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MARKET TOPIC | FROZEN FOOD

NEW DEVELOPMENTS IN FROZEN FOOD PACKAGING

Contributed by the Reusable Packaging Association

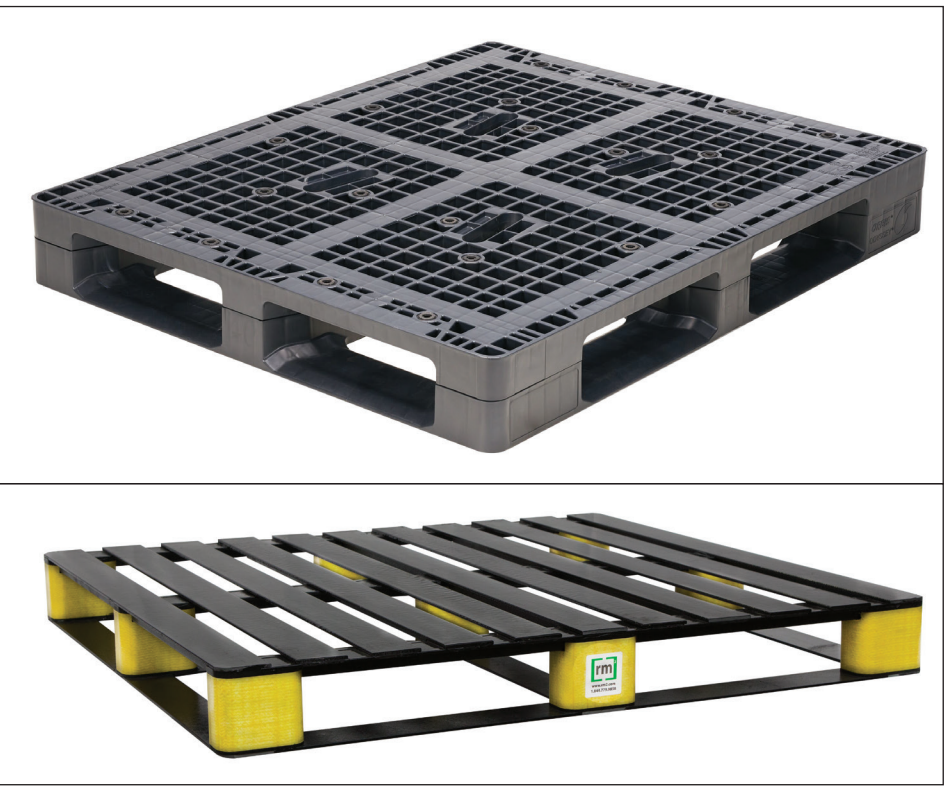
Frozen foods present a variety of supply chain challenges, especially when it comes to transport packaging. While prolonged exposure to sub-zero temperatures is perhaps the most obvious obstacle, higher product weights, inefficient handling processes, and food safety concerns also demand unique packaging performance characteristics. Fortunately, as is the case with many other challenging supply chains, reusable transport packaging (manufacturers and solution providers continue to meet these demands through innovative materials and designs for packaging items such as pallets, bulk bins, and handheld containers.

Reusable models enable higher performance from frozen food packaging

In a reusable model, it becomes economically feasible to build previously cost-prohibitive performance features into packaging. Innovative materials, design features, and technology which are far too costly to utilize in single-use packaging become cost-effective when that cost is spread over years and years of utilization. These features add value in many ways all across the supply chain, from more efficient handling processes to greater load stability to enhanced hygiene and traceability.

New reusable transport packaging concepts speed frozen food handling and restocking

Labor availability (or lack thereof) is a perpetual issue throughout the retail food supply chain, and the frozen segment is no



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exception. From packing to distribution to point of sale, unit- and pallet-level handling inefficiencies and lack of ergonomic design drive up both costs and risk of injury. To address these issues, reusable transport packaging manufacturers are designing products to improve inefficient processes and reduce labor burden.

Traditionally, restocking freezer wells requires a stock clerk to first open corrugated cardboard boxes and then reload the well a few bags of product at a time, depending on how much he or she can fit in their hands at once. In busy supermarkets where full truckloads of product can be restocked each day, this process becomes an ongoing, time consuming effort that is labor intense and inefficient; proprietary point-of-sale studies have shown the time required to restock a single section of the freezer area averages a full 45 minutes.

To address this issue, Technology Container Corp. (TCC) has recently developed a high-speed, reusable cartridge for restocking freezer wells to replace conventional corrugated cardboard shipper boxes. According to the company, TCC's solution is a reusable, corrugated polypropylene, open-top box that can be reused hundreds of times, and is ideal for high-velocity items such as frozen peas, french fries (chips) and other frozen vegetables typically merchandized in freezer wells. Product is packed directly into the open-top box (cartridge), which is then individually shrink wrapped and unitized. The cartridges also feature an easy-fold bottom for fast opening without the need for tape – and fast to knock flat when emptied. To restock freezers, retail associates simply remove the empty cartridges, take the shrink film off the new ones, and drop in full cases of product instead of individual bags. Trials have shown a reduced stocking time of just 5 minutes vs. the usual 45 minutes.

Innovative materials improve performance for heavy loads in freezing environments

Material brittleness and flexibility are major concerns when pallets and containers are subjected to temperature extremes. In the frozen food supply chain, extended exposure to sub-zero temperatures create performance issues for commonly-used materials such as wood and plastic. Heavier than average load weights, common in the frozen food sector, also presents both a material and design challenge. In order to ensure employee safety and minimize risk of product damage from pallet failure, reusable transport packaging providers are utilizing innovative materials and designs.

RM2 builds its IoT-enabled BLOCKPal pallets from a proprietary pultruded fiberglass composite which is stronger pound-for-pound than structural steel, with an edge rack capacity of 6,500 lbs. The composite construction of this pallet is also able to withstand temperatures from -40° F to 176° F without brittleness or deflection, even under heavy load, and results in a smooth, nonporous surface which is naturally resistant to pathogens and easily sanitized. Despite its heavy load bearing capacity, the pallet weighs just 55 lbs.

In September, ORBIS CORPORATION introduced its new Odyssey® 48x40 rackable plastic pallet for use in heavy-duty racking applications. The pallet's unique design features, including optional steel reinforcements and molded-in frictional elements, enable it to rack loads up to 2,800 pounds in unsupported racking. The Odyssey pallet is injection-molded, enabling a lightweight design of between 42 – 52 lbs, depending on the addition of optional reinforcements.

Continued innovation in reusable packaging technology address food safety concerns for frozen food

Food safety is an omnipresent concern across the food and beverage sector. As the FDA heralds in the New Era of Smarter Food Safety, pressure is mounting across the supply chain to leverage technology for better, faster traceability. As with all other high-value performance features, embedded technology is made economically-feasible in reusable packaging where it would be cost prohibitive in single-use packaging. Companies such as RM2 have embedded IoT technology within pallets, capturing temperature, location, vibration, and chain of custody, and transmitting this information in real-time to the cloud for monitoring and analysis. iGPS and others have embedded RFID tracking devices within their pallets, and unit-level sensors for reusable handheld containers is not far behind.

As the frozen food sector looks to meet both the shared and unique challenges of its supply chain, reusable transport packaging manufacturers continue to innovate, providing solutions that result in more efficient, economical, and technologically advanced supply chains for frozen foods. ■