Sustainability

Advantages of Reusable Containers

What is plastic reusable packaging?

Plastic reusable packaging products are used to move, store and distribute product within a single operation or entire supply chain. From raw material to finished goods, plastic reusable packaging safely and efficiently moves material/product along different points of the supply chain and ultimately to its destination. It is ideal for multiple trip applications in a closed-loop environment or well-managed supply chain. It can also be used effectively in a managed open-loop system, with reverse logistics in place to return empty containers or pallets for re-use or replenishment. Products can include:

- Hand-held containers, bins, boxes or totes
- Pallets, slip sheets, top frames and top caps
- Divider sheets
- Bulk containers, bins, boxes or totes
- Protective interior dunnage (custom)
- Storage containers and metal systems
- Custom designed and engineered packaging

By design, plastic reusable packaging products offer durable, rigid construction; contoured surfaces; easy-to-grasp handles; high levels of recyclability and vast identification options. These dimensionally consistent containers and pallets are easy to handle and interface effortlessly with all types of high-speed automated equipment. In fact, some products are specially designed to be "hands-free" and solely handled by robots or conveyors. Plastic packaging has no nails or loose corrugated flaps to halt a high-speed system. And, in high-volume industries, hundreds of thousands of dollars are lost when an automated system is stopped.

Whether shipping plastic bottles to a soft drink bottler for filling; trim parts to an automotive manufacturer; electronic components to a computer manufacturer or consumer goods to the mass retailer, plastic reusable containers and pallets will help move product faster, better, safer and more cost effectively.

Plastic reusable packaging is integrated in a single operation or entire supply chain to take the place of single-use corrugated shipping and storage boxes and limited-use wood pallets. Users experience a rapid return on their packaging investment…many times in 6-18 months or less.

Experienced reusable packaging providers analyze a single operation or entire supply chain, conduct a financial justification, design a solution and implement a packaging program for sustained cost reduction and supply chain efficiency. Supply chain systems are dynamic and the packaging programs that support them must evolve, as well. New product launches, quality improvements, changing production processes and new labor practices may require new and innovative packaging. Experienced packaging providers will continually re-evaluate for future opportunities for optimization.

Why plastic reusable packaging?
The development and implementation of reusable packaging programs result in sustained optimization and overall cost reduction through:

Improved flow of product –The contoured, lightweight design of reusable packaging allows product to travel safely and efficiently to its destination.

Reduced packaging waste (from the disposal of corrugated boxes or wood pallets) – The disposal of corrugated and wood waste is costly in terms of disposal fees and non-value added labor incurred for set-up and/or breakdown. The long service life of reusable packaging allows it to be used over and over again in place of one-time use corrugated boxes and wood pallets.

Reduced packaging costs – Annual packaging costs plummet with plastic reusable containers and their protective interior dunnage. Containers can last 5 to 10 years, reducing packaging material costs to pennies per trip by allocating the initial investment over their useful life. Recurring charges for one-time-use packaging are avoided and waste is reduced significantly compared to expendable packaging.

Maximized product protection for product damage cost reduction – Reusable packaging supports many ISO-Certified and Six-Sigma operations by protecting incoming parts and outgoing products from damage. Expensive components and finished products are safe in heavy-duty, durable plastic containers with customized interiors (dunnage) that protect delicate assemblies from damage. Plastic pallets are used to store and ship full loads of product. The contoured, all-plastic construction protects product from damage that can occur from nails, rust or splinters commonly found in wood pallets.
Reduced transportation costs due to packaging modularity and standardization – Custom interior dunnage in “right-sized” reusable containers standardizes the number of parts per container and ultimately per truckload, enabling better ordering capabilities, cost estimating, logistics and

transportation planning. Stacking containers to the truck's maximum capacity streamlines transportation costs. To minimize return transportation costs, reusable packaging often nests or collapses when empty.

Supports lean manufacturing practices – Reusable packaging is a catalyst for implementing a lean manufacturing system, where frequent parts deliveries, standardized package sizes and efficient packaging processes improve the flow of product/material and reduce the need for extra storage or warehouse space.

Reduced labor costs due to standardized workflow – Multiple layers of paper, plastic bags and other expendable packing materials can be eliminated. This reduction, in turn, requires fewer labor steps in the packaging process, as well as less ordering and set-up time and virtually no container disposal cost. Plastic containers securely stack higher than expendable ones and nest or collapse to take up less floor space, making inventory management and material handling easier. Receiving and inspection of deliveries are faster and easier with standardized packaging and consistent unit sizes. Corresponding indirect labor and equipment costs are driven from the system.

Optimized inventory management through standardized sizes – Shipping in smaller quantities, on a more frequent basis, and delivering parts closer to the time of usage reduces the number of days of parts inventory and therefore limits the days that inventory is nonproductive. Combining supplier pick-ups or customer deliveries into small, daily truck routes (milk runs) also reduces dollars tied up in inventory.

Improved warehouse space utilization – Process improvements enabled by reusable packaging can reduce inventory and make better use of fixed assets, including line-side and warehouse floor space and material handling equipment.

Improved worker safety and better ergonomics – Plant managers report fewer incidents related to packaging because of improved stackability, easier handling and better tracking/locating of materials. In the age of skyrocketing workers' compensation and health care costs, ergonomically designed containers improve worker safety and the bottom line at the same time. Standard-sized containers with handles or access doors make packaging more user-friendly and easier on workers, resulting in fewer strains and musculoskeletal disorders.

Improved velocity through reduced cycle time – Using reusable packaging, companies are able to speed production. Parts are consistently presented in standardized containers. Workers spend less time handling and disposing of messy expendable packaging. Also, reusable packaging enables daily, just-in-time deliveries to optimize productivity.

Who uses plastic reusable packaging?

