The Solution May Be in the Carrier

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Pressure Sensitive Adhesive (PSA) tape suppliers have provided converters with an array of alternative bonding solutions. Historically PSA tapes have reduced or eliminated more costly retention solutions such as screws, “Christmas Trees” or rivets for assembly of joints. Representing more than two thirds of all PSA tapes manufactured worldwide, double-coat tape constructions have gained broad acceptance across a variety of markets and applications.

Double coated tapes are constructed with PSA on both sides of a carrier or support component that offers dimensional stability to the part. This is preferable when converting with thin gauge or soft materials laminated to prevent stretch of the part. The carrier can be engineered with a variety of substrates, but 0.5 mil Polyester (PET) has typically dominated this market.

For all of the benefits that a PET supported tape provides the convertor in manufacturing, part handling and assembly, it may not always be the best carrier for the final design. When applications contain curvatures or radii introduced in the design for instance, additional stress is forced on the PET and may eventually encourage the PSA to lift from either the substrate or laminate. This is certainly not desirable and most often totally unacceptable. Converters frequently work with their tape suppliers to identify a more aggressive, or higher performing PSA to provide a more robust solution. This option may not be the most economical solution, and in spite of the improved strength and performance, it still may not be possible for the adhesive to overcome the continuous stresses placed on it. A better alternative may be to evaluate a more compliant carrier, or simply use an unsupported PSA tape to allow greater part conformability.

Since unsupported transfer films do not always address convertor assembly and part handling concerns, attempting this method only to satisfy end-use requirements is typically not the solution. This leads back to evaluating alternative carriers for a “Supported Transfer Film”. A supported transfer film performs well for the convertor and still provides similar benefits to an unsupported adhesive in final assembly.

Supported transfer films can be constructed with various carriers including, scrim (or netting), nonwovens, or tissue carriers. The benefits of a PSA tape engineered with a net reinforced, or scrim carrier is that it performs without memory as an unsupported, but gives the manufacturer the stability needed for laminating and converting, as well as most cutting and handling operations.

Engineering a PSA supported transfer tape with a tissue carrier allows the premise of a double coat, and can offer two different PSA chemistries on either side. The tissue carrier offers dimensional stability beyond a standard transfer film, yet is more conformable for bending corners without lifting than a PET carrier. This construction offers a potential conformability that final part designs may require.

There are many PSA tape solutions available that may meet your current or future needs. With product selection impacting cost, performance and converting, wise converters can benefit greatly by consulting with a knowledgeable supplier for information, options and assistance in product selection.