



# PALLETS POWER PROCESSES

**From materials handling to retail operations,  
pallets support supply chains and  
sustainability goals.**

# PALLETS

**I**f you want to see what keeps pallet company executives awake at night, walk through the nearest warehouse store, where you might see the latest fashions displayed on a plywood table lifted to waist height by a stack of pallets at each corner.

The sight of supply chain assets such as pallets sitting idle is similar to a semi-trailer being used as a temporary warehouse instead of hauling loads across the country. While they should be humming through the supply chain, those pallets are building up dwell time.

A pallet sitting too long in one place effectively reduces the supply of pallets, driving up costs and consumption of resources to make them.

The problem is, pallets are everywhere, and people sometimes take them for granted. Pallets, and related products like skids, have been around for nearly a century and evolved alongside the development of the forklift.

During World War II, their use took off, and they have been a critical link in the supply chain ever since. Those first pallets were made from wood, but over the years pallets have been constructed from corrugated cardboard, steel and other metals, and plastic.

More than 2 billion pallets are in circulation in the United States, and more than 90% of all goods are shipped on pallets, according to industry estimates. As warehouse automation technology develops and supply chains are under pressure to be more efficient, pallets are in the spotlight like never before.

## KEEP THEM MOVING

Take the issue of dwell time that makes pallet executives cringe. Dwell time is counted from the time a pallet reaches a point of use, such as a manufacturing plant or distribution center, it's loaded



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with product, delivered, and then turned back into the pallet pool for reuse.

At iGPS, an Orlando, Florida-based plastic shipping pallet supplier, the average pallet dwell time is about 30 days, according to Jeff Pepperworth, president and CEO. During 2020 and the supply chain disruption due to COVID-19, iGPS—North America's largest pooler of 48x40 plastic pallets—improved its pallet utilization by about 1.5 more turns.

Due to the shift in consumer demand and the supply chain during the pandemic, it was more important than ever to keep pallets circulating to supply consumer goods such as food and beverages, cleaning supplies, and paper goods.

“When you look in your pantry, those products were pretty much all the volume that we saw from categories that have excellent growth,” Pepperworth says. “Being able to utilize our fleet in a way that expanded another turn and a half was very advantageous.”

## THE LONGEVITY OF PLASTIC PALLETS

Oconomowoc, Wisconsin-based ORBIS Corporation offers plastic pallets in pools and management services and works to manage dwell times. Plastic pallets are designed to handle the longevity of being in a system without imposing added costs for items that may not move as quickly.

“Products that are captive to a warehouse, distribution, or fulfillment center and have ‘high’ dwell times are the best fit for reusable plastic pallets,” says Alison Zitzke, senior product manager for pallets, ORBIS Corporation.

Whether in a tight, closed shipment loop or inside a facility, the life of a plastic pallet will skyrocket. In a study

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**iGPS**

THIS WAY FORWARD





**ORBIS Corporation, a subsidiary of Menasha Corporation, is a leading manufacturer of plastic returnable/reusable products for use in a wide range of material handling applications. ORBIS pallets are washable and hygienic, which is crucial for transporting essential goods during the pandemic.**

conducted at Virginia Tech, a plastic pallet lasted more than 200 turns versus a white wood pallet at 11 turns.

“This could mean an additional 20 years added to the life of a plastic pallet,” Zitzke says.

#### **SMARTER PALLETS**

Until very recently, pallets were siloed assets because there was no supply chain connectivity or way to engage. That’s changing as technology plays a more significant role across the supply chain and pallets are getting smarter.

For companies considering investing in warehouse automation, pallets should be a part of the planning process rather than an afterthought, says Pepperworth.

The entire iGPS fleet is equipped with RFID tags and barcodes to interface with standard automation technology, so that capability could be built into the system. Instead of tagging every carton or product, shippers can incorporate the RFID tags to track products through the warehouse and the rest of the supply chain.

“If a company ships a pallet of water

to a warehouse store, we know the pallet went out, and it will eventually need to come back,” Pepperworth says.

RFID technology is non-proprietary, so it can be used across many different systems, from point of sale to ERPs. That’s especially useful for companies that have grown through mergers and acquisitions and haven’t integrated technology systems.

“An RFID chip and a barcode are universal across scanning technologies,” Pepperworth says.

Pallets that can communicate are game changers for warehouse automation.

“We have customers that have replaced what they would consider their license plate on a pallet with our RFID chip, so pallets are now a smart asset,” Pepperworth says. “Every time I visit a customer, there’s always some kind of new utilization, and we’re on the cusp of explosive automation growth over the next 10 years.”

The tracking technology could also assist with immediate product recalls. The product in question can be tracked to the pallet and the location in the

warehouse to remove it from circulation.

Plastic pallets are favored for highly automated operations because they are dimensionally consistent and create a smooth interface between automated systems and product loads. Wood pallets have a higher likelihood of broken boards or nails popping out, causing potential downtime in an automated system, as well as possible product damage.

#### **LONGEVITY AND READABILITY**

“Plastic pallets offer long-term, repeatable performance and easy readability by photo eyes and sensors that are critical to seamless integration in automated environments,” Zitzke says. “Pallet users should consider these factors when they calculate return on investment for reusable packaging to gain a holistic picture of cost.”

