

SOLUTION DATA SHEET

PEARLSTICK™ TPU for Premium Footwear Sole Bonding



Markets	Footwear
Polymer	Pearlstick thermoplastic polyurethane (TPU)
Key Benefits	<ul style="list-style-type: none"> • Broad processing window • High and long hot tack • Easier heat activation • High final bonding strength • High hydrolysis resistance

Lubrizol Engineered Polymers provides a broad portfolio for adhesive manufacturers featuring TPUs with a wide range of viscosities (Mw) and different crystallization rates, specifically meeting the needs of the

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footwear industry. Lubrizol's Pearlstick™ TPU technology, originating from Merquinsa, has catered for the needs of the adhesives industry with a main focus on footwear for many years. The key value from applying **Pearlstick™ 45-60/xx** TPU is a very good solubility and easier heat activation, as well as good heat resistance.

This Pearlstick product series is polycaprolactone (PCL) copolyester-based TPU. PCL-based TPU presents a high performing balance of properties versus standard polyester-based TPU including high green strength at low activation temperatures (40 to 50°C). The top benefits of PCL copolyester-based Pearlstick TPU have been summarized below:

	Pearlstick™ TPU	Market reference
Initial peel at low temperature	+++	++
Initial peel at high temperature	++	+++
Final peel	+++	++
Easy activation	+++	+
Hot tack time	+++	+
Hydrolysis resistance	+++	+

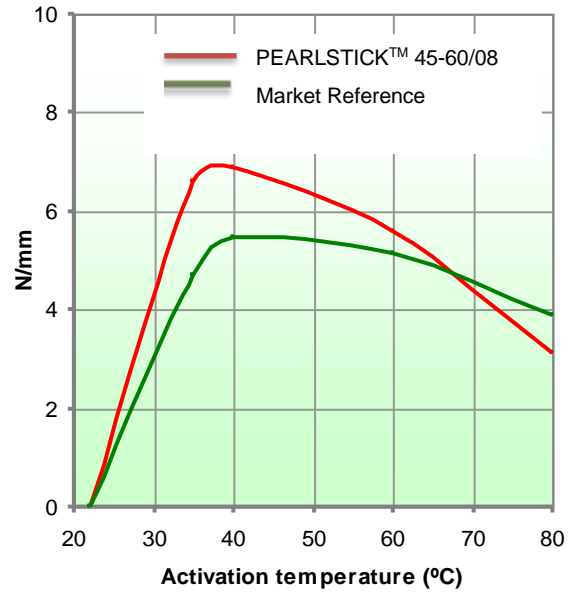
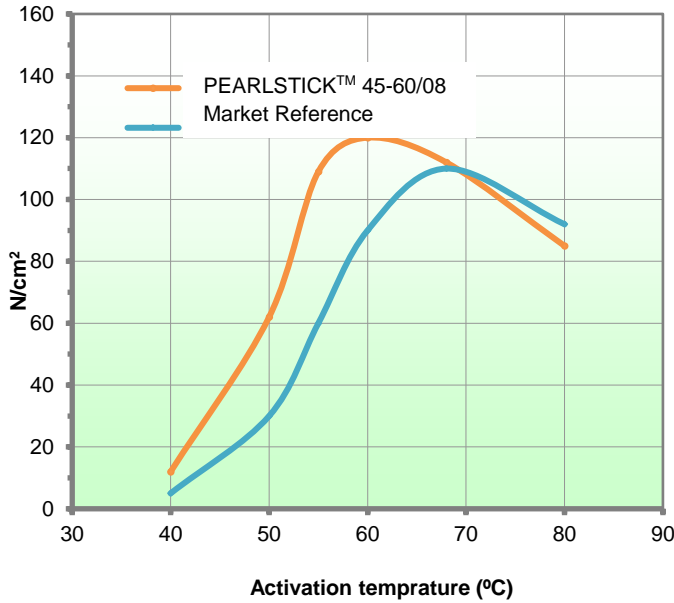
Lubrizol's adhesives technology centre can reproduce, by means of the tack tester, the property of hot tack in footwear, for example, of the bonding of a shoe sole to the upper. In sole bonding, the adhesive used should have high hot tack to guarantee a perfect initial bonding, even at relatively low temperatures.

Pearlstick™ 45-60/xx product series is ideal for bonding and has high and long hot tack.



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The results from the studies performed on one of the Pearlstick™ TPU grades from this product series are shown in the graphs that follow below:



Figures 1 & 2: Activation temperature of Pearlstick 45-60/08

Lubrizol's broad engineered polymers portfolio represents multiple product groups, both PCL copolyester and polyester-based, working together to form a single, reliable source for polymer solutions for adhesives in the footwear industry.

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

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