



Berlin Packaging: ***Industry Update***



Industry Update January/February 2022

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Resins & Raw Materials

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Materials

Bio-Based
Plastic Resins

Ocean
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Although Berlin Packaging cannot control the price of raw materials, we offer services to help our customers Package More Profit. Over the last three years, Berlin Packaging has added more than \$240 million in profit to our customers as a unique benefit of doing business with us.

2021 was a tumultuous year for packaging raw materials as prices soared to record or near record highs, demand outstripped supply on several occasions, major storms interrupted production, and rising costs for labor, fuel, and transportation resulted in inflation rates not seen in nearly 40 years.

Plastic Resins

Some plastic resins saw price declines as we closed out 2021, while other resins continued their upward climb. Here's a brief rundown of market conditions for various resins:



PET (Polyethylene Terephthalate):

Domestic supply remains tight amid strong demand from the beverage sector. PET imports continue to be hindered by port congestion and the high cost of ocean freight. Additional price increases are expected in the first quarter.



PVC (Polyvinyl Chloride):

Robust demand, logistical challenges, and persistent tight supplies since Hurricane Ida disrupted production in the Gulf Coast have resulted in higher PVC prices. Moving forward, the new infrastructure law will likely stimulate even more demand for PVC, supporting further price increases.



HDPE/MDPE/LDPE (Polyethylene):

Excess inventory, slowing demand, and decreased raw material costs have resulted in lower HDPE/LDPE prices. The outlook for the first quarter is declining prices as new capacity is expected to come onstream.



PP (Polypropylene):

Greater supply (including more imports), lower demand, and a decrease in raw material costs have resulted in a drop in PP prices. Buyers expect prices to further decline in the first quarter.




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In response to tight glass supplies domestically, Berlin Packaging has identified and partnered with glass producers around the globe to source additional glass capacity. Contact your Packaging Consultant or call 1.800.2.BERLIN to learn more about our glass packaging capabilities.



PS (Polystyrene):

Although demand is very strong, there are adequate supplies — resulting in a well-balanced PS market with flat prices. Stable pricing is expected in the first quarter.

Post-Consumer Recycled (PCR):

Sustainable packaging initiatives and state legislation mandating minimum PCR content in beverage bottles are ratcheting up the demand for PCR resins, especially rPET. Since rPET prices typically follow PET, rPET costs are expected to increase in the first quarter. Furthermore, brand owners have made public commitments to increase their PCR content, but materials are in short supply, leading to higher prices for rPET. In contrast, rHDPE prices fell in the last quarter of 2021 because of improving supplies, softening demand, and lower prices for virgin HDPE.

Glass

Combined with extremely tight glass supplies in North America, the rising costs of raw materials, transportation, labor, and energy are contributing to higher prices for glass packaging. While there is more glass capacity in other parts of the world, premium spot ocean freight rates and a 25% tariff on Chinese glass as well as recent price hikes in China temper the attractiveness of these supply options.



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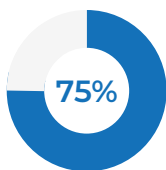
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Aluminum

Aluminum prices hit a 13-year high in 2021. Strong demand for aluminum beverage cans and brand owners switching to aluminum packaging for its recyclability and reusability/refill capabilities have helped to boost prices. Plus, China — the world's largest aluminum producer — has cut production as part of its new climate policy of reducing greenhouse gas emissions.

Aluminum can manufacturers in the U.S. are pushing state legislators to pass new container deposit laws to boost the recycling rate of aluminum containers from 45% to 70% by 2030.



Nearly 75% of aluminum beverage cans are made from recycled content (both post-consumer and post-industrial).

Tin Plate

Tight supplies of cold roll metal and rising raw material costs have resulted in increased tin plate steel prices. Tariffs and exorbitant ocean freight rates have limited imports. Plus, China is cutting steel production to reduce its carbon emissions. Tin plate costs are expected to rise steeply in 2022. In January, some manufacturers of steel packaging, such as food cans, raised their prices more than 50%.



Tin plate prices are on the rise.


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As your business partner, Berlin Packaging starts with a robust and holistic analysis to determine your product's environmental impact. Armed with this in-depth data, we evaluate alternative designs and materials to uncover the best packaging options that deliver on performance and advance your sustainability strategy.

Bio-based plastic resins — also called biopolymers — are derived from biomass and plants, such as sugarcane, corn, and cellulose. They can have properties similar or even identical to conventional plastic resins.