Plastic pallets contribute to a higher level of uptime in automated operations. Wood pallets may be damaged or become damaged and leave behind debris and dust in the automated system.



That can lead to shutdowns for cleaning or repairs.

“Plastic pallets are a consistent asset that can fit into those automated environments,” Pepperworth says.

The cleanability of plastic pallets and their long service life make them ideal for integrating with a new or existing automated system with added benefits of ensuring the plant is kept clean and products are protected. Plastic pallets are even offered in FDA-approved material for direct contact applications that require high hygienic standards, such as food and beverage manufacturing.

## PALLETS AND THE PANDEMIC

During the early pandemic lockdowns, pallets were considered an essential service to keep store shelves stocked. When product shortages arose, pallets had to be available to move goods to the grocery and healthcare channels. The growth of home delivery

and curbside pickup didn’t lessen the demand for pallets.

“It still takes pallets to get bulk loads down to fulfillment and single distribution,” Pepperworth says.

As pandemic restrictions ease, consumer buying habits may be forever altered, leading to new supply chain patterns. Consumers may shop less frequently but buy more per visit, requiring new strategies to maintain fulfillment levels.

Zitzke sees COVID as a catalyst for rapid, significant change in the supply chain and warehousing and distribution environments. Programs that used to take years to justify are being implemented more quickly because companies are

being pressured to adapt to new trends like increased consumer e-commerce buying patterns or the need for washable, hygienic pallets.

“During the pandemic, plastic pallets were crucial in the transportation of essential goods like toilet paper and cleaning materials,” Zitzke says. “Suppliers needed to cube out pallets and trucks to transport as much as they could in a single load due to trucking and freight labor constraints.”

## SUPPORTING SUSTAINABILITY

Supply chains are under scrutiny regarding their environmental impact, and pallet suppliers are supporting sustainability trends. Many large shippers

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PROGRAM



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SYSTEM



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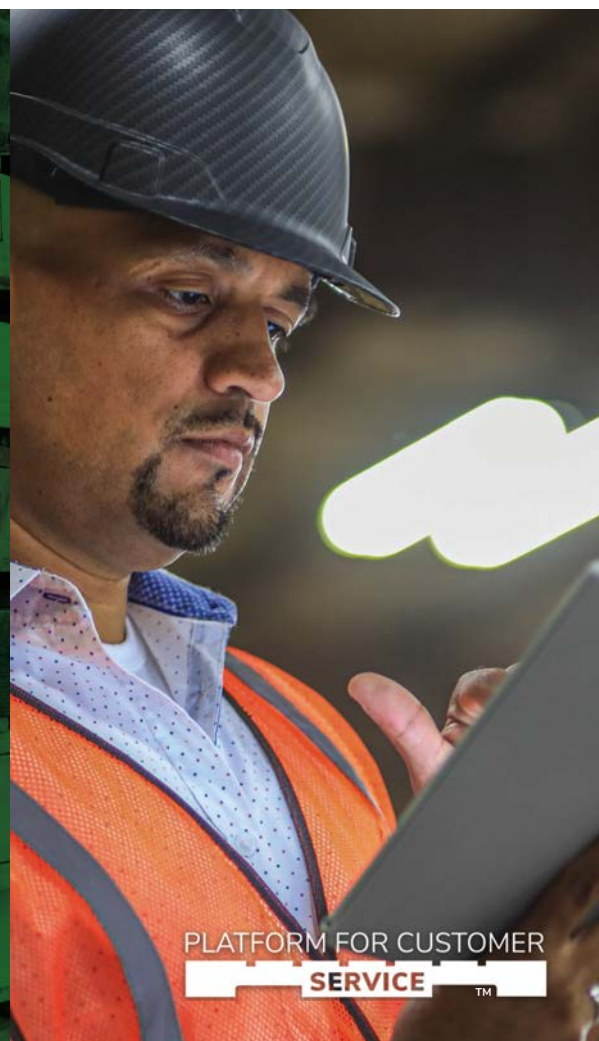


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## PALLETS EVOLVE AND RESPOND TO DEMAND



Mitchell Kamps, president of Grand Rapids, Michigan-based pallet company Kamps Inc., discusses the latest market trends and pallet developments.

**Q: How have pallets evolved recently?**

**A:** As our economy continues to grow, fueled by the rise in manufacturing, e-commerce, and globally connected supply chains, the demand for wooden pallets has increased. We're seeing interesting challenges in the pallet space, especially regarding pallet recycling and recycled pallet supply.

**Q: As supply chains become more automated, what role do pallets play?**

**A:** Pallets will continue to be essential, but their role will evolve. Pallet providers must be able to meet automation expectations whether customers need new or recycled pallets.

Pallet providers should have systems that easily integrate with automated supply chains. Simply put, pallet companies need to have systems that operate on the same level as their customers.

