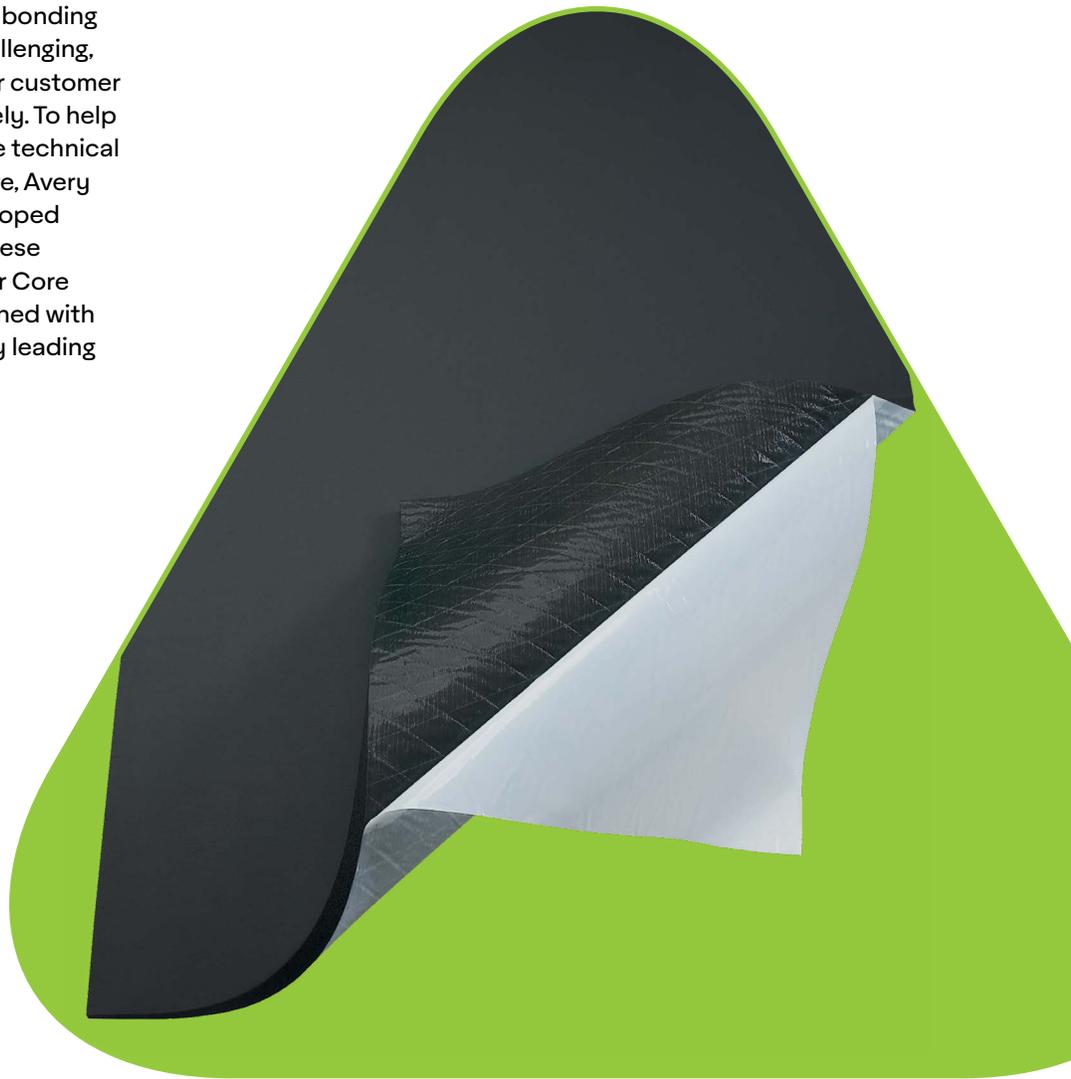


Avery Dennison Performance Tapes

Bonding Study: Armacell Component 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 Armacell Component Foams

Armacell's Component Foam division is a proven leader and innovator in expanded foams. The division delivers decades of product knowledge and innovation to its partners in the aerospace, automotive, building/construction, industrial, medical, packaging and sport/leisure segments. Its product lines consist of elastomeric and polyolefin materials produced in bun, sheet and roll form as well as extruded tubes and profiles. Armacell Component Foams' innovative products are engineered for their customers' success.

Elastomeric Foam

Elastomeric Component Foam (ECF) products are high-performance foam formulations that meet stringent physical and chemical property requirements. Armacell's ECF brands include ArmaSound®, ArmaSport®, EnsoLine®, EnsoLite®, and Monarch®. It offers hundreds of expanded rubber products used extensively in industrial, transportation, building/construction and sport/recreational applications. Sixty years of foam innovation enables us to design optimized cell structures and densities for specific physical properties – custom engineered to customer needs.

