

Green Opportunities for Cargo Pallet Selection

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Introduction

At IntraLoque, Inc., we remanufacture cardboard boxes into cargo shipping pallets. This technology will shift the perception of corrugated pallets and change the way business transports their products. The IntraLoque® pallet is an alternative to wood or plastic pallets, and an importing option in parts of the world where wood is in short supply. This business takes the “going green movement” to a new level with a remanufactured environmentally friendly shipping pallet.

Key Pallet Selection Challenges

The objective of this white paper is to raise awareness of those challenges facing manufacturing organizations that must meet delivery requirement and customer palletizing green specifications with a narrow distribution budget. Managers are trying to meet the requirements of green initiatives and the use of alternative methods that do not inhibit environmental standards. Businesses face new government regulations reducing energy consumption or pay penalties. Meeting green operational standing using a pallet system has challenges. Companies improve packaging material and reducing the burden of recycling but the pallet remains at the end of the chain. Suppliers or users face disposal or reclaiming products from the supply chain. Saving pallets requires a reverse supply chain and landfills do not take pallets. Shipping managers seek alternatives to reduce shipping expenses and fuel costs. Many are looking for sustainable solutions, no contracts, hidden agenda, or inventory loss. Administrator want to manage their supply train and reduce the carbon footprint yet not drive the budget into the red.

Manufacturing and shipping managers are looking for economic value when making pallets purchasing decisions. The International shippers require a pallet meeting UN wood borne restrictions and stable enough to withstand the journey. Shippers with a one-way haul are interested in price and stability. Manufacturing managers are concerned about pallet usage, such as ergonomic issues, not to mention safety issues such as nails, splinters, dirt, pallets with a square appearance, and maintaining production. Warehouse managers need pallets capable of holding loads under multiple stacking and strapping operations, compatible with automated machinery, and will hold up in storage racks.

The Benefits of the IntraLoque® Pallet

IntraLoque, Inc. manufactures the IntraLoque® pallet. We recover cardboard, process the material, use our manufacturing skills, special designed machinery, and experienced staff to remanufacture the cardboard into a new product. IntraLoque® is the leader as a recycled corrugated pallet provider.

We sent the finished pallet to an independent organization (Virginia Tech, Center for Load Design) to test the pallet according to protocol for “Standard Test Methods for Pallets and Related Structures Employed in Material handling and Shipping.” The test exceeded the protocol standards with a fork tine test resulted in an average of 5,915 pounds and the floor stack test of 12,021 pounds at failure.

Table 1: Paper Engineering Pallet: Fork Tine Support with Flexible Load ASTM D-1185 - Creep Test at 2000 pounds and Test to Failure							
Replicate	Max Deflection Center (inches) Creep	Max Deflection Outside (inches) Creep	Max Deflection Center (inches) Relax	Max Deflection Outside (inches) Relax	MAX LOAD (lbs.)	Max Deflection Center (inches) Fail	Max Deflection Outside (inches) Fail
1	-	-	-	-	5503	0.32	1.84
2	0.12	0.22	0.03	0.07	6063	0.26	0.61
3	0.14	0.24	0.04	0.07	6708	0.37	1.85
4	0.1	0.2	0.03	0.05	5388	0.2	0.97
AVG	0.12	0.22	0.03	0.06	5915	0.29	1.32
ASTM Criteria	0.24	0.18	0.09	0.06	4000		
Results	Pass	Pass	Pass	Pass	Pass	NA	NA

Table 2: Pallet Engineering Pallet: Results of Floor Stack Test with Flexible Load - ASTM D-1185 - Creep Test at 2000 pounds and Test to Failure				
Replicate	Deflection after 2 hrs at creep load (inches)	Residual Deflection after 1 hr recovery (inches)	Load at Failure (Lbs.)	Deflection at failure (inches)
1	-	-	12283	0.63
2	0.12	0.03	13129	0.89
3	0.13	0.06	10612	0.91
4	0.14	0.03	12058	0.99
Average	0.13	0.04	12021	0.86
ASTM Criteria	0.32	0.12	12000	
Results	Pass	Pass	Pass	



The pallet, patented through the European Patent Office (WO 2008-008095), incorporates a multiple step process of cutting, wrapping, gluing, and applying a pre-stress to the platform cells. The technical result is extremely strong, waterproof, rigid, and lightweight pallet.

