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Technical Data Sheet

3M™ VHB™ Tape - Specialty

Product Description

3M™ VHB™ Tape 4646 is a 0.025 inch (0.6 mm) thick dark gray double coated acrylic foam adhesive. It bonds to a broad range of high surface energy substrates including metals, glass and elastomers. It offers high temperature resistance. 3M™ VHB™ Tape 4646 is part of the 4611 tape family. Each

Product Features

- Fast and easy-to-use permanent bonding method provides high strength and long-term durability
- Virtually invisible fastening keeps surfaces smooth
- Can replace mechanical fasteners (rivets, welds, screws) or liquid adhesives
- Dark gray, 0.025 in (0.6 mm), general purpose adhesive with firm foam has added features
- Eliminate drilling, grinding, refinishing, screwing, welding and associated clean-up
- Creates a permanent seal against water, moisture and more
- Pressure sensitive adhesive bonds on contact to provide immediate handling strength
- Allows the use of thinner, lighter weight and dissimilar materials

Total Tape Thickness (mil) 25 mil

Test Method: ASTM D3652

Total Tape Thickness (mm) 0.6 mm

Test Method: ASTM D3652

Total Tape Thickness 0.025 in

Test Method: ASTM D3652

Thickness Tolerance ±15 %

Density 840 kg/m³

Test Method: ASTM D3574

Notes: Foam with adhesive

Density 52 lb/ft³

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 23C

Temp F: 73F

Substrate: Aluminum

Notes: 1 in.² (6.45 cm²), Jaw Speed 2 in./min. (50 mm/min.)

Normal Tensile

100 lb/in²

Test Method: ASTM D897

Dwell/Cure Time: 72.0

Dwell Time Units: hr

Temp C: 23C

Temp F: 73F

Substrate: Aluminum

Notes: 1 in.² (6.45 cm²), Jaw Speed 2 in./min. (50 mm/min.)

Overlap Shear Strength

550 kPa

Test Method: ASTM D1002

Notes: 1 in.² (6.45 cm²), Jaw Speed 0.5 in/min (12.7 mm/min)

Overlap Shear Strength

80 lb/in²

Test Method: ASTM D1002

Notes: 1 in.² (6.45 cm²), Jaw Speed 0.5 in/min (12.7 mm/min)

Test Method: ASTM D3654

Temp C: 66C

Temp F: 150F

Substrate: Stainless Steel

Notes: Tested at various temperatures and gram loadings. 0.5 in² (3.23 cm²). Will hold

Static Shear

750 g

Test Method: ASTM D3654

Temp C: 93C

Temp F: 200F

Substrate: Stainless Steel

Notes: Tested at various temperatures and gram loadings. 0.5 in² (3.23 cm²). Will hold

Static Shear 121C Stainless Steel

750 g

Test Method: ASTM D3654

Temp C: 121C

Temp F: 250F

Substrate: Stainless Steel

Notes: Tested at various temperatures and gram loadings. 0.5 in² (3.23 cm²). Will hold

Static Shear 177C Stainless Steel

750 g

Test Method: ASTM D3654

Normal Slitting Tolerance

±0.79 mm

Normal Slitting Tolerance

±1/32 in

Core Size (ID)

76.2 mm

Core Size (ID)

3 in

Available Sizes

UL 746C Listings

Solvent and Fuel Resistance

Additional Performance Characteristics

Property

Values

Dissipation Factor 1MHz

See 3M™ VHB™ Tape 4611

Test Method: ASTM D150

Temp C: 23C

Temp F: 72F

Dielectric Strength

See 3M™ VHB™ Tape 4611 V/

Test Method: ASTM D140

Thermal Conductivity

See 3M™ VHB™ Tape 4611 W

Volume Resistivity

See 3M™ VHB™ Tape 4611 Ω-

Test Method: ASTM D257

Temp C: 23C

Temp F: 73F

Surface Resistivity

See 3M™ VHB™ Tape 4611 Ω

Test Method: ASTM D257

UL 879 (File E65361)

Bottom Matter

3M

Industrial Adhesives and Tapes Division

3M Center, Building 225-3S-06

St. Paul, MN 55144-1000

800-362-3550

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Time: After application, the bond strength will increase as the adhesive flows onto the surface. Ultimate bond strength will be achieved after 20 minutes, 90% after 24 hours and 100% after 72 hours at room temperatures. Ultimate bond strength can be achieved more quickly (and in some cases better) at elevated temperatures (e.g. 150°F [66°C] for 1 hour). This can provide better adhesive wetout onto the substrate and the effect of increasing bond strength and achieving ultimate bond strength more quickly.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company/usa/usaAction=msdsSRA&msdsLocale=en_US&

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality management system.

Information

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