

Pressure Sensitive Adhesives and Foam

Design Challenges and 3M's Latest Innovations

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Today's Presenters



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Pressure Sensitive Adhesives

Benefits of a 3M™ Double Sided Tape



Faster
Assembly Time



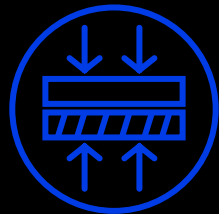
Immediate Handling
Strength



Clean Aesthetics and
Reduced Product
Bulk



Design
Flexibility



LSE and Dissimilar
Materials Bonding



Moisture Intrusion
Prevention

Additional Benefits: Vibration and noise reduction, durability, light weighting, cleaner aesthetics, production flexibility, low odor (no ventilation required), even load distribution, electrical insulation, converter-friendly.

3M™ Thin Bonding Tapes

3M thin bonding tapes, enable attachment of different substrates using a strong but very thin tape to keep the overall profile as thin as possible.



Key Applications

- ▶ Foam and Fabrics attachment
- ▶ Plastic and other Low Surface Energy Material Bonding

Key Products: 3M™ Acrylic Adhesive 300MP+, and 3M™ Low Surface Energy Acrylic Adhesive 300LSE

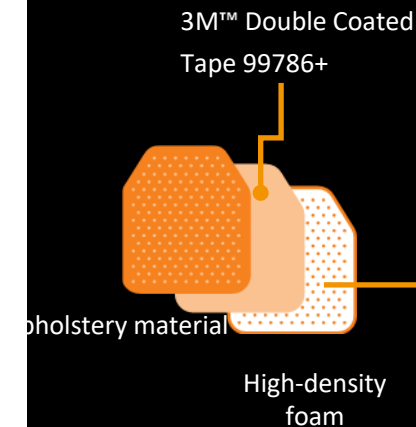
Characteristics

Low profile in the finished product

Attach foam or fabric

Conformable to irregular surfaces

Can be die-cut to custom shapes



3M™ VHB™ Tape

What is it?

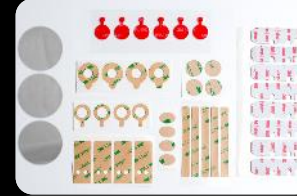
Double-sided acrylic foam tape that permanently bonds and seals a wide variety of substrates.

Key Characteristics:

- ▶ Closed-cell construction
- ▶ Expansion & contraction
- ▶ Available in multiple thicknesses and colors
- ▶ Immediate handling strength
- ▶ Shock absorption
- ▶ Bonds metals, paints, plastics, glass, and more

What Design Challenges Can it Solve?

- ▶ Noise, Vibration, and Harshness
- ▶ Water/Moisture Intrusion
- ▶ Improving Durability
- ▶ Enhance Aesthetics
- ▶ Lightweighting
- ▶ Impact Resistance
- ▶ LSE & Dissimilar Materials Bonding



Converter Connection

Manufactured in roll format but converted into:

Die cut shapes for precise placement

Extended liner rolls for easier processing

Level-wound rolls to be automation-ready

What Product is my Lead Product?

3M™ Thin Bonding Tapes

- ▶ Flexible
- ▶ Bonding to foam and fabric
- ▶ Make any material a single sided tape
- ▶ Attachment of second product required to make a finished product

3M™ VHB™ Tapes

- ▶ Rigid
- ▶ Applications with dynamic forces
- ▶ Sealing wider gaps
- ▶ Expansion and contraction of parts
- ▶ Primarily an attachment method



Challenges that 3M Converted Solutions can Solve

Noise, Vibration, and Harshness (NVH)