Our platform cells are waterproof. We combine special paper creating the cell wall that water will not penetrate, sealing the ends of the platform making a waterproof cell. We tested the product by submerging the cell under water for 24 hours, then allowing the pallet to set in snow for the winter. The pallet remains a fully functional cargo platform.



Our customers allowed pallet warehouse and transportation trials. A pallet placed suspended in a simulated 48-inch rack under load for three months without failure. A second customer trial racked the pallet under load for eight months, then sent to conveyor trials. A third customer trial placed the pallet in a manufacturing environment with a conveyORIZED production stream. Our pallet was loaded with 45 bags of cement and sent through a conveyor system. The pallet was loaded for shipping by rail under a stacked load. The combined weight was 7200 lbs. and successfully completed transport and load dock testing.





Benefits and Advantages

Environmental Performance

We can expect new environmental factors forcing major changes to government regulations, which affects the pallet industry. The IntraLoque® pallet designed for International markets as a substitute for heat-treated or fumigated wood export pallets. IntraLoque® meets all UN wood borne restrictions deterring the use of untreated wood. This pallet is 100% recyclable. A recyclable product, manufactured from recyclable or recycled material. The recycled paper pallets will have a strong advantage in world markets where wood resources are scarce, or where plastic pallets tie to the oil industry price fluctuation.

Financial Performance

Companies committed to developing a solid business income, maintaining community position, and environmental direction must look at IntraLoque®. Take revenues for instance. In the current economic climate of rising prices, businesses must manage their supply chains and business processes to ensure maximum profitability and productivity. The IntraLoque® pallet priced alongside a conventional pallet will save your business 10% to 25%.

We can expect fuel surcharges and freight charges (CWT) as fact of future shipping expenses. The fuel surcharge was recently at 14%, and extra weight means extra fuel costs. Shippers pay for this weight and part of the weight is in the pallet. The IntraLoque® Pallet weighs 30 lbs. compared to a wood pallet weighing 50 lbs.; the savings for freight charges is \$26,000 annually, either to you or your customer's bottom line. (10 pallet/day) A 20% saving on 10 pallets per day equates to \$5,200 savings annually, and a substantial saving (\$31,200) to many small companies.

Physical Performance

Compared to conventional pallets, the IntraLoque® pallet holds its own. However, when compared to the recyclable demands and price the IntraLoque® pallet far exceeds the competition. The pallet exceeds ASTM D1185-98 standards for strength and durability, and no fumigation or heat is required. It is used for conveyerized manufacturing and on to storage racks or multiple stacks. It may be stored outside in many environments due to the watertight stringers and runners. The platform cells are of a waterproof design and will repel moisture when used in International shipping containers. We use a waterproof adhesive, meeting environmental standards for recycling, which bonds and maintains the structural integrity of the pallet.

The pallet is a safe clean product. The IntraLoque® pallets are splinter free with no nails, pins, or staples. Managers will not find dirt, rocks and grime when used in the production area. Our pallet is lighter, an ergonomic factor, than wood. In manufacturing areas where employees are required to lift and move pallets by hand, the weight becomes an issue. Palletizing is often the last stage of the manufacturing process, and many cases the human job does not fit the task, which leads to loss of productivity and compensation claims.

Conclusion

As stated previously, we remanufacture cardboard boxes into shipping pallets, which is an alternative for wood or plastic pallets. IntraLoque® is the leader as a recycled corrugated pallet provider, and 100% environmentally friendly remanufactured alternative. The pallet is a safe clean product that is strong and durable. This pallet meets UN wood borne restrictions for International shipping standards no fumigation or heat is required. The IntraLoque® pallet, competitively priced, may save the user 25% on pallet costs with additional savings on freight costs.