

# How can we build softer, stronger laminates?

ASPUN™ Fiber Resins and ELITE™ Enhanced Polyethylene Resins are helping lead the way.

Today's consumers demand unprecedented levels of comfort and protection from their absorbent hygiene products. As a direct result, brand owners and converters are seeking out materials that offer not only soft, cloth-like haptics but also good strength and abrasion resistance for:

- Baby diapers and training pants
- Feminine care products
- Adult absorbents for incontinence
- Medical drapes and gowns

We're answering this challenge by working closely with our customers to develop laminates that combine ultra-soft nonwovens with tough yet drapable films. These laminates – featuring ASPUN™ Fiber Resins in a nonwoven and ELITE™ Enhanced Polyethylene (EPE) Resins in a film – offer improved haptics compared to traditional laminates made with homopolymer polypropylene (hPP) nonwovens.

To allow a head-to-head comparison, we tested laminates that coated 8 gsm<sup>(1)</sup> film made with ELITE™ EPE Resin onto 20 gsm nonwovens made with:

- 100% ASPUN™ Fiber Resin
- 50% ASPUN™ Resin/50% hPP bicomponent (bico)
- 100% hPP

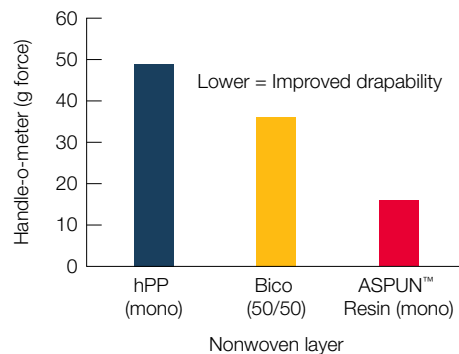
As shown in Figure 1, the laminate featuring monocomponent (mono) fibers made with ASPUN™ Resin exhibits significantly improved levels of softness and drapability compared to those of both the bico and mono hPP.

Testing of other key attributes, including tensile properties, abrasion resistance and adhesion also reveals favorable performance for the combination of

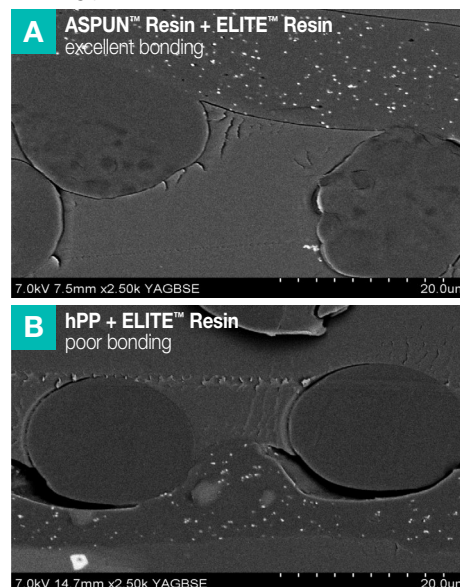
**Table 1:** Tensile, abrasion and adhesion properties of laminates tested (28 gsm)<sup>(1,2)</sup>

Nonwoven layer	Ultimate tensile strength – MD (MPa)	Ultimate tensile elongation – MD (%)	Abrasion resistance/fuzz level (mg/cc)	Peel strength (N)
hPP (mono)	4.5	40	0.45	0.46
Bico (50/50)	7.5	90	0.1	No delamination possible
ASPUN™ Resin (mono)	3.5	110	0.25	No delamination possible

**Figure 1:** Handle-o-meter evaluation of laminates tested (28 gsm)<sup>(1,2)</sup>



**Figure 2:** Microscopy comparison of bonding performance<sup>(3)</sup>



ASPUN™ Resin/ELITE™ EPE versus the hPP/ELITE™ Resin-based laminate (see Table 1). The bico laminate combines the toughness of polypropylene with increased extensibility and excellent adhesion between the bico nonwoven and the PE film layer.

The SEM (scanning electron microscope) images in Figure 2 illustrate the excellent bonding of the ASPUN™ Resin/ELITE™ Resin-based laminate in even greater detail, with image A showing complete fusion with no delamination and image B showing poor bonding between the hPP nonwoven and PE film.

In the final analysis, both laminates featuring ASPUN™ Fiber Resin offer improved performance that is well suited for hygiene applications such as backsheet, drapes and gowns.

We'd love to learn more about your laminate challenges. Please visit [dow.com](http://dow.com) or contact your Dow representative to get the conversation started.



<sup>(1)</sup> gsm = g/m<sup>2</sup>

<sup>(2)</sup> Typical values, not to be construed as specifications. Users should confirm results by their own tests.

<sup>(3)</sup> Images taken with a scanning electron microscope in a Dow laboratory.

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