Some bio-based resins are biodegradable. These include polylactic acid (PLA), polyhydroxyalkanoate (PHA), polybutylene succinate (PBS), and starch blends. Bio-based and biodegradable resins are a good option for food packaging applications because any product residues on the packaging would not be detrimental to composting. An added benefit is the avoidance of food waste in landfills.



However, while industrial and municipal composting is growing in the U.S. and federal legislation known as the COMPOST Act has been proposed in Congress, only about 25% of U.S. households have access to composting facilities.

Brand marketers should be cautious when making biodegradability claims, since biodegradation is dependent on adequate oxygenation, humidity, temperature, and other factors. Some states, such as California, Maryland, and Washington, prohibit the use of the term “biodegradable” in marketing claims related to

plastic products. This is because “biodegradable” is often used to describe items that do not meet composting standards and are contaminants for commercial composters.

Another concern is potential consumer confusion over the term biodegradable. Some consumers might think that biodegradable packaging will disintegrate on its own in the environment, which may encourage littering.

Conventional plastic resins (i.e., PE, PET, and PP) can be made from renewable resources, such as bioethanol. Although bio-based PE, PET, and PP are not biodegradable, these biopolymers can be recycled in existing recycling streams because they are chemically identical to their petroleum-based cousins.

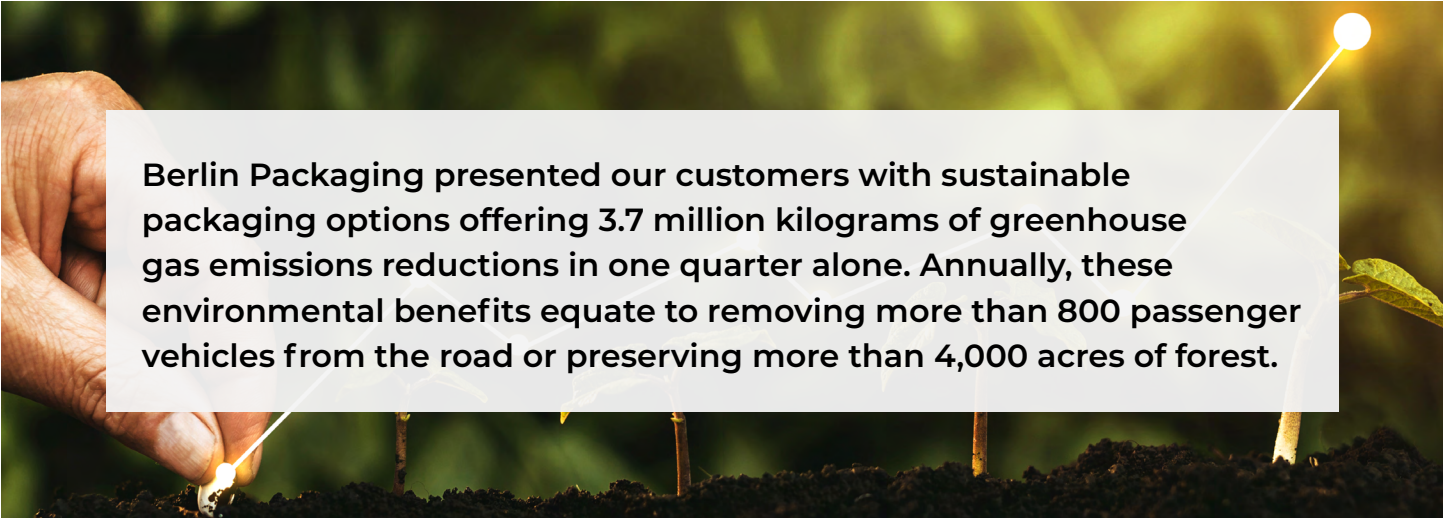
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Berlin Packaging presented our customers with sustainable packaging options offering 3.7 million kilograms of greenhouse gas emissions reductions in one quarter alone. Annually, these environmental benefits equate to removing more than 800 passenger vehicles from the road or preserving more than 4,000 acres of forest.

Compared to petroleum-based plastic resins, bio-based resins offer the advantages of a renewable feedstock and a lower environmental footprint. Life cycle analysis has shown that bio-based resins contribute less greenhouse gas emissions than fossil-based resins, depending on the feedstock, product, and application.

CPG brands in search of sustainable packaging may want to consider bio-based plastic resins in their arsenal of options to reduce their carbon footprint.

