

Avery Dennison Performance Tapes

Bonding study: WT Burnett polyurethane foams

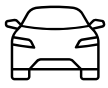
Determining the correct adhesive when bonding to foam and other materials may be challenging, especially when seeking to provide your customer an accurate quote quickly and accurately. To help you with the adhesive selection, and the technical requirements your customer may require, Avery Dennison Performance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



Bonding to WT Burnett polyurethane foams

WT Burnett is a specialty foam and non-wovens manufacturer in the world, delivering precision-engineered materials and custom solutions for more than 140 years. With a steadfast commitment to quality and innovation, we partner with the world's leading brands to bring their visions to life and push entire industries forward.

Our technical foams and high-loft non-wovens have been used in products around the world and in nearly every major automotive platform over the years. Our materials are everywhere—quietly performing in products people rely on every day.



Automotive



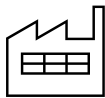
Bedding & furniture



Consumer products



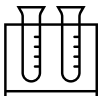
Electronics



General industrial



Heavy equipment



Medical



Sporting goods



Textiles

WT Burnett polyurethane foams and Avery Dennison adhesive sample preparation

Avery Dennison adhesive products were backed with a 2 mil PET film and trimmed to a one-inch width. Two sample sets were laminated to WT Burnett polyurethane foams.

Set	Description
1	Laminated at room temperature. 30% compression, 20 psi, 20 fpm, 72 hr recovery after lamination.
2	Laminated at 220°F, 30% compression, 20 psi, 20 fpm, 72 hr recovery at room temperature after lamination.



WT Burnett polyurethane foams 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 at 180° Peel Adhesion at 12 in/min. It was determined by this study that heat lamination is beneficial (220°F).

EGM1

Very soft, low-density foam grade engineered for general-purpose cushioning applications

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● General Purpose Rubber/ High Shear Rubber	FT 8327	Better
● High Performance Low VOC Acrylic	FT 1149X	Good
	FT 8299	Good
● General Purpose Acrylic	FT 1126	Better
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Best
● Differential - High Shear Acrylic/ High Shear Rubber	FBD 8393	Best

EMR1

Lightweight performance foam that builds on the fundamentals of soft polyurethane foam by incorporating flame-retardant and antimicrobial functionality

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● General Purpose Rubber/ High Shear Rubber	FT 8327	Good
● High Performance Low VOC Acrylic	FT 1149X	Good
	FT 8299	Good
● General Purpose Acrylic	FT 1126	Better
● Pure Acrylic	FBA 1115	Best

Good = Likely to achieve foam tear with heated lamination.

Better = May achieve foam tear without heat lamination.

Best = Likely to achieve foam tear at room temperature

Heat Age = For the accelerated age testing (ASTM D3611), the foam was laminated at room temperature then placed in a chamber and subjected to 66°C (150°F) and 80% RH for 96 hours. This simulates roughly two years of aging. The samples were then tested at 180 degree peels at 12 inches per minute. **Products that achieved foam tear after repeating the accelerated age testing received the Best rating.**

SEN1

Medium-density acoustic foam developed for applications that require an effective balance of sound absorption, lightweight construction and converting flexibility

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● General Purpose Rubber/ High Shear Rubber	FT 8327	Better
● Emulsion Acrylic	FBA 1118 GL	Good
● High Performance Low VOC Acrylic	FT 1149X	Best
	FT 8299	Good
● General Purpose Acrylic	FT 1123	Good
	FT 1126	Better
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Good
● LSE Modified Acrylic	FT 3043	Good
● High Performance Acrylic (HPA™)	HPA 1905	Good

LP1800

Specialty foam grade designed for sealing applications where conventional open-cell foams may not provide sufficient barrier performance

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● General Purpose Rubber/ High Shear Rubber	FT 8327	Good
● Emulsion Acrylic	FBA 1118 GL	Good
● High Performance Low VOC Acrylic	FT 1149X	Best
	FT 8299	Good
● General Purpose Acrylic	FT 1126	Good
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Good
● LSE Modified Acrylic	FT 3043	Good
● High Performance Acrylic (HPA™)	HPA 1905	Good
● Differential - High Shear Acrylic/ High Shear Rubber	FBD 8393	Best

Good = Likely to achieve foam tear with heated lamination.

