

CASE HISTORY



Teamwork among Converter, OEM, and FLEXcon
Produces Solution for Bubble-Free Labels

Manufacturers and converters in the Outdoor Power Equipment market know well that the appearance of brand identification and safety/instructional labels sends a message to the consumer about the quality of the product. Labels that retain their readability, adhesion, and color quality for the life of the outdoor product reinforce the image of product quality and durability. Labels that are faded, peeling off, scratched, tunneled, flagged, or otherwise flawed in appearance send a negative message about the quality of the product itself.

Recently, a FLEXcon customer — a South Dakota-based converter of custom-made screen process labels — was facing such an issue on labels they produced for a major OEM that specializes in premium outdoor power equipment such as lawn mowers and snow blowers. The equipment's labels, which were printed on a thinner-gauge flexible white vinyl product, were exhibiting bubbles, creating an unsightly appearance.

The converter was beginning to use an alternative option — a polycarbonate film — to meet the label needs of its OEM customer. However, that product was an unattractive option both in terms of appearance and higher cost. In addition, the polycarbonate product did not provide a warranty of 5-year durability that OEMs desire for their outdoor power equipment labels.

This converter was aware of other film solutions in today's market that, while effective in solving the bubble problem, do so at very high cost. Those solutions employ channels or beads in the adhesive layer that allow air to escape. The process for creating the channels/beads required an expensive product design, contributing to its premium cost. The pattern from the channels or beads can transfer to the label surface and is visible in printed graphics. In addition, not all of these products offered a 5-year durability warranty. The label converter decided this was not a viable solution for their OEM customer.

They asked FLEXcon Company, Inc., a supplier of high quality labeling materials, to join the converter/OEM team, observe the bubbling problem, and provide FLEXcon's expertise in film/adhesive technology to propose a remedy with the necessary outdoor durability and UV resistance. FLEXcon was asked to propose a solution that, in addition to resolving the bubbling issue, would be easy to apply, highly durable and more cost-effective than currently available products for bubble-free labels.

Easy to Apply

The OEM makes use of temporary, seasonal workers for applying labels to their seasonal products that include snow throwers, walk-behind lawnmowers, zero turn mowers, and riding mowers. Ease of application was essential because the temporary, seasonal workers who do labeling for the OEM have varied skill levels, are not formally trained on how to apply the labels, and must maintain a desired output per hour.

Highly Durable

The OEM's outdoor products for consumer and commercial use are noted for their high quality and long life. The bubble-free label solution needed to have guaranteed 5-year outdoor durability to provide the highest aesthetic quality and performance for the life of the product.

More Cost-Effective than the Currently Available Products for Bubble-Free Labels

Because of the quantity of labels per product, and the vast output of products from this OEM, label costs have a measurable effect on their bottom line. The OEM wanted to obtain the highest label performance possible at a reasonable cost.

To find the appropriate solution, FLEXcon began by looking more closely at the possibility that plastic outgassing could be causing the bubbling issue. Outgassing is a function of freshly molded plastic parts, which cure over a 72-hour period. Within that period, they often emit air molecules that can become trapped under the label.

FLEXcon's consultation with a number of its converter customers who apply labels indicated that they usually apply labels well after the typical 72-hour cure period for newly molded plastic parts. In fact, the typical application of labels takes place 5 to 10 days after the product is manufactured. This indicated that outgassing was not the primary cause of bubbling. Also supporting this conclusion was the appearance of bubbles on labels applied to the OEM's painted metal surfaces, where plastic curing time is not a factor.

A more likely explanation for the bubbling would therefore be either (1) complexities or challenges during the application process or (2) a product performance issue.

To explore both possibilities, FLEXcon observed closely how the OEM's workers applied the labels. FLEXcon found a number of inconsistencies in technique, including how the label applicators removed the release liner, how they laid down the label, and what method they used to smooth it out (via hand or squeegee). Also observed was how the current label material and a control label material functioned during the same application process.

Based on its market research, FLEXcon was aware that 90% of OEM label bubbling problems are caused by application air entrapment and inadequate product performance as the labels are applied, not by outgassing. So, a custom film/adhesive solution that would facilitate consistent, precise application by the workers seemed to be the answer to this customer's challenge.

After testing a variety of custom film constructions, FLEXcon arrived at a specially engineered product featuring a film with more rigidity than the previous labeling product, coupled with a specially formulated adhesive. The film's rigidity would make it easier for a worker of any level of experience to apply the label smoothly and consistently, since it would hold its shape while being affixed. This film's smooth, non-patterned surface and opaqueness would achieve optimum label graphics. The adhesive was designed to offer easy repositionability during application so the workers could easily correct a poorly placed label, along with a reliable long-term bond that would keep the label in place for the life of the product.

FLEXcon provided samples of the custom film/adhesive construction to the converter and the OEM. A side-by-side comparison with the previous thinner gauge vinyl product indicated this new FLEXcon solution is easier to apply, does a better job of preventing bubbles, provides print quality deemed superior to other solutions on the market, and can do the job in a more cost-effective way. This film product has been added to FLEXcon's product line and is now available to all converters under the name DPM Aply® 1000.

The converter and its OEM customer were pleased with this FLEXcon solution, and plan to transition to the specially engineered film product for the majority of its Outdoor Power Equipment labels that formerly used the thinner-gauge vinyl product or the polycarbonate. Of special importance, the FLEXcon solution comes with a five-year outdoor durability warranty.

By working as a three-party problem-solving team, the converter, OEM, and FLEXcon were able to combine their knowledge and capabilities to find a way to hold down costs for bubble-free labeling while achieving a superior aesthetic result.

For more information, please contact the Product Identification Business Team at (508) 885-8300.



Let's Talk Solutions

Bring your challenges or next big idea to FLEXcon and we will work together to find a solution.

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