Supply and Cost

The supply of bio-based plastic resins is limited, representing only 1% of the total plastic resin volume. **According to market data projections, production of bio-based resins is expected to triple in the next five years as demand grows and more sophisticated applications and products emerge.**

Currently, the price of bio-based resins is about 3 to 5 times the cost of conventional plastic resins. Since price is related to supply and demand, the projected jump in volume may ease prices over the next several years. However, demand is

also expected to grow, making it very difficult to predict where the supply/demand equilibrium will be in five years.



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Markets and Applications

Bio-based resins can run on conventional plastics processing equipment. However, adjustments to process parameters are required. Furthermore, some biopolymers and blends are better suited for a particular process. For example, PLA is very suitable for thermoforming and blow molding, while others like PBS blends allow injection molding.

When evaluating a biopolymer, brand owners need to look closely at the intended function and performance of the package as well as its design, plus its product application, the continuity and scalability of supply, and cost.

Market applications for bio-based plastic resins range from food and beverages to personal care and cannabis products. With their higher price tag,

bio-based resins are more likely to find uses among premium and high-margin products like organic foods, specialty chocolates, cosmetics, personal care, and cannabis.



Bio-based plastic pre-roll tube for cannabis products.

Berlin Packaging is the exclusive distributor of a bio-based pre-roll tube for cannabis products. Consisting of a proprietary blend of PLA and PBS, the 116 mm pop-top tube complies with the ASTM D6400 standard for composting in municipal or industrial facilities. The child-resistant capable tube is available in stock in black or white.

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Berlin Packaging's global capabilities encompass sourcing, quality, design, and supply chain. Especially during inflationary times, it's essential to have a nimble packaging partner that will leave no stone unturned to find the best packaging solution for your business at the best overall cost.

Ocean freight shipping rates took a wild and chaotic ride in 2021, and 2022 is off to a very rocky start. Following early predictions that ocean freight contract rates were expected to reach significantly higher levels for the year ahead, shippers are declaring that carriers are presenting difficult choices in their requests for space for 2022. Industry observers are reporting initial contracts for 2022 are reflecting record high levels.

Due to strong cargo demand, constrained carrier capacity, and poor schedule reliability (e.g., blank and skipped sailings), shippers were forced to accept record high rates in 2021. Early contract talks for the upcoming 2022–23 contract season point to an unrelenting bullishness of agreement increases.

Some business observers believe the worst for ocean freight rates is over, with two of the four major trans-Pacific spot rate indices declining and stores well-stocked for the holidays. But many transportation executives remain cautious,

citing a fragile and capacity-stretched system and another global surge of COVID-19 cases. Even if there are positive signs, the relief may only be temporary as businesses race to ship more cargo in anticipation of factory shutdowns due to the Chinese New Year Holiday, which runs from February 1 through February 15 in China.

Furthermore, the market fundamentals of strong consumer demand, low merchandise inventory, and limited transportation capacity are not abating and will likely be around for some time in 2022.



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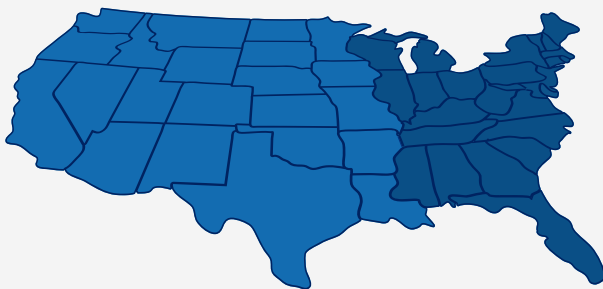
Berlin Packaging continues to partner with trusted carriers to establish mitigation strategies against extreme delays, excessive costs, and supply chain disruptions, where possible.

Port Activity

Is congestion easing at the ports of Los Angeles and Long Beach (LA/LB), which handle 40% of all containers imported into the U.S.? Yes and no. While the number of ships awaiting berths just offshore (40-mile zone) of LA/LB is down, the decline is because of a new queuing system that encourages ships to wait outside the zone. In December, the total number of ships at anchor exceeded 100 vessels.

With so much freight backup on the West Coast, some carriers and shippers have turned to Gulf Coast and East Coast ports. Established transportation networks can move goods efficiently from these ports inland, and 60% of the U.S. population lives east of the Mississippi River.

In November, containerized imports to leading West Coast ports dropped 7.5% year-over-year (YOY), while imports to East/Gulf Coast ports increased 9.9%. Many East Coast ports have recently set record monthly cargo volumes with expectations of all-time highs for 2021.