Water and Moisture Intrusion

Lightweighting

Heat Shielding

Dissimilar Material Bonding

Aesthetics

Graphics and Labeling

Permanent Surface Protection

Temporary Surface Protection

Reducing Design Footprint

EMI and RFI Shielding

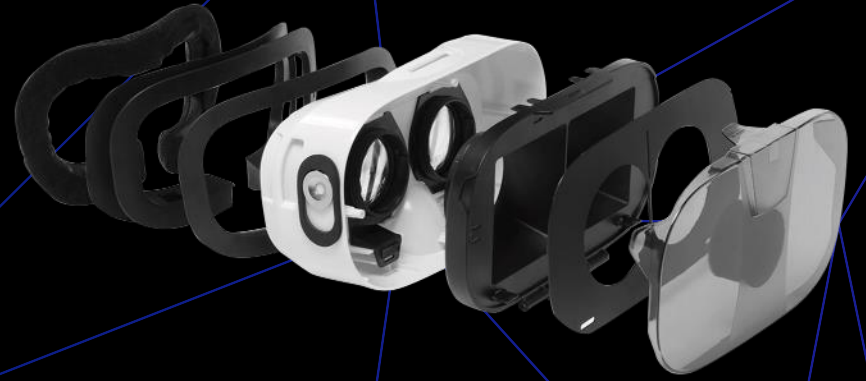
Thermal Conductivity

Electrical Insulation and Conductivity

Reflectivity and Visibility

Electronic Bonding and Display Enhancement

Other Solutions



Dissimilar Material Bonding

Dissimilar Material Bonding

3M has a broad range of tapes and a comprehensive understanding of substrates to assist you in your design.

- ▶ Eliminate drilling and substrate penetration
- ▶ Use thinner, lightweight materials to reduce product weight and energy usage
- ▶ Distribute stress evenly across the bond
- ▶ Bond dissimilar materials to enable design, material, and production flexibility
- ▶ Bond dissimilar metals and prevent bi metallic and galvanic corrosion



Attach rubber to plastic

3M™ Double Coated Tape 93015LE with
Adhesive 300LSE

New Product Spotlight: 3M™ Low VOC Acrylic Adhesive Transfer Tape 59812LVC

Low VOC Acrylic Transfer Tape that adheres to a wide variety of substrates



Key Features

- ▶ Adheres to difficult-to-bond substrates
- ▶ Bonds after high temperature and high humidity exposure
- ▶ >80% reduction in tape VOC emissions vs. standard 3M pressure sensitive adhesives

Adhesive Family: 300LVC Low VOC Acrylic

Characteristics

Low VOC Acrylic Adhesive

Temperature Resistance: 300F (short) / 250F (long)

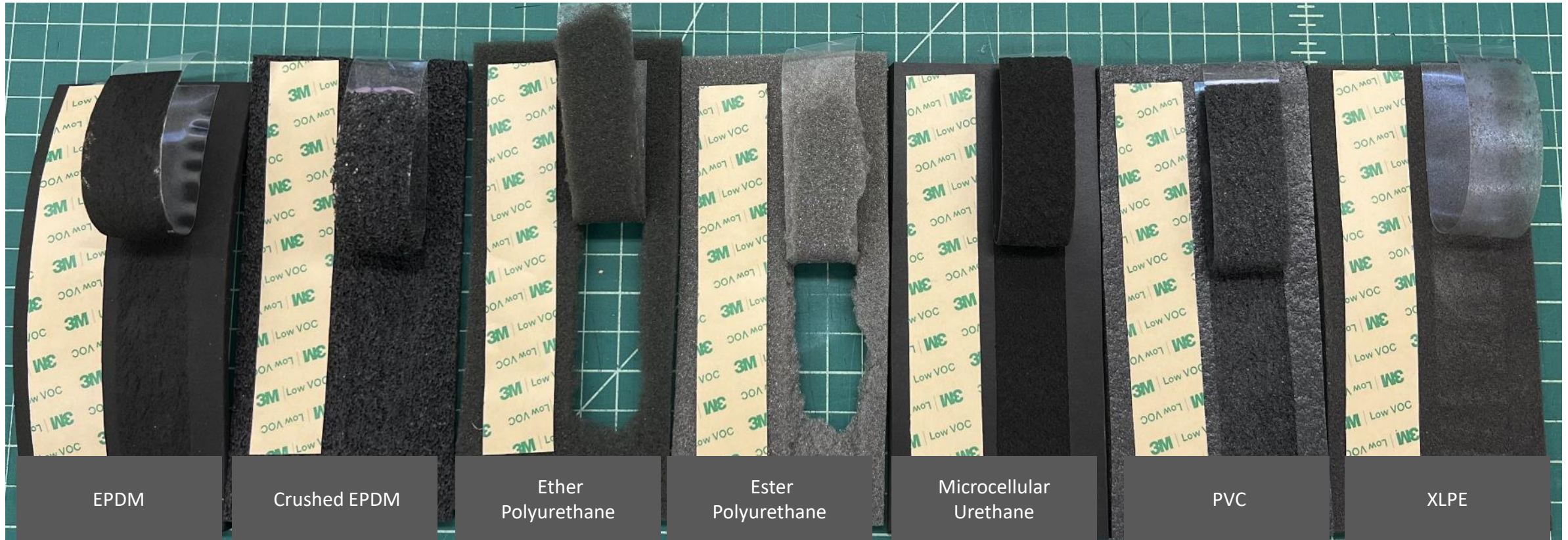
Total tape thickness: 5.0 mils

Shelf Life: 24 months from DOM

Can be laminated and die cut to custom shapes



3M™ Low VOC Acrylic Adhesive Transfer Tape 59812LVC shows adhesion to a variety of foams



Noise, Vibration, and Harshness (NVH)



3M provides effective solutions to airborne noise and structure-borne noise.