Plastic reusable packaging has brought long-term cost savings to a wide range of industries including automotive, transportation equipment, beverage, multiple food segments, electronics, pharmaceutical, textile, printing and apparel.

The decision to implement plastic reusable packaging involves many different functions within an organization. Typical decision makers include operations, plant, warehouse, materials, purchasing, distribution, supply chain, logistics or quality managers, as well as packaging engineers and chief financial officers.

What are the KEY INDICATORS that implementing reusable packaging is right for your business?

A well-managed supply chain (interdependent relationships)
Relatively short logistical cycle (time and distance)
Tightly controlled closed-loop or a well managed open-loop shipping system
Multiple component parts
Complicated assembly operations
Expensive expendable packaging
High product damage rates
High part-usage rates
High inventory velocity
Under-utilized trailer space in transportation
High waste disposal costs
Concern about clean environment or part cleanliness/hygiene
Need to optimize line space
Worker safety or ergonomic issues
Desire for "visual plant"
Product shipped to/from regional distribution centers
Need for unitization
Direct-to-store delivery shipments

How can Return on Investment be calculated?

While each company measures success differently, some of the following may be used to measure packaging success, over time:

- Expendable packaging costs
- Expendable set-up costs
- Disposal of expendable packaging
- Attrition rate
- Logistics and freight costs

- Additional handling costs
- Process environment
- System days
- Product quality
- Insurance costs
- Ergonomics and safety issues
- Space savings in inventory and line side
- Cleaning
- Container control
- “Re-Packing” Costs
- Labor Costs
- Cycle time

What product styles are available?

Reusable packaging products are manufactured in a variety of styles. The product style selection is based on many factors of the customers' business, including: volume of product, product life cycle, supplier network, frequency of shipments, inventory velocity, storage practices and product protection requirements.

For example, in the automotive industry, a radio being shipped for assembly into an vehicle will require standardized packaging on a 45" x 48" AIAG pallet to prevent part damage and reduce transportation costs. In the apparel industry, the concerns are not about cushioning, but about potential snags on sharp edges. In the pharmaceutical industry, hygiene and security are important issues, so the packaging selected is highly cleanable and designed with security options.

Hand-held containers bring productivity to today's material handling systems, by standardizing workflow and offering ease of handling, and are available in the following styles:

- Straight-wall/stack-only: For maximum container utilization, resulting in more product per container
- Stack-N-nest: Containers nest when empty and stack when full
- Nest-only: Containers nest for efficient storage and return transport
- Collapsible: Containers collapse after use for efficient return transport
- Attached-lid: For secure storage and shipment

Bulk containers offer the strength and rugged durability demanded in today's material handling systems. Bulk containers are available in many standard or custom footprints and the following styles:

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Collapsible: Containers collapse after use for efficient return transport
Straight-Wall: For maximum container utilization and secure static storage
Nestable: Containers nest for efficient storage and return transport

Companies in many industries have converted from wood to plastic pallets for their work-in-process, storage and distribution applications. They recognize the economic, ergonomic and environmental benefits that plastic pallets bring to their operation. The following products, in many footprints, are available to move unitized loads safely and efficiently:

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Nestable, stackable and rackable pallets
Top caps/frames
Seat belt systems
Divider sheets
Slip sheets

The timely delivery of high-quality parts and products at the designated destination is critical to an efficient operation. Custom Interior Dunnage, commonly referred to as protective interior packaging is available in reusable or expendable styles to protect product during assembly, work-in-process and transport. This packaging is custom designed and fabricated to provide a reliable packaging solution that offers continuous protection and support. This dunnage can be inserted into hand-held or bulk containers, used on pallets or used with racks.

What materials are used to manufacture reusable packaging?
Depending on the product style, most plastic reusable packaging products are manufactured in high-density polyethylene or polypropylene plastic. Additionally, products can be produced in UL-listed, FM-approved/fire-retardant, ESD-protective and FDA-approved materials for unique packaging applications.

How is plastic reusable packaging manufactured?
A wide variety of manufacturing processes are used to achieve the high-performance levels demanded of the product in application. Since application and product requirements differ, a comprehensive range of manufacturing processes and the highest quality materials are necessary to achieve the desired performance characteristics needed for the application.

Injection Molding
Plastic is injected, under pressure, into a closed cavity mold and cooled to ensure it maintains the exact shape of the mold. This process produces a solid wall, solid core product that exhibits:

- Superior impact resistance
- Accurate and consistent tolerances
- Exceptional strength
- High cleanability
- Lightweight construction

Structural Foam Molding
Plastic and nitrogen gas are injected into a closed cavity mold and cooled to create the exact shape of the mold. The combined use of these materials creates a cellular core that forms a solid skin and exhibits:

- High strength-to-weight ratio
- Reduced deflection
- Accurate and consistent tolerances
- Cleanability
- Superior static load capacity

Thermoforming (Single and Twin Sheet)
In single sheet thermoforming, a sheet of plastic is heated and drawn by vacuum over a mold to create definition to the final product. In twin sheet thermoforming, two sheets of plastic are heated and drawn by vacuum over separate molds and fused together through pressure to form a structural double wall. These processes result in:

- Exceptional flex memory
- Standard static load capacity
- Impact resistance
- Lightweight construction

General Fabrication
A variety of materials are used in the fabrication and assembly of custom interior packaging, resulting in:

Improved part protection and better part separation
"Class A" surface protection
Consistent presentation

Creating a plastic reusable packaging system.
Plastic reusable packaging providers begin by conducting a system-wide assessment and a cost-justification analysis in order to create and implement a reusable packaging program, for significant cost reduction and supply chain optimization. After initial implementation, experienced packaging providers will continually re-evaluate for future opportunities for optimization.