The biggest concern facing ocean freight for 2022 may be the upcoming new contract for 15,000 workers at 29 West Coast ports from Washington State to San Diego. When the existing contract (expiring in July 2022) was being negotiated back in 2014, West Coast port operations experienced many months of slowdown, and the fear of a strike loomed, prompting the Obama administration to intervene.

Retail Imports

Despite supply chain disruptions, retail imports were expected to hit 26 million 20-foot equivalent units (i.e., 20-foot container or equivalent) in 2021 — an increase of 18.3% over 2020 and the largest volume since the National Retail Federation began tracking imports since 2002. The YOY growth rate would also be the highest on record, topping 16.7% in 2010 as the economy bounced back from the Great Recession.


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Berlin Packaging's commitment to managing costs and finding the most cost-effective solutions ensures our customers maintain a competitive position in their respective marketplaces.

The cost to transport goods in North America is stuck at record highs due to extreme freight demand, supply chain constraints, extraordinary import levels, rail congestion, truck and driver limitations, and elevated fuel costs. Transportation activity may ease slightly following the peak holiday season, but retailers continue to push to restock their low inventories as consumer demand remains strong.

Rising transportation costs have dramatically impacted the cost of goods, resulting in inflation rates not seen since the 1980s. In November, the U.S. Consumer Price Index (the price consumers pay for goods and services) rose 6.8% for the preceding 12 months — the largest increase since 1982.

Truckload

In the fourth quarter, costs per mile for dry van spot market shipments maintained their record levels — averaging above \$3.00. On a regional basis in the U.S., rates are highest in the Northeast (\$3.59), followed by the West (\$3.50), Midwest (\$3.28), Southeast (\$2.90), and Southwest (\$2.67). Truckload rates have moved higher in the West region because rail service has been unable to handle the hefty import volumes.

Inventory-to-sales ratios for the retail trade stood at 1.09 in October — a pattern of historical low ratios (about one month of inventory) that have persisted since March. The retail inventory-to-sales ratio spiked to 1.67 in April 2020 at the onset of the

pandemic and then fell throughout the year and in 2021. In pre-pandemic 2019, the ratio hovered in the range of 1.45 to 1.50.

Diesel fuel costs fell slightly in December to \$3.61 per gallon. But that price is still nearly a dollar higher than December 2020 rates (\$2.63 per gallon).



Diesel
Costs

Dec.
2020

\$2.63 per gal

Dec.
2021

\$3.61 per gal


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Through our many services — quality advocacy, packaging design & branding, inventory management, global sourcing, and more — Berlin Packaging can enhance the bottom line of its customers through increased sales, reduced costs, and/or improved productivity.

Hiring trends for new truck drivers are improving. The trillion-dollar infrastructure legislation includes an apprenticeship program that allows trucking companies to hire drivers as young as 18 for interstate shipments. Beginning in 2022, the program could certify up to 25,000 18- to 20-year-old drivers as long-haul truckers annually through 2024.

While the driver situation may be a bit brighter, constraints on the equipment side (tractors and trailers) may last throughout 2022. Microchips and parts shortages and capacity issues have created long lead times in excess of 12 months for new truck purchases. Strong demand for late-model used trucks has nearly doubled their price.

Less-Than-Truckload (LTL)

U.S. manufacturing output rose 1.2% in October — its biggest jump since March 2019. Since LTL shipments are closely associated with manufacturing, the output increase will add upward pressure on LTL freight volumes and rates. Other factors contributing to greater LTL freight costs include growing e-commerce shipments and overflow cargo from truckload freight.



LTL freight tonnage jumped nearly 8% in 2021, after experiencing a 1.1% decline in 2020.

Parcel

U.S. retail e-commerce sales reached \$215 billion in the third quarter — a 3.3% drop from the second quarter, but a 6.6% increase compared to the third quarter of 2020. Currently, e-commerce sales account for 13% of total retail sales.

In December, UPS raised its last-mile rates about 6% on deliveries of parcels weighing between 1 and 9 pounds. The U.S. Postal Service increased rates about 5% in January on deliveries weighing 1 to 5 pounds — the sweet spot for most e-commerce packages. Since many other parcel carriers use the postal service, this increase will likely get passed along to their customers as well.



We Believe Anything is Possible®

With over 100 years in the packaging industry, more than 1,500 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 60+ 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
- 99% on-time delivery for 15+ years
- 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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