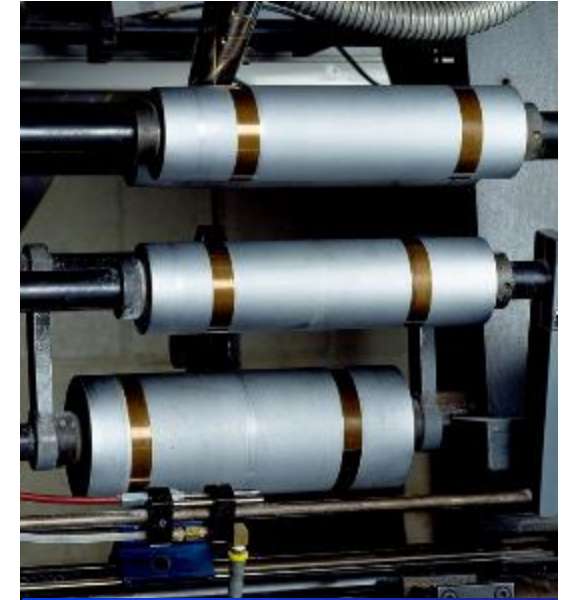
Vibration in panels can be reduced by attaching a stiffener with 3M™ VHB™ Tape.



Vibration can be damped with 3M Damping Tape.



Foam gaskets can be used to reduce noise and vibration.



Slick surface tape to separate moving parts.

Product Spotlight: 3M™ Adhesive Transfer Tape 9775WL+

3M™ Adhesive Transfer Tape 9775WL+ is a high bond adhesive ideal for use on **foams, wood and fabrics**



Key Applications

- ▶ Foam gaskets and general foam bonding
- ▶ Bonding of textured and rough surfaces
- ▶ Fabric and textile bonding including floorcovering lamination

Adhesive Family: 3M™ Acrylic Adhesive 300MP+

Characteristics

High bond adhesive transfer tape

Temperature Resistance: 250F (short) / 200F (long)

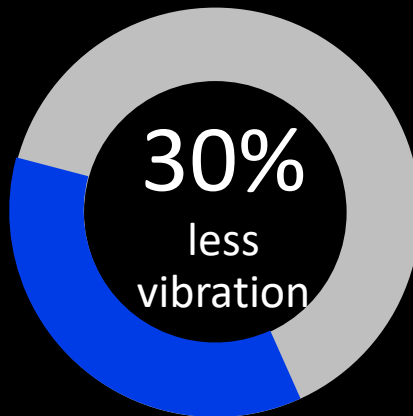
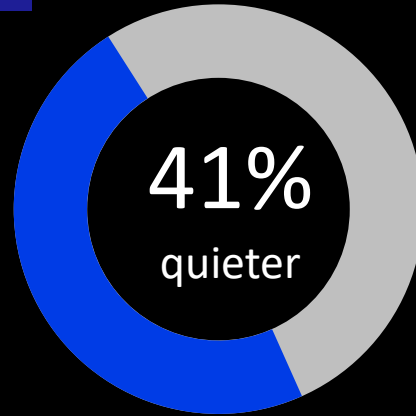
Total tape thickness: 5 mils

Low Fog per SAE J1756



3M™ VHB™ Tape can benefit customers with noise and vibration

3M™ VHB™ Tape assembled trailer is up to 41% quieter at highway speeds and reduces vibration up to 30% when compared to a mechanically fastened trailer.



New Product Spotlight: 3M™ LVO

3M™ VHB™ Tape LVO solves the problem of harsh odors and VOCs in high performance adhesives.

Designed and tested for the growing need for robust adhesives on low surface energy (LSE) substrates.

