



Technical Data Sheet

3M™ Double Coated Tissue Tape 56412



Product Description

3M™ Double Coated Tissue Tape 56412 is a high tack, multipurpose tape engineered to provide durable bonds to a variety of materials, including low surface energy plastics – even at low temperatures. Target applications include Plastics Assembly, Dissimilar Material Bonding, Durable Graphic Bonding, Foam Lamination and Bonding, and Packaging and Paper Bonding.

Product Features

- High initial tack - quick stick for fast and secure bonding
- Excellent low temperature performance
- Reworkable – resists tissue splitting when peeled or removed
- Translucent tape
- Conformable tape holds to curved and uneven surfaces
- Made via a solvent-free adhesive coating process

Technical Information Note

The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Typical Physical Properties

| Attribute Name | Test Method | Value |
|----------------------|-------------|--------------------|
| Adhesive Carrier | | Translucent Tissue |
| Carrier Thickness | | 0.033 mm (1.3 mil) |
| Total Tape Thickness | ASTM D3652 | 0.12 mm (4.7 mil) |
| Liner | | PCK |
| Liner Thickness | | 0.135 mm (5.3 mil) |
| Primary Liner Color | | White |

Typical Performance Characteristics

180° Peel Adhesion

Backing: 2 mil Aluminum Foil

Test Method: ASTM D3330

| Dwell Time | Temperature | Substrate | Value |
|------------|----------------|--------------------|------------------------------------|
| 20 min | 23 °C (73 °F) | Stainless Steel | 5.8 N/cm (53.0 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | Stainless Steel | 7.5 N/cm (68.3 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | Stainless Steel | 9.1 N/cm (83.1 oz/in) ¹ |
| 20 min | 23 °C (73 °F) | Polypropylene (PP) | 7.1 N/cm (65.1 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | Polypropylene (PP) | 9.6 N/cm (87.3 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | Polypropylene (PP) | 6.5 N/cm (59.5 oz/in) ¹ |
| 20 min | 23 °C (73 °F) | Polycarbonate (PC) | 7.7 N/cm (70.1 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | Polycarbonate (PC) | 7.6 N/cm (69.8 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | Polycarbonate (PC) | 8.6 N/cm (78.1 oz/in) ¹ |
| 20 min | 23 °C (73 °F) | ABS | 2.9 N/cm (26.2 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | ABS | 4.3 N/cm (39.4 oz/in) ¹ |

| Dwell Time | Temperature | Substrate | Value |
|------------|----------------|-----------|------------------------------------|
| 72 h | 70 °C (158 °F) | ABS | 9.0 N/cm (81.9 oz/in) ¹ |

¹ 300 mm/min (12 in/min)

90° Peel Adhesion

Backing: 2 mil Aluminum Foil

Test Method: ASTM D3330

| Dwell Time | Temperature | Substrate | Value |
|------------|----------------|--------------------|------------------------------------|
| 20 min | 23 °C (73 °F) | Stainless Steel | 5.3 N/cm (48.6 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | Stainless Steel | 6.2 N/cm (56.8 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | Stainless Steel | 7.5 N/cm (68.7 oz/in) ¹ |
| 20 min | 23 °C (73 °F) | Polypropylene (PP) | 5.3 N/cm (48.4 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | Polypropylene (PP) | 7.0 N/cm (63.6 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | Polypropylene (PP) | 4.7 N/cm (42.5 oz/in) ¹ |
| 20 min | 23 °C (73 °F) | Polycarbonate (PC) | 6.0 N/cm (54.8 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | Polycarbonate (PC) | 7.6 N/cm (69.8 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | Polycarbonate (PC) | 6.9 N/cm (62.6 oz/in) ¹ |
| 20 min | 23 °C (73 °F) | ABS | 2.7 N/cm (24.6 oz/in) ¹ |
| 72 h | 23 °C (73 °F) | ABS | 4.1 N/cm (37.2 oz/in) ¹ |
| 72 h | 70 °C (158 °F) | ABS | 6.0 N/cm (54.6 oz/in) ¹ |

