PET and HDPE containers (29%). In states with bottle deposit laws, glass recycling rates are higher (63%) than in non-deposit states (24%). Darker glass typically contains more recycled content.

Glass to Plastic Conversion

Plastic Packaging

Plastic packaging is lightweight and generally less expensive than glass. PET provides clarity similar to glass. Clarifiers can be added to PP to improve clarity between the container surface and the product inside (e.g., ketchup), but some opacity or milkiness will remain. Opaque milk jugs are made of HDPE, and the material can be easily colored (e.g., laundry detergent bottles).

Hot-fill PET plastic bottles typically can be filled up to 185 degrees Fahrenheit, but testing is always recommended to see if it will work for a specific product.

Compared to glass, custom molds for plastic containers are less expensive. Brand owners have multiple options in the shapes and sizes of plastic packaging, while glass sizes and contours are limited. In addition, many blow molders are available throughout North America to produce plastic packaging, enabling the manufacturer to be closer to the filling operation. This proximity minimizes fuel and freight costs.

Glass manufacturing has fewer locations, increasing the likelihood that the distance between the manufacturer and the customer may be an issue.

Due to plastic waste and environmental pollution, some consumers and groups have negative perceptions of plastic packaging. But life-cycle analyses have shown that PET and HDPE packaging with 25% PCR is more sustainable than glass packaging with 25% PCR because of less fossil fuel use and greenhouse gas emissions.

Glass to Plastic Conversion

With our vast expertise in custom tooling, global sourcing, quality assurance, structural package design, life cycle assessment, sustainable packaging, and branding strategy, Berlin Packaging possesses the know-how to efficiently and economically change your packaging substrate to improve your bottom line.

Converting from Glass to Plastic

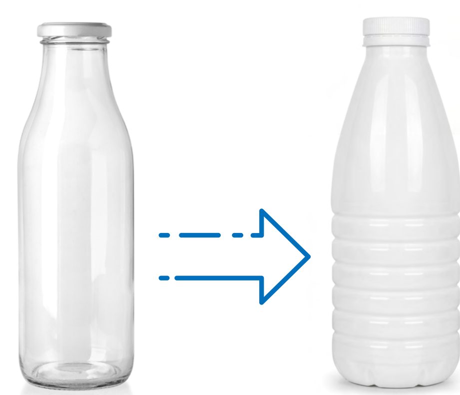
For brand owners looking to move from glass to plastic packaging, the first step is to gain insights from their target audience. How will it impact the brand reputation, consumption or usage, and other touchpoints?

The switch from glass to plastic packaging is not a simple 1:1 replacement. Brand owners should examine several parameters — fill temp, package/product interactions, product shelf life, container size/footprint, type of plastic material, labeling, neck finish, closure, line equipment, and more to ensure they have a smooth changeover.

Because of the larger wall thickness of glass, plastic packaging that holds the same amount of product as glass is typically smaller — about 70–80% of its counterpart's size. That means the plastic package will require a new label and closure and will have a different footprint on the store shelf.

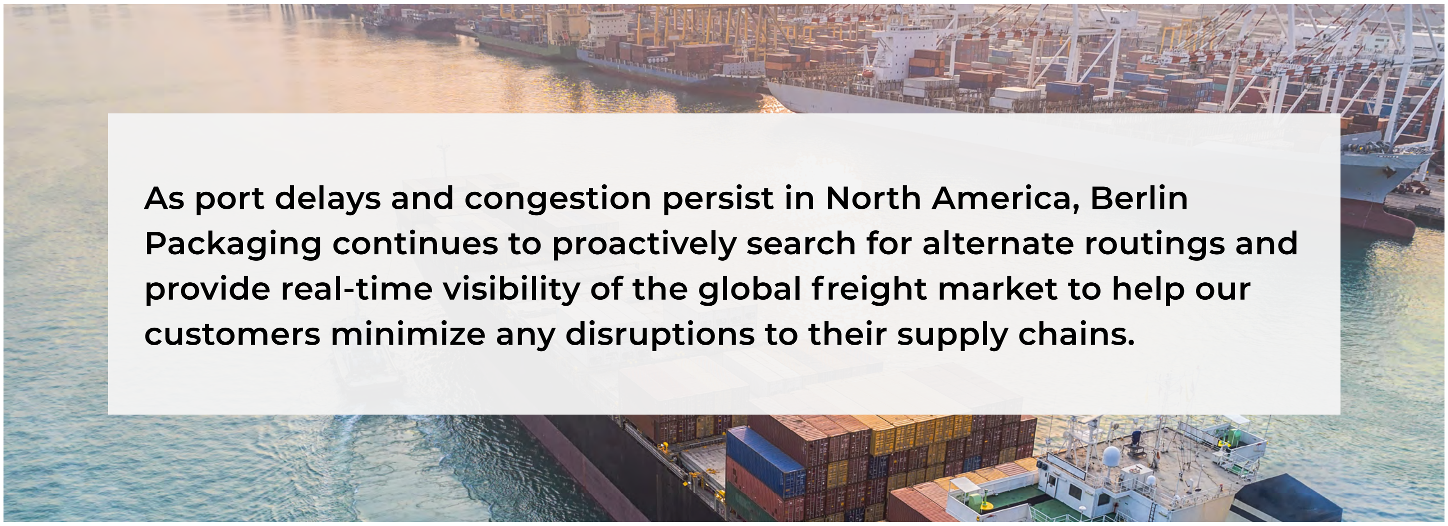
Many glass containers use a metal lug-style closure. Since most plastic containers feature a threaded neck, they cannot accommodate a lug closure. The existing cap applicator for glass containers may require adjustments for plastic packaging.

