

SABIC Innovative Plastics helps FLEXcon reduce system costs of bar code label stock while delivering 98 / 100 print contrast ratio

Eliminating the need for opaque surface treatments with SABIC Innovative Plastics' white Ultem* WH217 film to track electronic or automotive components with speed and precision, manufacturers need bar code labels that can be read accurately the first time

To achieve this, the labels must be opaque to prevent the substrate under the label from showing through, and provide a sharp contrast to the bar code printing. Traditionally, producers of bar code label stock apply a white surface treatment to translucent, high-temperature films to improve opacity, print contrast and durability. However, FLEXcon, a leading global manufacturer of pressure-sensitive films and adhesives, identified a need for a label material that did not require an opaque surface treatment.



Challenge

Achieving a competitive advantage through material innovation

FLEXcon, a Spencer, Mass.-based manufacturer, faced a dilemma involving the cost of producing bar code label stock used for tracking electronic and automotive components. To ensure the bar codes could be read correctly on the first pass through the scanner, the film had to be modified with an opaque, white coating to prevent the substrate under the label from showing through and improve print contrast. As part of its continuous improvement strategy, FLEXcon proactively examined ways to add value to the bar code label manufacturing process for greater productivity. The company targeted elimination of the opaque surface coating, which would reduce the number of steps needed to achieve required performance. However, FLEXcon needed a new way to supply the necessary opacity and print contrast.

FLEXcon turned to SABIC Innovative Plastics for a film with opacity "built in" to eliminate the coating step. However, opacity and print contrast were only two of the requirements for this new material. It had to be flame retardant and resistant to high temperatures for use in electronics and under-hood

automotive applications. And it had to have a very smooth surface to allow application of a thin, clear coating needed to ensure receptivity of different printing inks to the label stock.

Solution

Flame-retardant, pigmented Ultem WH217 film

Working closely with FLEXcon, which contributed technical expertise and field testing, SABIC Innovative Plastics developed a new pigmented grade of its Ultem polyetherimide (PEI) film. In addition to being opaque, white Ultem WH217 film is inherently flame-retardant, making it an ideal candidate for electronic labeling, printed circuit board marking and other applications. Flame retardance is lacking in many competitive high-performance films. And the Ultem material provides higher temperature resistance and better dimensional stability than other high-temperature films.

According to John Bennett, vice president of the Product Identification Team for FLEXcon, "The value of Ultem film is its unusual combination of whiteness, surface smoothness and high heat resistance."

Case Study

Ultem* WH217 film

Benefits

High performance with reduced system cost

The development of pre-colored Ultem WH217 film gave FLEXcon a fresh alternative to traditional translucent films that require a secondary white coating for bar code label stock. The Ultem material delivers a high opacity level of approximately 85 percent, which hides background material and enhances readability of the bar code. In fact, the Ultem film provides a print contrast ratio of 98 out of 100.

“With white Ultem film, manufacturers like FLEXcon no longer need opaque surface treatments to achieve high opacity and print contrast – and that saves time and money,” said Nick Abbatiello, SABIC Innovative Plastics industry manager. “FLEXcon and SABIC Innovative Plastics share the goal of bringing innovation to customers.”

In addition, Ultem WH217 film meets UL 94 VTMO flame requirements without the use of brominated or chlorinated additives, enabling the material to comply with European Restriction of Hazardous Substances (RoHS) standards. It offers excellent tear strength to prevent label damage during processing, and high temperature resistance for demanding applications such as printed circuit boards.

For label manufacturers, Ultem WH217 film provides consistent thickness (+/- 10 percent gauge control at 50 µm) that helps ensure even application of label adhesive or clear coatings that may be needed for print receptivity with certain inks.

Abbatiello explained, “The smooth surface of our Ultem film allows the label stock manufacturer to achieve the desired result using a very thin surface treatment. This avoids the need to make multiple passes through the coater for a thicker layer – and that means shorter cycle times.” Flexcon’s Bennett concluded, “We believe the new Ultem product can meet our customers’ needs with superb performance and lower cost.”

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