¹ 300 mm/min (12 in/min)

Static Shear

Substrate: Stainless Steel

Dwell Time: 72 h

Backing: 2 mil Aluminum Foil

Test Method: ASTM D3654

| Temperature | Test Condition | Value |
|----------------|----------------|-------------------------|
| 23 °C (73 °F) | 1000 g | 10,000 min ¹ |
| 70 °C (158 °F) | 500 g | 10,000 min ¹ |

¹ 25 x 25 mm (1 in x 1 in) sample area, test terminated after 10,000 minutes

| Attribute Name | Value |
|-----------------------------------|------------------------------|
| Long Term Temperature Resistance | 70 °C (158 °F) ¹ |
| Short Term Temperature Resistance | 121 °C (250 °F) ² |
| Long Term Temperature Resistance | 121 °C (250 °F) ³ |

¹ Maximum temperature where tape supports 500g load per 6.5cm² (1 in²) in static shear for 10,000 minutes.

² Maximum temperature where tape supports 500g load per 6.5cm² (1 in²) in static shear for 60 minutes.

³ Maximum temperature where tape supports 200g load per 6.5cm² (1 in²) in static shear for 10,000 minutes.

T-Peel Adhesion

Temperature: 23 °C (73 °F)

Dwell Time: 72 h

Backing: 2 mil Aluminum Foil

Test Method: ASTM D1876

| Substrate | Value |
|-------------------------|---------------------------|
| EPDM | Foam Tear ¹ |
| Polyester Urethane Foam | Foam Picking ¹ |

| Substrate | Value |
|--------------------------------|---------------------------|
| Cross-linked Polyethylene Foam | Foam Picking ¹ |

¹ Failure mode

Typical Environmental Performance

Temperature: 32 °C (90 °F)

Dwell Time: 72 h

Backing: 2 mil Aluminum Foil

Test Method: ASTM D3330

Environmental Condition: 90 %RH

| Attribute Name | Substrate | Value |
|--------------------|--------------------|------------------------------------|
| 180° Peel Adhesion | Stainless Steel | 7.1 N/cm (64.5 oz/in) ¹ |
| 90° Peel Adhesion | Stainless Steel | 6.3 N/cm (57.3 oz/in) ¹ |
| 180° Peel Adhesion | Polypropylene (PP) | 9.5 N/cm (86.9 oz/in) ¹ |
| 90° Peel Adhesion | Polypropylene (PP) | 6.8 N/cm (62.2 oz/in) ¹ |
| 180° Peel Adhesion | Polycarbonate (PC) | 8.7 N/cm (79.0 oz/in) |
| 90° Peel Adhesion | Polycarbonate (PC) | 6.0 N/cm (54.8 oz/in) |
| 180° Peel Adhesion | ABS | 4.6 N/cm (41.7 oz/in) ¹ |
| 90° Peel Adhesion | ABS | 3.9 N/cm (35.5 oz/in) ¹ |

¹ 300 mm/min (12 in/min)

Electrical and Thermal Properties

| Attribute Name | Test Method | Value |
|-----------------------------------|-------------|------------------------------|
| Glass Transition Temperature (Tg) | ASTM E1356 | -46 °C (-51 °F) ¹ |

¹ Glass Transition Temperature (Tg) determined using DSC Analyzer with a heating rate of 4 °C per minute. First heat values given.

Handling/Application Information

Application Techniques

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

To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane.*

Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C).

*Carefully read and follow the manufacturer's precautions and directions for use when working with solvents. These cleaning recommendations may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in the original packaging, out of direct sunlight. For best performance, use this product within 24 months from date of manufacture.

Automotive Disclaimer

Select Automotive Applications:

This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

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ISO Statement

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3M Center, St. Paul, MN 55144-1000
3M.com/iatd

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