

SOLUTION DATA SHEET

The Ultimate Durable TPU for Hot Melt Adhesive, Pearlbond 900 Series: the new reference for outdoor



Markets	Textiles, apparel, sportswear, edge banding in furniture, mattresses, footwear and non-food conveyor belts
Polymer	Pearlbond thermoplastic polyurethane (TPU)
Key Benefits	<ul style="list-style-type: none"> • Plasticizer-free • Elasticity and flexibility • Soft touch and comfort • High heat- and hydrolysis resistance

Lubrizol has recently released a specialty TPU for Hot Melt Adhesive Solutions (HMAs): Pearlbond 920. Jointly with Pearlbond 960, this grade is the latest TPU innovation available for highly demanding end-uses.

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These TPU resins for HMAs combine exceptional features/benefits such as:

- Outstanding weatherability (resistance to UV, hydrolysis, and harsh solvents)
- Very strong bonding strength to a multitude of substrates such as PET, PA fabrics, cotton and many other textiles.
- Soft, plasticizer-free with a high flexibility across a very wide range of temperatures.
- Easy processing on a wide range of equipment: Extrusion (slot die, flat die, blown film and gravure roller coating machines) and powder coating to name the most important ones.
- Sustainability: Solvent-free, extended durability and short cycle time which result in lower energy requirement.

Another key feature highly valued by the market is that both Pearlbond 920 and 960 polymers can be heat-activated at fairly low temperatures. This makes them the ideal choice when bonding delicate substrates such as leather. Their good “wetting” properties ensure a very high bonding strength without compromising on soft-hand feel and flexibility.

Although Pearlbond 920 and 960 are both very durable and sustainable TPUs for adhesives, they differ on three main aspects: Crystallization speed, softness and breathability.

- Pearlbond 920 is a very fast crystallizing TPU that can be processed on a wide range of equipment, including slot-die and gravure roller coating machines thanks to its very low viscosity.
- Pearlbond 960 is a very soft and breathable TPU with slow-speed crystallizing characteristics. When Pearlbond 960 is extruded into a film it is “monolithic” which means it is “non-porous”. This results in an air-tight/low odor and more durable solution.

These features are summarized in the table here below.

	UV resistance	Crystallization speed	Shore A Hardness	Microbial resist.	Hydrolytic resist.	Breathability	Potential compliance
Pearlbond™ 920	√√√	Very Fast	80	√√	√√√		Oëkotex-100 Bluesign
Pearlbond™ 960	√√√	Slow	69	√√√	√√√	√√√	

Table 1: Overview of key features of Pearlbond 920 and 960 TPU solutions for HMAs

New, Pearlbond 960 grade bonds very well to cotton, nylon and spandex thanks to its unprecedented good wetting properties. It has a very wide activation temperature range that helps to achieve the desired adhesion level. Pearlbond 920 and Pearlbond 960 TPU do not yellow over time even when exposed to the harshest UV exposure. The values to these properties can be observed in the graphs that follow.

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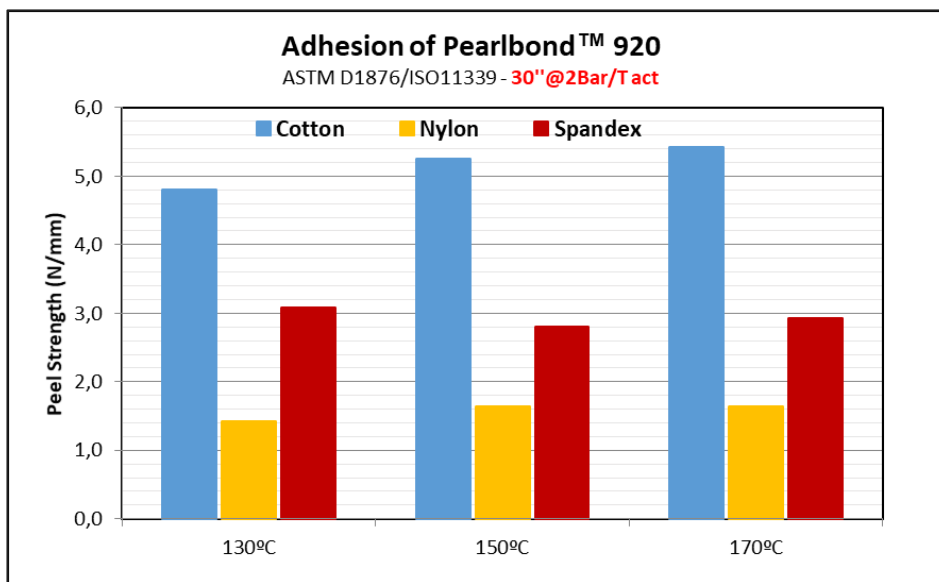