Key Applications

- ▶ Panel and Trim Attachment in Appliances
- ▶ Automotive Interiors
- ▶ Display and Lens Bonding
- ▶ Food Equipment Bonding Applications

Characteristics

Low Odor – tested to VDA 270

Low VOC – tested to VDA 278

Bonding to LSE Substrates

Compliant with FDA indirect food contact applications



Water and Moisture Intrusion

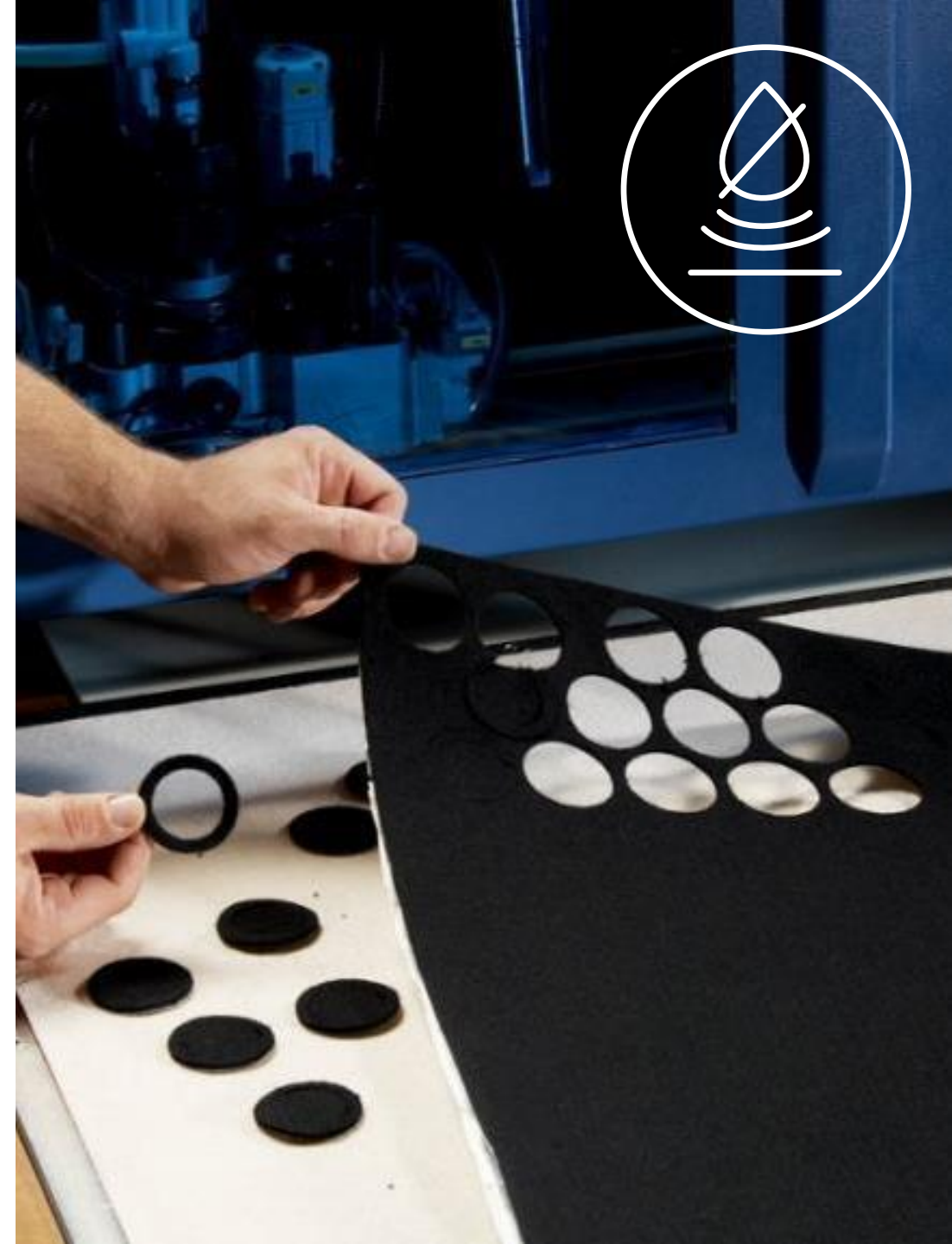


3M Solutions for Sealing and Gasketing

3M tapes, adhesives, sealers and fasteners offer a range of options for gasket attachment applications, whether you need to permanently bond panels to rigid frames, maintain elasticity for dynamic loads or allow for expansion when temperatures change. Gaskets and seals can be fabricated to your specific needs.

