

# Polymers for Hot-melt Adhesives

● **Hot-melt adhesives are widely used in conversion of disposable goods constructed of nonwoven materials. The primary applications are:**

- Baby diapers
- Training pants
- Feminine hygiene pad applications
- Adult incontinence products

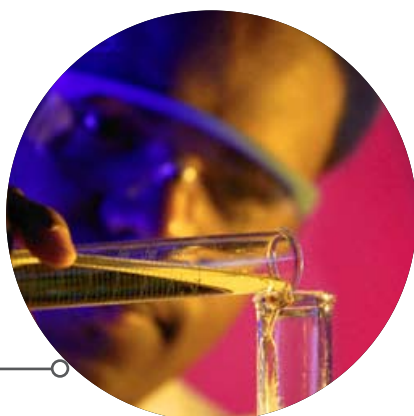
## Nonwoven applications

ExxonMobil Chemical is a global supplier of a broad portfolio of polymers and tackifiers to the adhesive industry. Escorez™ 5000 family of premium tackifiers are compatible with a wide range of polymers for use in nonwoven applications. Adhesives based on these light color Escorez™ tackifiers are used to combine the nonwoven fabrics, plastic films, and elastic substrates commonly found in the construction of disposable nonwoven goods.

**Escorez™ 5000 family of tackifiers is considered the “standard of the industry” in disposable adhesive applications.**

Adhesives used in the manufacture of baby diapers, training pants, feminine pads, and adult incontinence products fall into three main categories: construction adhesive, elastic attachment adhesive and positioning adhesive. These adhesives are used on-line to assemble the disposable goods. A fourth category is tape attachment adhesives, which are generally coated off-line by outside converters and supplied to disposable manufacturers.

Hot-melt construction adhesive can be used to laminate nonwoven fabric to film, or to stabilize the absorbent core to prevent it from shifting or moving during use. The elastic attachment adhesive, as its name suggests, bonds the elasticized components that make up the leg gathers, standing leg cuffs and waist band, which help prevent leakage in nonwoven articles such as baby diapers and adult incontinence products. Positioning adhesive keep products such as feminine pads in place during use. All of these applications require tailored adhesive formulations that not only meet their performance needs, but are also light in color, low in odor, and stable during the manufacturing process, shipment, storage and product use.



### Escorez™ tackifier resin attributes:

- Excellent color
- Low odor
- Excellent shelf stability
- Outstanding thermal and UV stability
- Compatibility with wide range of polymers including metallocene polyolefins
- May reduce adhesive applicator plugging
- Non-corrosive chemistry
- Broad range of softening point
- Broad FDA clearance for indirect food contact

### ExxonMobil Chemical capabilities:

- Broad product portfolio
- Excellent product quality and consistency
- Global supply capability
- Global technology expertise and laboratory support
- Integrated feedstock supply

Tape attachment adhesives help to maintain article closures. These must also permit multiple re-positioning and/or closure of the nonwoven product. The integrity of these closures is critical to product performance.

Escorez™ 5300 resin series are the “tackifiers of choice” for those disposable adhesive formulations requiring a high level of stability and water whiteness. Escorez™ 5400 and Escorez™ 5600 resin series were developed to expand the compatibility of Escorez™ 5000 technology, and provide an economic alternative to the water white 5300 series resins. Escorez™ 5400 and Escorez™ 5600 tackifiers are very light in color, have low odor, offer outstanding end-use performance, quality consistency and excellent balance of adhesion and cohesion properties. Escorez™ 5600 resin series are aromatic modified tackifiers, which broaden the formulation range and provide the possibility for product tuning in both styrene isoprene styrene (SIS) and styrene butadiene styrene (SBS) based disposable adhesive formulations.

Escorez™ 5300, 5400, and 5600 resins can be used to tackify a broad array of hot-melt adhesives polymers, such as Escorene™ Ultra ethylene vinyl acetate (EVA) copolymers, ExxonMobil™ ethylene n-butyl acrylate (EnBA) copolymers, Optema™ ethylene methyl acrylate (EMA) copolymers modified with acrylic acid, styrenic block copolymers (SIS, SBS, SEBS-styrene ethylene butylene styrene), amorphous polyolefin polymers (APP), amorphous polyalphaolefins (APAO) and metallocene polyolefins.



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