Avery Dennison Performance Tapes Europe

Bonding Study: Rogers PORON® Industrial Polyurethanes

Determining the correct adhesive when bonding to foam and other materials may be challenging, especially when seeking to provide your customer an accurate quote quickly and accurately. To help you with the adhesive selection and the technical requirements your customer may require, Avery Dennison Performance Tapes has developed a series of adhesive bonding studies looking at the performance of our Pressure Sensitive Adhesive solutions when combined with foams and other materials from industry leading manufacturers

This study highlights the performance of our products chosen mainly from our European Core Series™ Portfolio with a selection of industrial polyurethane foams from Rogers Corporation PORON® range. Our Core Series™ Portfolio features 41 PSA solutions spanning 9 adhesive technologies that would meet the needs of the bulk of bonding and lamination projects our customers encounter.

Bonding to Rogers PORON® Industrial Polyurethanes

The PORON® range of industrial polyurethanes provides durable, long-term performance. Whether in gasket design, sealing, cushioning, or vibration management, PORON® products are low-outgassing, non-fogging, non-corrosive and will not become brittle and crumble. The extensive range of PORON® materials address a multitude of design requirements.

Automotive   Appliances   Electronics   Filtration   Industrial   Decorative

Rogers PORON® and Avery Dennison Adhesive Sample Preparation

Avery Dennison adhesive products were backed with a 37µm PET film and trimmed to 25mm width. Two sample sets were laminated to Rogers PORON® Industrial Polyurethane foam strips.

Sample Preparation: Description
1. Laminated at room temperature. compression depending on foam density and hardness varied between 15 and 50% , 24 hr dwell time at room temperature after lamination.
2. Heat laminated at 105°C, compression depending on foam density and hardness varied between 15 and 50%, 24 hr dwell time at room temperature after lamination.

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Rogers PORON® and Avery Dennison Adhesive Sample Testing

Foam bonding is affected by the foam's base polymer, thickness, and cell type. Adhesion to foam is impacted by factors such as: adhesive mass, pressure, compression, lamination speed and temperature. All samples were tested for free angle peel (test method based on ASTM D1000) adhesion at 300mm/min. It was determined in this study with the selected foam and PSA combinations that heat lamination (105°C) gave marginal benefits.

PORON® Foam Type	Avery Dennison Adhesive Family	Product Name	Core Series™ Portfolio	Performance with PORON® Materials
	● High Adhesion Rubber	FT 306A	YES	Better
	● HPA™ High Performance Acrylic	HPA 1902W	YES	Good
• 4701–43RL–1		HPA 1905W	YES	Good
• 4701–30–15	● Low VOC Acrylic	FT 2150	YES	Good
• 4701–30–25		FT 2018	YES	Good
• 4701–40–15		FT 126	YES	Better
• 4701–40–20	● Tackified Acrylic	FT 7515	NO	BEST
• 4701–50–15		FT 109	NO	Good
• 4790–92–12		FT 21090	NO	Good
• 4790–79–15				

Good = Likely to achieve 5N/25mm for free angle peel.
Better = Achieve >5N/25mm and possibly foam tear.
Best = Achieve >5N/25mm and likely foam tear.

With many factors determining the bond strength, this table gives only guidance to the optimum PSA selection. It is recommended to evaluate the combination under the actual application conditions.

For more information about Rogers PORON® Industrial Polyurethanes visit, rogerscorp.com/elastomeric-material-solutions/poron-industrial-polyurethanes.

To identify the Avery Dennison Core Series adhesive ideal for your application, please refer to the Core Series Product Selection Tool.

Using the simple four-step adhesive selection process, you will be able to find the Core Series™ product that best suits your needs. The European Core Series™ Product Selection Tool is available at:
https://tapes.averydennison.com/eu/en/home/industries/core-series-portfolio.html

The Product Selection tool is also available as an App for mobile devices (IoS and Android). The web site includes links to the App Stores for immediate download.

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