Application examples

- ✓ Electrical panels
- ✓ Electronic devices
- ✓ HVAC
- ✓ Access panels
- ✓ Door and trunk weatherstripping



Product Spotlight: 3M™ Extreme Sealing Tape

3M™ Extreme Sealing Tape is a highly conformable, single-sided, pressure sensitive acrylic adhesive tape with a high-performance ionomer backing. It is an ideal solution for creating a water-tight seal. It conforms over fasteners, seams, joints, holes and gaps to ensure a long-lasting seal on a variety of substrates.

Key Applications

- ▶ Window and Door Sealing
- ▶ Truck and Trailer Roof Sealing
- ▶ HVAC and Gutter Sealing
- ▶ Outdoor application where weather is a concern

Characteristics

Tough, yet flexible clear ionomer backing is **abrasion resistant** and **instantly paintable**

Sticks on contact to many metals, plastics and other **hard-to-stick-to surfaces**

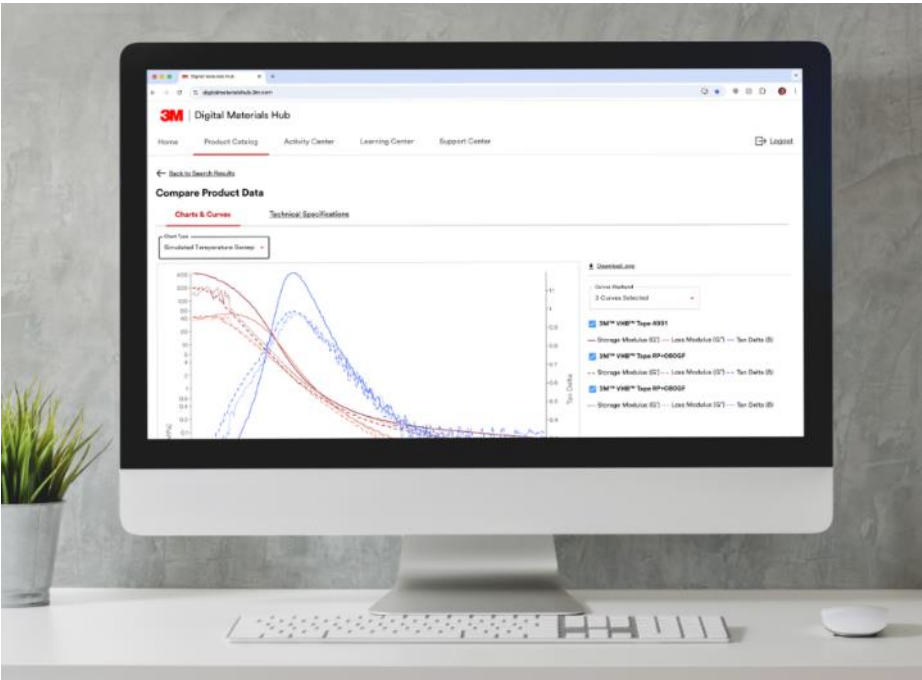
Provides **immediate seal** with no wait time or oozing associated with liquid sealants



Accelerate your innovation journey

With the 3M Digital Materials Hub, access and compare verified material data cards, modeling data and data specifications, all within one easy-to-use-tool.

Login / Register



Key features to benefit engineers, in one easy-to-use tool

3M knows engineers need to gather and evaluate materials data fast to model and simulate adhesive solutions for their unique applications. With the 3M Digital Materials Hub, engineers can now quickly compare and download verified 3M materials data to help them determine best-fit 3M solutions.

01 Search for Products

Search and filter for 3M adhesives in a way that is most suitable to your context and needs.

02 Compare Material Data

Compare multiple products' data side-by-side, including simulated models and technical specifications.

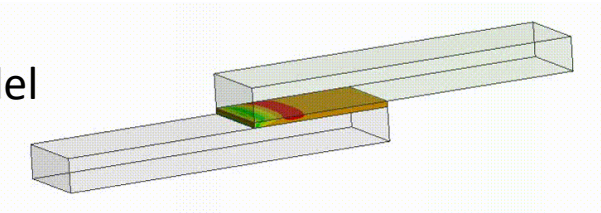
03 Download Material Data

Download verified 3M material data cards to directly utilize in your own modeling and simulations.

04 Access Expert Support

Request support along your journey, including new models and verified data cards from 3M.

Finite Element Material Model



Thank you