Moving from glass to plastic packaging is not as straightforward as it may seem. It requires much thought and effort, which will pay dividends in the long run. Partnering with a material-neutral packaging supplier like Berlin Packaging can help brand owners objectively assess the pros and cons of making the switch from glass to plastic packaging.



The switch from glass to plastic packaging is not a simple 1:1 replacement.

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.

Maybe the best way to describe the current state of ocean freight shipping in North America is … A Tale of Two Coasts. On the West Coast, trans-Pacific lanes from Asia to the Western seaboard continue to see spot rates fall. On the East Coast, trans-Atlantic lanes from Europe to the Eastern and Southern seaboards have seen spot rates increase throughout the year and reach all-time highs.

Despite more favorable ocean freight rates to North America, the percentage of blank sailings, port congestion, and U.S. rail/intermodal delays continue to impair schedule reliability.

In August, Walmart announced it had canceled billions of dollars in orders to align inventory with expected demand. Target followed suit and declared it had canceled $1.5 billion in orders and imported a lot of its back-to-school supplies early.

While these announcements may dampen import demand down the road, current import volumes remain high. In July, U.S. imports were up 2% from June, 3% year-over-year, and 15% from July 2019 (pre-pandemic). Imports from China drove the increases, with the month of July tallying the highest volume of imports from China this year.

Preliminary data for August imports suggest a slight slowdown, which may suppress or delay the traditional peak demand season.

Port Activity

Because of the fear of a dock workers strike and port logjams on the West Coast, many shipments from Asia have bypassed the Western seaports in favor of East Coast and Gulf Coast ports. This has led to severe congestion at East and Gulf Coast ports, while the cargo ship bottlenecks at the ports of Los Angeles and Long Beach (LA/LB) have mostly evaporated.

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.

In August, the number of ships waiting for berths in Southern California dropped to as low as nine. In January, that figure topped 100. Most of the port bottlenecks are now on the East and Gulf Coasts, with 41 ships off Savannah, 24 off Houston, and 19 off New York/New Jersey.

Of the 130 ships awaiting berths in North America in August, nearly 75% were on the East and Gulf Coasts. That's a reversal from the start of the year when about two-thirds of the 150 ships waiting to dock were anchored in LA/LB.

While port congestion has improved greatly in Southern California, moving products inland still remains a problem, with rail being the biggest hurdle. Rail/intermodal transportation also present challenges for East and Gulf Coast ports. Warehouses remain at full capacity due to excess retail inventories.

Railroad workers have been without a contract since 2020. To avert a potential strike this summer, President Joe Biden created an emergency board to make recommendations on resolving the key issues of dispute — wages and benefits. Less than 24 hours before a strike deadline on September 16, the key unions and freight railroad companies reached a tentative agreement for a new, five-year labor contract.

Spot Market Rates

Although spot rates overall have declined since the spring, ocean freight rates to North America are still nearly 5 times higher than pre-COVID levels.

Domestic Transportation

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 and advantageous rates.

With the exception of a few bumps in the road, North America's transportation costs have remained relatively steady this summer. However, they are significantly lower than 12 months ago.

High inflation and a consumer purchase shift from goods to services have flattened demand, leading to an increase in truckload capacity and lower spot rates.

To avert a potential rail strike in the U.S., President Joe Biden signed an executive order in July to create an emergency board to oversee a multi-year dispute between freight railroads and their unions over a new labor contract. Railroad workers have been without a contract since January 2020.