Polyolefin Foam

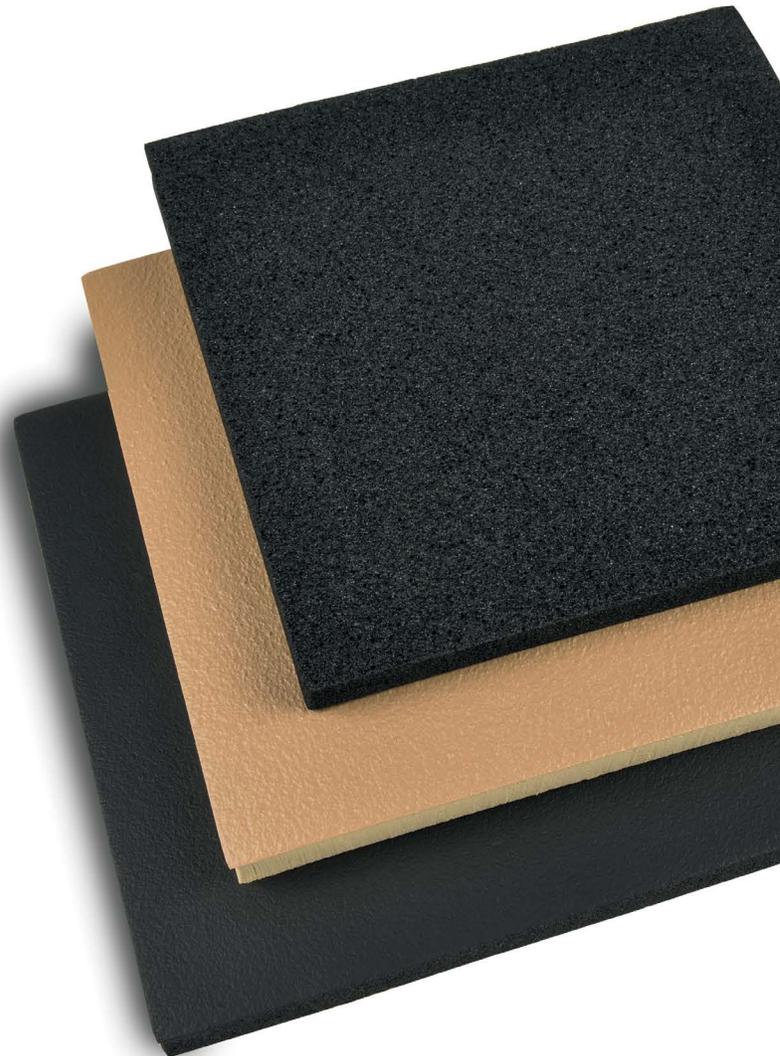
Polyolefin Component Foams (PCF) are made from thermoplastic polymers. Armacell's PCF brands include OleCell® and OleTex®. The company makes chemically cross-linked polyethylene in rolls or blocks called “buns” in formulations that vary from soft and flexible to stronger, stiffer specifications. Non-cross-linked polyethylene can be extruded into customizable profile shapes and can be used for thermoforming applications.



Armacell Component 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 Armacell Component 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.



Armacell Component 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).

Armacell Monarch Product Line	Avery Dennison Adhesive Families	Avery Dennison Product Numbers	Performance with Armacell Component Foams Materials
<ul style="list-style-type: none"> • 5013 • 5031 • 3091 • 8001 • 9011 	 High Shear Acrylic / High Shear Rubber	FBD 8393	Good
	 High Shear Rubber	FT 8345	Better
	 Emulsion Acrylic	FBA 1118 GL FBA 7918 GL FBA 8318 GL	Better Better Better
	 High Performance Low VOC Acrylic	FT 1149 X FT 8299	Better Better
	 General Purpose Acrylic	FT 1123	Better
	 Pure Acrylic	FBA 1115 FBA 8315	Better Better
	 LSE Modified Acrylic	FT 1943 PP	Better
	 General Purpose Rubber	FBR 8950	Best
	 General Purpose Rubber / High Shear Rubber	FT 8327	Best
 General Purpose Acrylic	FT 1126	Best	

Armacell EnsoLite Product Line	Avery Dennison Adhesive Families	Avery Dennison Product Numbers	Performance with Armacell Component Foams Materials
<ul style="list-style-type: none"> • IG1 • IG3 • IU0 • MLC-Black • ECF 400 	 High Shear Acrylic / High Shear Rubber	FBD 8393	Good
	 General Purpose Rubber	FBR 8950	Better
	 Emulsion Acrylic	FBA 1118 GL FBA 7918 GL FBA 8318 GL	Better Better Better
	 General Purpose Acrylic	FT 1126	Better
	 LSE Modified Acrylic	FT 1943 P	Better
	 High Shear Rubber	FT 8345	Best
	 High Performance Low VOC Acrylic	FT 1149 X FT 8299	Best Best
	 Pure Acrylic	FBA 1115 FBA 8315	Best Best
	 General Purpose Rubber / High Shear Rubber	FT 8327	Best 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.

Armacell OleTex Product Line	Avery Dennison Adhesive Families	Avery Dennison Product Numbers	Performance with Armacell Component Foams Materials
<ul style="list-style-type: none"> • BDJN 200 • BKJN 200 • CDJN 400 • CKJT 550 • CKJN 200 	● High Performance Low VOC Acrylic	FT 8299	Good
	● Pure Acrylic	FBA 1115 FBA 8315	Good Good
	● LSE Modified Acrylic	FT 1943 PP	Good
	● General Purpose Rubber / High Shear Rubber	FT 8327	Good
	● High Shear Rubber	FT 8345	Better
	● Emulsion Acrylic	FBA 1118 GL FBA 7918 GL FBA 8318 GL	Better Better Better
	● General Purpose Rubber	FBR 8950	Best
	● High Performance Low VOC Acrylic	FT 1149 X	Best
	● General Purpose Acrylic	FT 1123 FT 1126	Best 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.

To identify the Avery Dennison Core Series adhesive ideal for your application, please refer to the Core Series Product Selection Tool. Using the Core Series' simple four-step adhesive selection process, you will be able to find the product that best suits your needs. The Core Series Product Selection Tool is available at tapes.averydennison.com/coreseries.