

REINFORCING TAPE SOLVES ACCESS HOLE TEARING PROBLEM



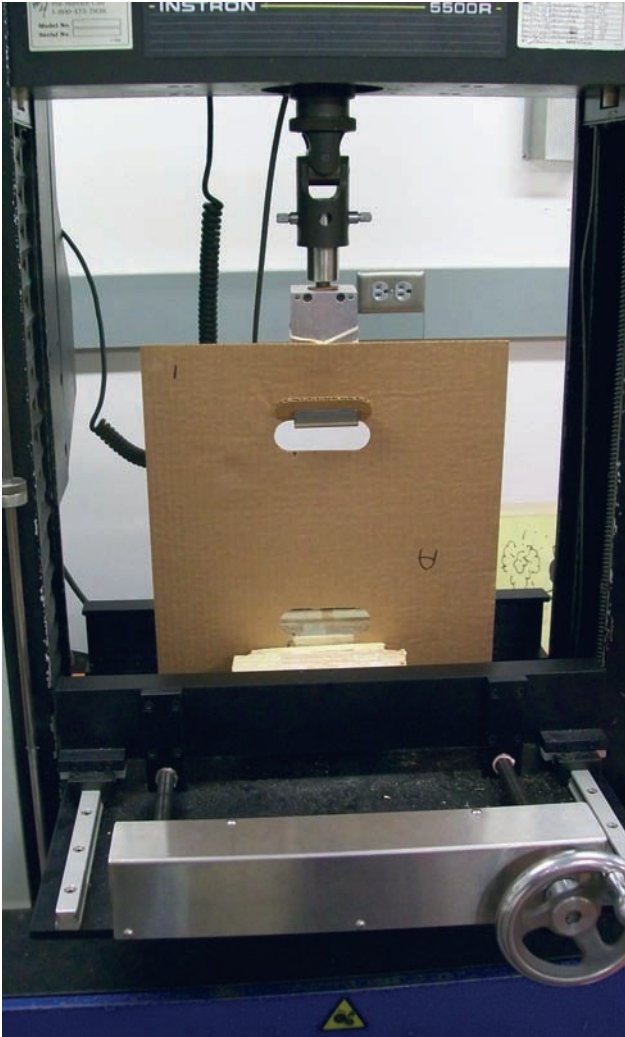
ABOVE: PROPER PLACEMENT OF TAPE IN RELATION TO THE ACCESS HOLE IS CRITICAL TO THE EFFECTIVENESS. RIGHT: EVEN THOUGH THE TAPE REINFORCEMENT IS NEAR PEAK LOAD, THE STRESS ON THE ACCESS HOLE HAS NOT TORN THROUGH THE CORRUGATED.



ADALIS OFFERS A SOLUTION THAT IS IN LINE WITH LOWERING MATERIAL CONSUMPTION SUSTAINABILITY GOALS.

BY TIM LAMIE, ADALIS

A large corrugated container manufacturer that prides itself on the quality, performance, and sustainability of its products was surprised late last year to learn from one of its most important industrial customers about shipping container field failures. The customer said the 26-pound net-weight boxes of construction materials were failing at work sites – the diecut oval access holes were tearing out of the boxes. Not only was this problem a product protection issue, but it also raised safety concerns with heavy boxes potentially falling out of the grasp of workers on ladders and scaffolding. This shipping container was 40 pound ECT with a reinforcement tape adhered inside the doubleface liner. Several solutions presented themselves. The board weight could be raised to 44 pounds. The use of more material, however, increased costs and ran counter to both the corrugated manufacturer's and the customer's commitment to improved sustainability through the reduction of material consumed. An exterior strap could have been used as a carrying handle. That solution was not workable for a number of reasons, including adding



THE REINFORCED AND NON-REINFORCED ACCESS HOLES WERE PULLED IN AN UPWARD, VERTICAL DIRECTION, USING A CURVED HANDLE.

steps to the manufacturing process and changing the way construction-site workers interact with the case.

The placement, weight and strength of the current reinforcement tape needed to be examined to determine if it was the proper solution for the application.

Management at the container plant knew about the work of Adalis in sustainability and performance improvements through the application of specialty tapes and contacted the local sales representative. Based in Vancouver, Wash., Adalis Corp. has a presence in more than 40 countries and is recognized for its application solutions for the packaging industry. It was clear after the initial meeting between Adalis and representatives at the box plant that the ideal solution to the field failure problem would:

- Significantly reduce and/or fully eliminate access holes from tearing out of the boxes and consequently improve safety;

- Utilize the lightest board weight possible;
- Require little or no change to the manufacturing process;
- Ensure that construction workers did not have to change the way they handle the boxes;
- Be either neutral or a cost savings if possible.

Testing

Adalis worked with the box manufacturer to test different linerboard combinations and tape varieties to see which would provide the optimum strength for the access hole. After looking at a variety of options, two were selected for further testing.

