



VHB™ Acrylic Foam Tape 4918F

Product Data Sheet

Updated : Sept 2002
Supersedes : March 1966

Product Description

4918F is a clear acrylic VHB tape. It is colourless making it ideal for bonding transparent materials or for applications where a coloured bond line is unacceptable. These tapes have somewhat lower peel, tensile and shear performance than most other VHB due to their inherent softness.

Physical Properties

Not for specification purposes

Adhesive Type	Acrylic	
Thickness (ASTM D-3652) Tape Liner Total	2.00 mm 0.13 mm 2.13 mm	
Foam Density	960 k/gm ³	
Release Liner	Red Film	
Tape Colour	Clear	This tape product is clear in colour but NOT guaranteed to be optically clear.
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	26 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 @ 22°C 500 g @ 66°C 500 g @ 93°C	
Normal Tensile (T-Block) to Aluminium at room temp, 6.45 sq cm, jaw speed 50 mm/min	690 kPa	
Temperature Performance Max (hours/minutes) Max Continuous (days/weeks)	150 °C 90 °C	

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Performance Characteristics (Cont...)
 Not for specification purposes

<p>Solvent Resistance <small>Splash testing cycle - 20 seconds submersion - 3 cycles.</small></p>	<p>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.</p>
<p>UV Light Resistance</p>	<p>No change in clarity was seen after 346 hours QUV.</p>

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.

Ideal tape application temperature range is 20 to 40°C. Initial tape application to surfaces at temperatures below 10°C is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

In some cases bond strength can be increased and ultimate bond strength can be achieved more quickly by exposure of the bond to elevated temperatures (e.g. 65°C for one hour). This provides better adhesive wetout on to the substrates.

CAUTION

The following situations must be evaluated thoroughly to determine whether VHB products are suitable for the intended use.

Applications of 4918F which require performance at severe cold temperatures must be thoroughly evaluated, if the expected use will subject the VHB Joining System fastener to high impact stresses. For cold temperature applications from 0 to 10°C use 4943.

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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 fasteners 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; 4945 is 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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3M United Kingdom PLC
 3M House,
 28 Great Jackson Street,
 Manchester,
 M15 4PA

Product Information :
 Tel 0870 60 800 50
 Fax 0870 60 700 99

3M Ireland
 3M House, Adelphi Centre,
 Upper Georges Street,
 Dun Laoghaire, Co. Dublin,
 Ireland

Customer Service :
 Tel (01) 280 3555
 Fax (01) 280 3509