



Is poor packaging increasing damage to your products?

A stronger, more stable solution is here

Packaging plays an extremely important role in product damage and unsaleable rates. According to the *2006 Unsaleables Benchmark Report*, manufacturers that were able to reduce their unsaleable costs from 2004 to 2005 did so primarily by improving packaging.¹

Companies that were most effective at limiting unsaleables made many packaging improvements at the unit load level. A unit load is a quantity of any item that is arranged on a pallet in a specified manner and strapped or fastened thereto, so that the whole is handled as a unit. When the load is not protected or secured, it may compromise the integrity of all individual products on the pallet.

According to recent reports by the Grocery Manufacturers Association/Food Marketing Institute (GMA/FMI), as much as 58 percent of all product returns are due to damage. Crushed, dented, torn, punctured, and cut products arrive at distribution centers every day and make up a significant portion of the \$2.05 billion cost of unsaleables.¹

Products may become damaged at various points in the supply chain, sometimes due to substandard packaging, mishandling, or poor shipping practices.

Study shows stability is key

The stability of a unit load is absolutely critical to minimizing the amount of damage to individual products through the supply chain.

For example, unstable loads may shift during transport, resulting in horizontal or vertical crushing or even punctured products that are pressed against the corner edge of a pallet. Loads may also tip or spill when handled if they



are not secured to the pallet, which leads to torn, leaking, or contaminated products.

Several factors can contribute to unit load instability. A recent study by Carolina Supply Chain Services (CSCS) examined more than 28,000 unit loads across the U.S. to identify the most common causes of damage.²

- More than 14 percent of all unit loads were not wrapped to the pallets. The quantity of products on the pallet may have been secured together but not attached to the pallet. This allowed the load to shift across the pallet's surface during transport and handling.

Performance Report **Stretch Hood Packaging**

Plastics – North America

According to the CSCS study, poor unit load packaging can contribute to product damage costing as much as \$388 million annually.²

- Approximately 18 percent of dry unit loads, 14 percent of chilled loads, and 36 percent of frozen loads had packaging issues, such as stretch wrap applied too tightly/to loosely, that could lead to significant damage of individual products.
- Nearly 48 percent of shipments examined had no shipment stabilization devices (dunnage) used within the trailers.
- Nearly 40 percent of unit loads did not optimize the pallet footprint, having either overhang, or underhang.²

The CSCS study concluded that when unit loads are poorly stabilized, the likelihood of damage from typical handling is greatly increased – costing as much as \$388 million annually.

In addition, with approximately half of all shipments being transported with no dunnage, there is a greater need for proper packaging to stabilize a unit load. The ideal packaging solution would secure all individual product units to the pallet, ensuring adequate stabilization during transport. Attaching the products to the pallet can reduce shifting, protrusions, overhang, and underhang.

Improving stabilization with stretch hood packaging

Stretch hood packaging offers excellent stabilization of unit loads by attaching the load to the pallet and holding it in place. The additional circumferential and vertical holding force helps minimize load shift during transport and handling. The reduced potential for shifting also allows unit loads to be stacked more easily, either in the warehouse or during transport.

Stretch hoods performed exceptionally well in ISTA 1E tests, including the vibration table, rotational edge drop impact, and incline impact tests. During these tests, unit loads with stretch hoods showed no load shift, compared to two to three inches of load shift observed with alternate types of packaging.³

Stretch hoods offer the potential to boost sales and reduce costs

Beyond stabilization, stretch hood packaging offers many benefits not provided with stretch wrap. First, the five-sided protection afforded by stretch hoods may protect individual products from water or ultraviolet (UV) damage, at a potentially lower cost than stretch wrap with

a topsheet. Unit loads can be stored outdoors or shipped in open bed trucks without the usual fear of weather damage, which can cause unsaleable products.

Second, the strength of the plastic film contributes to a high abuse resistance, meaning fewer tears and rips of the stretch hood – and ultimately fewer tears and rips of the individual products.



Stretch hoods offer excellent load stabilization; secure loads to pallets; and protect products from water and UV damage, with five-sided coverage.

Third, the clarity of the film allows all stages of the value chain to identify and recognize individual product damage when it occurs, as well as inventory errors, or tampering. The condition of individual products under the hood is not concealed by multiple layers of wrap or cardboard, as is the case with other wrapping methods.

Such clarity allows product logos to be seen. And, companies that use stretch hood packaging have the opportunity to print branding elements directly on the plastic – improving brand recognition at point-of-purchase in club stores.

Stretch hoods may also help companies debottleneck palletizing/unitization operations. Stretch wrapping typically is limited to 60-80 loads/hour, while stretch hood packaging processes can run as high as 200 loads/hour, which may potentially reduce labor costs, energy costs, and consolidate packaging operations.

Tailored resin solutions to match individual load requirements

Dow offers an extensive line of proven and innovative elastomers to create high performance plastic films for stretch hoods. Dow's polymer structures yield excellent performance in terms of package integrity, weatherability, and display properties and can be tailored to achieve performance specific to individual load requirements. There is no one-size-fits-all solution.

Whether you are packaging a load of empty PET bottles that require low holding force (high elasticity) to avoid crushing the bottles, or a load of concrete blocks that would require very high holding force (low elasticity), Dow is available to assist you in creating the right stretch hood at the right thickness.

For more information about stretch hood technology, the broad range of resins available from Dow, or to consult with a Dow technical representative to determine the best formulation for a particular pallet load type, call 1.800.441.4369 or go to www.dowplastics.com.

Stretch hoods – a sustainable packaging solution

Stretch hoods can play an integral role in companies' sustainable packaging initiatives. Improvements by Dow in resin design and polymer processing have led to plastic films with greater puncture resistance and extensibility compared to earlier films. The performance traits of Dow resins have also allowed for a reduction in stretch hood gauge (thickness), as much as 25 percent since 1998.

This gauge reduction in stretch hoods contributes to saving one billion pounds of plastic resin per year. When the various energy inputs in the life cycle of stretch film are considered – energy to manufacture the resin, manufacturing the stretch film, transporting the film, and disposing of waste stretch film – stretch hood technology can lead to significant energy savings. In fact,

stretch film can stabilize the same number of unit loads today as it did in 1998 while using approximately 36.6 trillion less BTUs – the equivalent of 293 million gallons of gas – over its life cycle.⁴



The stretch hood packaging process is fast and efficient, with a throughput of approximately 200 loads per hour (compared to 60-80 loads per hour using stretch wrap).

¹ 2006 Unsaleables Benchmark Report, GMA/FMI

² Unit Load and Shipment Stabilization Characteristics, CSCS, 2006

³ Dow product testing conducted at Clemson University, June 2006

⁴ Waste Management & Energy Savings: Benefits by the Numbers, United States Environmental Protection Agency, Sept. 2005

For more information on products, innovations, expertise, and other services available to you from Dow's Plastics business group, visit www.dowplastics.com and choose your region, or contact us as indicated below.

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