Figure 1: Bonding performance of Pearlbond 920 to cotton, nylon and spandex

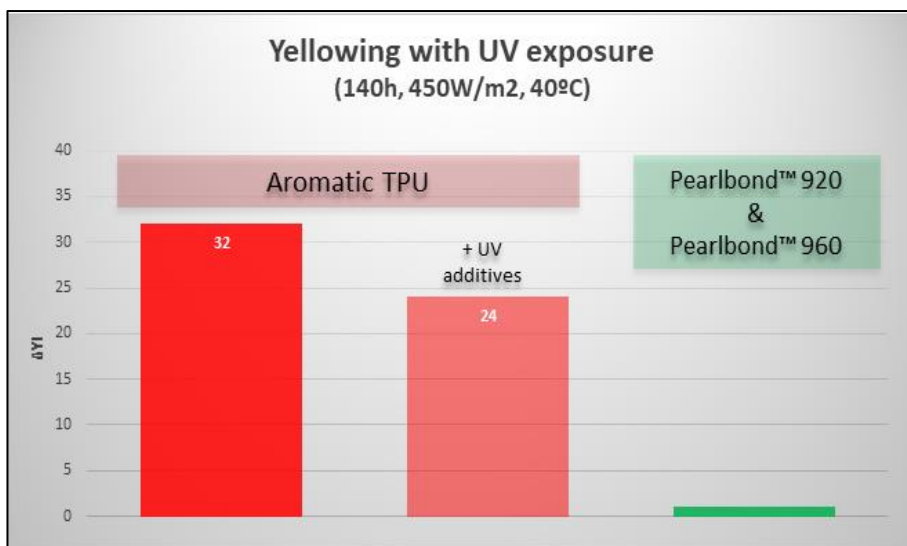


Figure 2: UV resistance of Pearlbond 920 and Pearlbond 960

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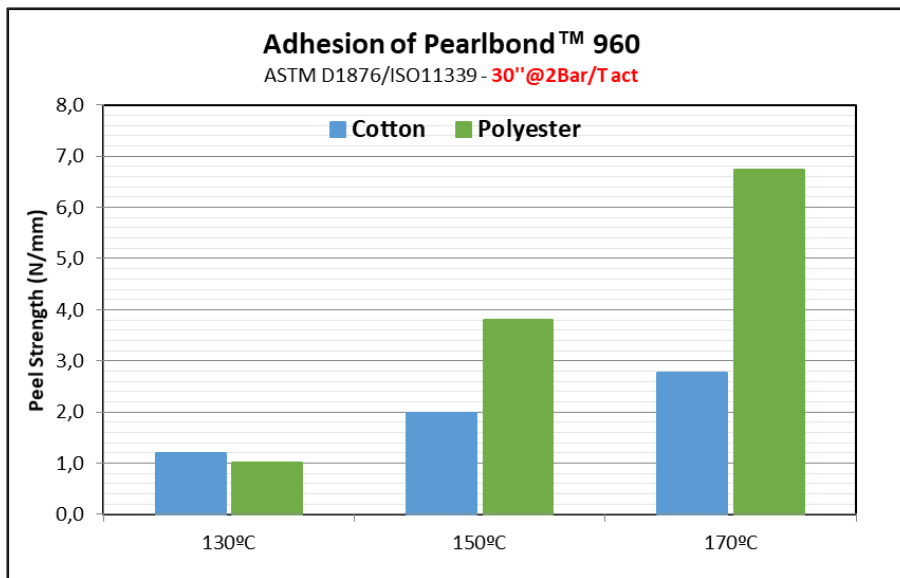


Figure 3: Overview of the broad activation temperature range of Pearlbond 960 TPU

Lubrizol is committed to adding more customer-oriented and sustainable Pearlbond TPU Hot Melt Solutions.

For more information, please visit our web site:
www.lubrizol.com/Engineered-Polymers



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