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Best = Likely to achieve foam tear at room temperature

Heat Age = For the accelerated age testing (ASTM D3611), the foam was laminated at room temperature then placed in a chamber and subjected to 66°C (150°F) and 80% RH for 96 hours. This simulates roughly two years of aging. The samples were then tested at 180 degree peels at 12 inches per minute. **Products that achieved foam tear after repeating the accelerated age testing received the Best rating.**

HB1650R

Medium-density hydroblock foam developed for applications that require a combination of flame performance, moisture resistance, and supportive mechanical properties

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● High Performance Low VOC Acrylic	FT 1149X	Best
● General Purpose Acrylic	FT 1126	Better
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Good
● LSE Modified Acrylic	FT 3043	Good
● High Performance Acrylic (HPA™)	HPA 1905	Good

G45RL

Higher-density, stiffer foam grade intended for automotive applications that require enhanced support, shape retention, and converting versatility

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● General Purpose Rubber/ High Shear Rubber	FT 8327	Good
● Emulsion Acrylic	FBA 1118 GL	Good
● High Performance Low VOC Acrylic	FT 1149X	Better
	FT 8299	Good
● General Purpose Acrylic	FT 1126	Better
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Good
● High Performance Acrylic (HPA™)	HPA 1905	Good

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Best = Likely to achieve foam tear at room temperature

Heat Age = For the accelerated age testing (ASTM D3611), the foam was laminated at room temperature then placed in a chamber and subjected to 66°C (150°F) and 80% RH for 96 hours. This simulates roughly two years of aging. The samples were then tested at 180 degree peels at 12 inches per minute. **Products that achieved foam tear after repeating the accelerated age testing received the Best rating.**

4.0SEN

Dense, technically capable foam that extends the SCN platform into heavier constructions while still maintaining a relatively soft functional feel

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Good
● High Shear General Purpose Rubber	FT 8345	Good
	FT 8368	Good
● General Purpose Rubber/ High Shear Rubber	FT 8327	Good
● Emulsion Acrylic	FBA 1118 GL	Good
● High Performance Low VOC Acrylic	FT 1149X	Better
	FT 8299	Good
● General Purpose Acrylic	FT 1126	Better
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Best
● LSE Modified Acrylic	FT 3043	Good
● High Performance Acrylic (HPA™)	HPA 1905	Good

S82N

Medium-high-density foam engineered to provide a firmer feel and greater support than comparable SCN-type materials through the use of a special performance additive

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Best
● High Shear General Purpose Rubber	FT 8345	Best
	FT 8368	Best
● General Purpose Rubber/ High Shear Rubber	FT 8327	Best
● Emulsion Acrylic	FBA 1118 GL	Good
● High Performance Low VOC Acrylic	FT 1149X	Best
	FT 8299	Good
● General Purpose Acrylic	FT 1123	Good
	FT 1126	Best
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Good
● LSE Modified Acrylic	FT 3043	Best
● Differential - High Shear Acrylic/ High Shear Rubber	FBD 8393	Best

Good = Likely to achieve foam tear with heated lamination.

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Best = Likely to achieve foam tear at room temperature

Heat Age = For the accelerated age testing (ASTM D3611), the foam was laminated at room temperature then placed in a chamber and subjected to 66°C (150°F) and 80% RH for 96 hours. This simulates roughly two years of aging. The samples were then tested at 180 degree peels at 12 inches per minute. **Products that achieved foam tear after repeating the accelerated age testing received the Best rating.**

S82ND2

Closely related to S82N, this foam is designed to deliver a softer, more acoustically responsive profile by removing the additive responsible for the firmer feel of the base grade

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Best
● High Shear General Purpose Rubber	FT 8345	Best
	FT 8368	Best
● General Purpose Rubber/ High Shear Rubber	FT 8327	Best
● Emulsion Acrylic	FBA 1118 GL	Better
● High Performance Low VOC Acrylic	FT 1149X	Best
	FT 8299	Better
● General Purpose Acrylic	FT 1123	Better
	FT 1126	Best
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Better
● LSE Modified Acrylic	FT 3043	Best
● High Performance Acrylic (HPA™)	HPA 1905	Better
● Differential - High Shear Acrylic/ High Shear Rubber	FBD 8393	Best

4.0N

Dense ester foam developed for automotive applications that demand robust material presence and recognized flammability performance

Adhesive Chemistry	Product(s)	Rating
● General Purpose Rubber	FBR 8950	Best
● High Shear General Purpose Rubber	FT 8345	Best
	FT 8368	Best
● General Purpose Rubber/ High Shear Rubber	FT 8327	Best
● Emulsion Acrylic	FBA 1118 GL	Best
	FBA 8318 GL	Best
● High Performance Low VOC Acrylic	FT 1149X	Best
	FT 8299	Best
● General Purpose Acrylic	FT 1123	Best
	FT 1126	Best
	FBA 8960	Best
● Pure Acrylic	FBA 1115	Best
	FBA 8315	Best
● LSE Modified Acrylic	FT 3043	Best
● High Performance Acrylic (HPA™)	HPA 1905	Best
● Differential - High Shear Acrylic/ High Shear Rubber	FBD 8393	Best

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Better = May achieve foam tear without heat lamination.

Best = Likely to achieve foam tear at room temperature

Heat Age = For the accelerated age testing (ASTM D3611), the foam was laminated at room temperature then placed in a chamber and subjected to 66°C (150°F) and 80% RH for 96 hours. This simulates roughly two years of aging. The samples were then tested at 180 degree peels at 12 inches per minute. **Products that achieved foam tear after repeating the accelerated age testing received the Best rating.**