**Q: How did the pandemic affect the pallet supply chain?**

**A:** Sawmills and lumber producers curtailed production in anticipation of a slowdown in new home building. That slowdown did not happen, and mills are still catching up. The shortage of lower-grade softwood led many customers to switch to domestic hardwoods and those mills are struggling due to labor shortages. Companies shifted to recycled options, which has strained what is a finite pool. The market is still adjusting, so expect pricing volatility to continue.

**Q: How important are sustainability concerns?**

**A:** Most Fortune 500 companies have set carbon emission goals for the next 10 to 20 years. With the prominence of pallets in the supply chain, they will play a key role in lowering emissions, especially the wooden pallet.

A new Environmental Product Declaration shows pallets have the potential to be a carbon-neutral product. Wooden pallets are one of the most recyclable forms of packaging, at a 95% recycling rate. Pallets made with other materials have more difficulty separating materials and recycling. Just because something is recyclable does not mean it is being recycled. Certain pallets only delay the waste stream.

**Q: Are pallet types shifting in demand?**

**A:** We are seeing continued preference for wooden pallets. This is due primarily to the sustainability of wooden pallets, flexibility, and cost. A wooden pallet can be constructed to handle any load, while considering environmental and economic impact.

**Q: What are the benefits of pallet management services?**

**A:** We call our management services "Total Program Coverage." We analyze your current program and operations and devise a custom program to support your pallet needs nationally. We integrate with your systems to provide on-demand data and reporting. And we conduct annual reviews to ensure your program is meeting expectations.

**Q: What should shippers look for in a pallet partner?**

**A:** Look for a high level of customer service and added value through a comprehensive program supported by technology systems and a commitment to environmental sustainability.

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**Kamps Inc. owns and operates over 30 locations, 3,000 trailers, and has over 150 locations in its nationwide pallet network.**

and receivers set sustainability goals, including reducing their carbon footprint or manufacturing/packaging waste, and consumers are paying attention.

"The sustainability trend has encouraged companies to seriously investigate plastic pallets and other reusable solutions as replacements for expendable packaging," Zitzke says. Plastic pallets are considered more sustainable than wood pallets in many respects, even though wood is a renewable resource.

The usage of plastic pallets reduces lumber waste and the amount of emissions and water it takes to manufacture or recycle wood pallets after their limited use.

"All of ORBIS' plastic pallets are fully recyclable at the end of their service life, and many of them are also manufactured with 100% recycled material, such as the Odyssey pallet," Zitzke says. "Several customers request us to reuse their internal plastic scrap in their plastic pallets to achieve their sustainability initiatives."

This strategy also helps reduce pollutants generated during the production of virgin resin, as the recycling process has lower emission output.

"COVID has accelerated this consumer trend and is pushing companies to change the way their supply chain works and the packaging materials they choose," Zitzke says. "Companies are taking this opportunity to come out of the crisis with more sustainable operations and move toward reusable solutions when the cost is justified."

### AN INFINITE LIFE CYCLE

iGPS offers pallets that are 100% recyclable, survive more than 100 round trips, and have been in the field for more than one decade. A plastic pallet can contain as much as 98% post-consumer recycled material and can have a useful life of up to 10 years. When the pallet is damaged beyond repair, the plastic can be ground into pellets and reformed into a new unit.

"We call it an infinite life cycle because once the plastic has been

## While at the same time ubiquitous and invisible, pallets perform essential functions in the supply chain. That has never been more apparent than during the pandemic.

consumed in the pallet, we can continue to use it forever,” Pepperworth says.

Plastic pallets are also about 20 pounds lighter than the average wood version so each pallet can hold more product. Trucks can move more products in fewer loads, reducing transportation’s greenhouse gas impact.

“Reducing transportation weight and cubing out a trailer has a beneficial impact on customers,” Pepperworth says.

Some major shippers are making the switch to plastic pallets. Costco, for example, announced a plan to transition about 60 million pallets from wood to plastic for its warehouse stores due in part to the lighter weight and reduced damage during handling. The company

has asked its suppliers to consider switching as well.

COVID has also impacted the price of lumber, raising the cost of wooden pallets and making the transition from wood to plastic more economically feasible than in the past.

### POOLS AND MANAGED SERVICES

Most large companies use pallets from a pool or a managed services arrangement. Both systems offer lower upfront costs compared to purchasing assets. Users that have a captive or closed-loop system may benefit from owning. Other companies that ship product to a range of destinations outside of their control benefit from paying for use.

Both methods can ensure pallets are available when they’re needed. Visibility into tracking and damage can pinpoint problem areas that lead to product losses.

The major benefits of joining a pallet pool are lower up-front cost investments and easy packaging delivery and tracking, which reduces system downtime due to packaging shortages and storage space requirements.

Experts have called pallets “the industrial equivalent of oxygen.” While ubiquitous and invisible, pallets perform essential functions in the supply chain. That has never been more apparent than during the pandemic when consumers waited at the loading dock for pallets of essential food and supplies to arrive.

While sometimes overlooked, pallets are the unsung stars of the supply chain. As the supply chain embraces automation, high-quality pallets will be critical in ensuring systems operate at maximum efficiency. ■



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\*In FasTrack testing completed at Virginia Tech, using an ORBIS 40 x 48 rackable pallet.