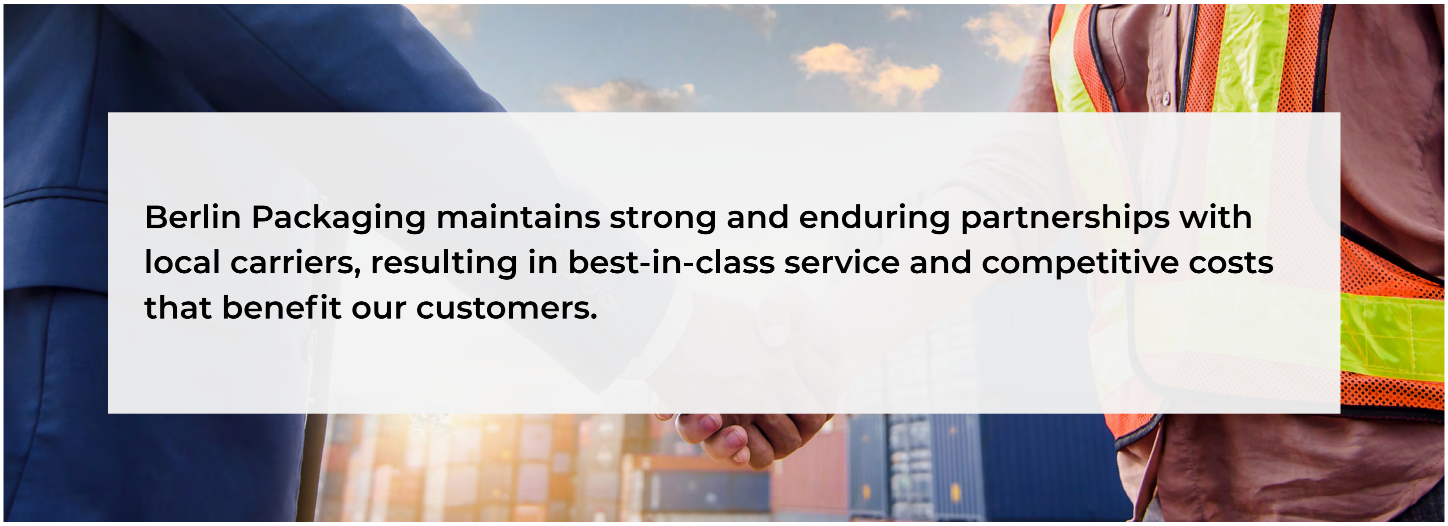
Following hearings, the three-person board released a report in mid-August that offered recommendations on resolving key issues around compensation, healthcare, and expense reimbursements. Less than 24 hours before a strike deadline on September 16, the key unions and freight railroad companies reached a tentative agreement for a new, five-year labor contract.

Truckload

Line-haul costs per mile for dry van spot market shipments have fallen slightly since the July 4th Holiday — averaging $2.23 in mid-August and down from $3.03 in August 2021. Spot rates are about 57 cents per mile cheaper 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) — hovered below 4:1 in June and July. The ratio has not been this low since June 2020 and climbed to nearly 10:1 in January of this year. Lower ratios typically foreshadow a reduction 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.

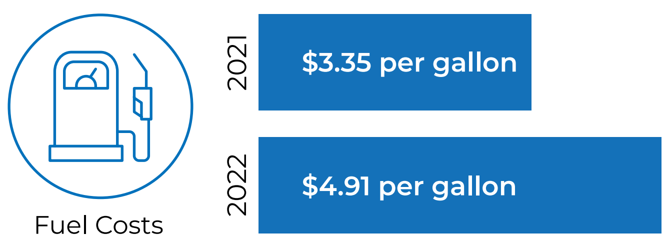
Core retail sales data compiled by the National Retail Federation (NRF) rose in July, while overall sales reported by the U.S. Census Bureau remained flat on a monthly basis. However, both calculations showed strong year-over-year gains as consumers continued to open their pocketbooks despite high inflation.

Following a record-setting spring, retail product imports at major container ports in the U.S. are expected to slow significantly for the remainder of the year, reports the NRF. The second quarter saw robust import volumes as retailers raced to bring in cargo ahead of any potential supply disruptions related to the West Coast dock workers contract, which expired on July 1.

The NRF predicts that retail import volumes in the second half of the year will fall 1.5% compared to the same period last year. However, 2022 retail imports are expected to surpass 2021 by 2%.

While inventory-to-sales ratios remain below historical averages, many large retailers have reported weak financial performance due partly to excess inventories. Wal-Mart recently announced that it canceled billions of dollars in orders to help align inventory levels with expected demand.

In mid-August, the average price for diesel fuel in the U.S. was $4.91 per gallon — a significant drop of 90 cents from the all-time high in June but more than $1.50 higher than one year ago.



Domestic Transportation

Less-Than-Truckload (LTL)

U.S. manufacturing output and factory orders tumbled in August, hitting two-year lows. LTL shipments, which are tied to manufacturing activity, may see a softening in demand and increases in capacity. Gains in capacity usually dampen rate pricing. But online shopping, which has cooled from its pandemic peak, remains strong and accounts for a significant share of LTL volumes.

Parcel

According to government data, U.S. retail e-commerce sales topped $257 billion in the second quarter of 2022 — an increase of 2.7% from the first quarter and a 6.8% jump from the second quarter of 2021. Retail e-commerce sales in the second quarter of 2022 accounted for 14.5% of total retail sales. Online retail sales in 2022 are expected to surpass $1 trillion for the first time in U.S. history.

Half of U.S. shoppers — including 60% of millennials — plan to spend more online in the next four months to take advantage of price discounts due to inventory surpluses, reports a recent consumer survey from Pitney Bowes. However, 15% of consumers are unlikely to buy discounted items because they are cutting back on spending.

More than half of consumers say their no. 1 reason for shopping online is to save a trip to the store, while only 15% do so to avoid COVID exposure.

berlin PACKAGING

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.

BerlinPackaging.com • 1.800.2.BERLIN