



VHB™ Acrylic Foam Tape 4943F

Product Data Sheet

Updated : Sept. 2002

Supersedes : May 2002

Product Description

4943 is a conformable, very high bond acrylic foam tape which has added performance for bonding at low temperatures (above 0°C). In addition this adhesive composition makes the product well suited to a variety of substrates.

Its improved conformability also allows more complete bond contact area when bonding rigid or irregular materials. 4943's principal advantage is that it provides a more uniform seal on irregular surfaces.

Resistance to solvents, temperature extremes and U.V. light make VHB™ products suitable for many interior and exterior applications.

Physical Properties

Not for specification purposes

Adhesive Type	Acrylic
Thickness (ASTM D-3652) Tape Liner Total	1.1 mm ± 10% 0.05 mm 1.15 mm
Foam Density	720 k/gm ³
Release Liner	Clear Film
Tape Colour	Grey
Shelf Life	24 months from date of despatch by 3M when stored in the original carton at 20°C & 50 % Relative Humidity

Performance Characteristics

Not for specification purposes

Peel Adhesion to Stainless Steel 90° peel @ room temp, 72 hr dwell, jaw speed 300mm/min	44.0 N/10mm
Static Shear Strength weight held for 10,000 mins to stainless steel with ½ sq in (3.23 sq cm) overlap	1000 g @ 20°C 500 g @ 70°C
Normal Tensile (T-Block) to Aluminium at room temp, 6.45 sq cm, jaw speed 50 mm/min	585 kPa

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Performance Characteristics (Cont...)

Not for specification purposes

Temperature Performance (Minutes/Hours) (Days/Weeks)	150 °C 90 °C
Solvent Resistance Splash testing cycle - 20 seconds submersion - 3 cycles.	No apparent degradation when exposed to splash testing of most solvents including gasoline, JP-4 jet fuel, mineral spirits, motor oil, ammonia cleaner, acetone, methyl ethyl ketone. 20 seconds air dry.
UV Light Resistance	Excellent.

Additional Product Information

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure develops better adhesive contact and thus improves bond strength.

To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Typical surface cleaning solvents are isopropyl alcohol/water mixture (rubbing alcohol) or heptane. Use proper safety precautions for handling solvents.

It may be necessary to seal or prime some substrates prior to bonding.

- a. Most porous or fibred materials (e.g. wood) will require sealing to provide a unified surface.
- b. Some materials (e.g. copper, brass, plasticised vinyl) will require priming or coating to prevent interaction between adhesive and substrates.

Acrylic Foam Tape 4943F utilises a unique low temperature acrylic adhesive which allows initial applications to be made at temperatures as low as 0°C.

At room temperature the adhesive is very aggressive and provides excellent initial adhesion to many surfaces.

- Low temperature application.

Most high performance pressure sensitive acrylic adhesives have very low initial tack at temperatures below 0°C. Acrylic Foam Tape 4943F was designed to allow outdoor assembly of signs and construction materials and assembly of cold materials in large manufacturing plants above 0°C.

- Room temperature applications.

At room temperature 4943F offers better tack/quick stick than other tapes in the VHB family. This can be important in a wide range of applications where a more aggressive adhesive is desirable.

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Applications

VHB Joining Systems are suited for use in many interior and exterior industrial applications. In many situations, they can replace rivets, spot welds, liquid adhesives and other permanent fasteners.

Each product in the VHB family has specific strengths. These can include high tensile, shear and peel adhesion and resistance to solvents, moisture and plasticiser migration.

All VHB tapes should be thoroughly evaluated by the user under actual use conditions with intended substrates, especially if expected use involves extreme environmental conditions.

VHB Joining Systems are suitable for bonding a variety of substrates, including sealed wood, many plastics, composites and metals. Plastics which can be a problem are polyethylene, polypropylene, teflon, silicones and other low surface energy materials.

Plasticised vinyl bonding is dependent on the types and concentrations of plasticisers which can migrate into the adhesives causing a reduction in bond strength; 4941 and 4945 are most resistant to plasticiser migration.

Galvanised surfaces are potential problems and should be carefully evaluated.

To prevent corrosion on copper and brass, only lacquer coated material should be used within VHB Joining Systems.

Thorough evaluations are recommended when bonding is required to any questionable surface.

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Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications. This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.



Tapes & Adhesives

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