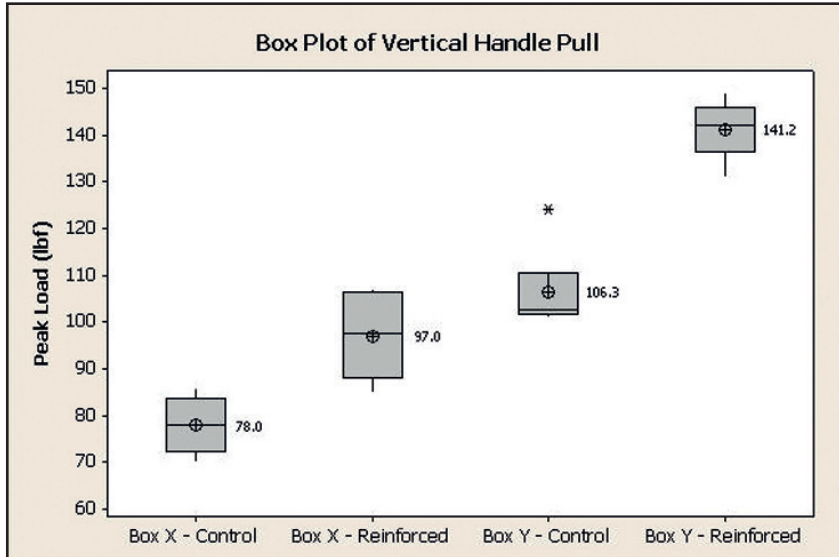
One combination had a tape adhered between the doubleface liner and singleface medium. The other option had the tape bonded to the exterior surface of the singleface liner. Control samples without any reinforcement tape were cut for each board combination as well. The samples were conditioned and tested to measure the maximum force required to break or tear the access hole.

While it may be counter intuitive, diecutting the access hole partially into the tape actually makes the access hole stronger. Through years of experience, Adalis has proven that performance of access holes is a combination of tape selection, tape placement and type/style of access hole. Cutting the hole a fraction into the tape during the finishing process improves the strength of the access hole rather than simply diecutting the hole below the tape. For each application, Adalis can help determine the ideal amount that the tape should be cut into and help with proper tape placement.

Results

While both boxes showed improved access hole strength, the box manufacturer chose the tape that was visible on the top of the

ADALIS WORKED WITH THE BOX MANUFACTURER TO TEST DIFFERENT LINERBOARD COMBINATIONS AND TAPE VARIETIES TO SEE WHICH WOULD PROVIDE THE OPTIMUM STRENGTH FOR THE ACCESS HOLE.



board. The tests showed a 33% improvement in the access hole compared to the current box and provides a strength safety factor of 5.5.

The box with the reinforcement tape on top of the board was judged to be the solution that most optimally met the performance, cost, and sustainability goals of the customer and the application was put into production this year.

The customer was gratified that the

solution did not involve moving up to a 44 ECT weight box for both sustainability and cost reasons. Furthermore, the customer liked the fact that the tape reinforcement was visible on the inside of the box. The visibility of the tape provided a proof point for construction crews that this indeed was a new box, one not prone to field failure.

The corrugated plant had the equipment to apply the reinforcing tape

and only minimal adjustments had to be made for top of the board application.

This solution did not change end-of-life recycling for these boxes. Corrugated boxes using reinforcing tape from Adalis are repulpable for recycling as the tape is removed during the OCC process. The customer was satisfied that the lowest possible weight box was used due to the innovative use of reinforcing tape.

As the trend of reducing the consumption of packaging material continues, it is important to understand that at some point the lighter corrugated will simply not meet performance requirements. To successfully overcome the lightweight barrier and continue achieving improved sustainability, technology-based performance solutions, such as Adalis reinforcing tape, will need to be applied. Testing is a valuable tool in ascertaining the optimum reinforcement solution for performance, price, and sustainability.

Tim Lamie has Green Belt certification in Lean Six Sigma methodologies and is a Territory Manager with Adalis Corp.

ADALIS CORPORATION

417 NW 136TH STREET, VANCOUVER, WASHINGTON 98685 USA
 info@adaliscorp.com

UNITED STATES

FREE: 800 426 - 1803
 OFFICE: 360 574 - 8828
 FAX: 360 574 - 7849

EUROPE

OFFICE: 31 (0) 570 - 635060
 FAX: 31 (0) 570 - 634958

LATIN AMERICA

OFFICE: 52 55 - 5413 - 5119
 FAX: 52 55 - 5586 - 2427

ASIA PACIFIC

OFFICE: +86 21 50277490
 FAX: +86 21 50277452



NEW IDEAS. NEW OPPORTUNITIES.

Adalis™ Handle Reinforcement Technology

NEW IDEAS. NEW OPPORTUNITIES.

Don't get dropped by your customers!



Have you ever been the victim of a packaging failure like this?

Too many consumers deal with this exact situation when a weak hand hole leads to a catastrophic failure.



Adalis Reinforcement Solutions



Protect your package's contents by reinforcing the hand holes with Adalis technology. Our solutions prevent catastrophic failures and ensure customers get your product from the store to their homes safely and comfortably.

Adalis reinforcement technology improves packaging designs by adding strength to the critical locations of the container.

- Reduce board weight for more cost effective designs
- Increase strength for optimized performance

Adalis™ Sesame® Tape

Adalis™ Sesame® Tape Plus