

PACKAGING DIGEST

Source reduction stretches wrapping operations

Stretch wrapping has become recognized as a critical component in making sure **PRODUCT ARRIVES IN THE CONDITION INTENDED.**

Since Wal-Mart's sustainability initiatives were first introduced in 2007, sustainability is a subject manufacturers find hard to avoid. For packaging manufacturers and suppliers, the added pressure to "go green" has only escalated over the years, with customers unwilling to lower their expectations for suppliers to meet varying sustainability goals.

However, more companies are also realizing that implementing sustainable practices isn't just improving the environment, but also their bottom-line. For example, companies using petroleum-based products are being greatly affected by rising oil barrel costs and have had to reduce usage to minimize costs. For stretch-wrap users, these factors are all too familiar.

While packaging sustainability is focused on reducing primary packaging material and increasing cube utilization, the end-of-line stretch wrapping process

is critical to achieving optimum product delivery and reducing waste. As another step in the supply chain, it can't be ignored if companies are looking to meet industry demands and achieve greater overall production efficiency. Advancements in film, equipment and technology are making it easier to reach sustainability goals while minimizing costs.

Reduction of materials is practiced in the name of sustainability. The reduction in primary packaging has put greater demands on stretch wrapping operations. Manufacturers are no longer just wrapping boxes of canned goods. For most manufacturers, stretch wrapping has become essential for products that create unstable loads, such as water bottles and open-top display boxes.

As we have gone from boxes to trays to pads to nothing but shrink wrap, manufacturers have become more reliant on the end-of-the-line stretch wrap to make sure their product makes it to their customer intact and unharmed. Stretch wrapping may be the last operation



To improve packaging sustainability, many manufacturers are moving to lightweight films for their stretch wrapping needs.

before the product leaves the production facility, but it is the first thing the customer sees when it enters their facility.

Therefore, increasingly, stretch wrapping has become recognized as a critical component in making sure a product arrives in its intended condition. Most companies have already made significant investments upstream of the stretch wrapper, but any improvements (and the costs) will be wasted if the product arrives damaged.

Many modern stretch wrappers permit variable tension on the wrap to ensure load integrity and to reduce film usage.



It's easy to understand how reducing film consumption is good for the environment. Less waste in landfills, reduced oil demands of producing plastic resins and decreased energy costs associated with manufacturing the film are all green benefits to help meet growing sustainability initiatives. However, reducing film usage when stretch wrapping while avoiding load damage can be a challenge.

Here are a variety of solutions to minimize film usage, optimize load containment and improve efficiencies while at the same time improving sustainability impact.

Thin is in

The most obvious way to reduce film consumption is to use a thinner film. However, moving to a thinner film without properly analyzing if it will work for the particular application will often result in an overall increase in film usage. In addition to the likelihood that a manufacturer has to compensate by using additional film to maintain the integrity and security of the package, a thinner film that is inappropriate for the application also creates the possibility for film breaks. This will almost certainly increase overall film consumption and labor costs, while slowing productivity.

The good news is that recently several high quality, thinner films have come to market that can effectively reduce film usage without compromising the integrity of the load. When evaluating any new film, thorough testing with the new film and intended application is essential, as well as performing an ASTM standardized force-to-load test. Similar testing can also be performed to ensure the proper number of wraps are being applied.

Load tension can be adjusted

One often-overlooked opportunity to limit waste is by applying proper tension to the load. To put it simply, most stretch wrapping machines have

a tension adjustment that affects how tightly the load will be wrapped. It is important because if you don't apply enough tension, you run the risk that the loads will topple over in transit. If you apply too much tension, it can "squeeze" the film too tight around the load and damage the product or increase the probability that the film will break.

When film breaks occur, it is common for operators to "fix" any stretch wrapper issue by lowering the tension. In a study by ITW Muller, a customer could see a 12 percent increase in film usage when wrapping a load under low tension settings versus high tension settings. This is because when it is kept under high tension the film retains its stretch while low tension allows the film to recover and spring back.

Spitting out film at low tension may be good for wrapping empty PET bottles that are prone to crushing under the lightest of force, but the majority of loads would be better served by allowing for optimal tension throughout the wrap cycle. By applying just the right amount of tension at various points on the load, manufacturers can be assured that they are reducing product damage while simultaneously lowering film costs. Variable tension control allows for increased tension at locations on the load that require extra hold (the base of a sturdy box) and lighter tension where reduced force is beneficial (sharp corners, the top of an open box).

For example, ITW Muller not only offers variable tension control on its Octopus machines but, integrated with the OctoMAX system, users can also monitor the settings—making it easy to view how previous loads were wrapped and quickly identify where changes need to be made. The variable setting control eliminates film breaks and reduces usage by optimizing the settings based on the load configuration and containment needs.

As film type, load dimensions or pre-stretch requirements change, the wireless function and monitoring system further make it easy to adjust to new settings. The wireless control also minimizes components and maintenance, adding additional cost-saving benefits.

Measure, monitor and act

To really understand and quantify the benefits of any change made, having a way to record the performance of the film and equipment is essential. With retailers increasingly looking for proof that a manufacturer is making strides in its sustainability promise, stretch wrap equipment manufacturers are beginning to add monitoring systems to their machines that will measure and display at the HMI the precise amount of film that was applied to each and every load.

Monitoring tools enable the user to keep a close eye on film usage and machine settings to drive down the cost of stretch-wrapping operations and simplify maintenance. It can even be used to compare the performance of two different types of films. As the old adage says, "What gets measured, gets done" and this is a way to ensure that the pre-stretch performance promised is actually delivered.

Optimize the system

True optimization and savings comes from looking at the stretch-wrap operation in its entirety—film, equipment and service. The return on investment in a simple service audit of your existing equipment can be tremendous. Speaking to suppliers and finding out what upgrades are available is an essential component to improving sustainability.

This article was written by Dan Schmidt, business development manager for ITW Muller. For more information, call 800-628-6787 or visit www.itwmuller.com.

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