

January, 2011

3M™ Double Coated Tape 94220

Product Description

Finite Element Analysis (FEA) data is available for this product at: 3m.com/FEA



3M™ Double Coated Tapes with 3M™ Adhesive 420 are high tack film tapes that feature a polyester film carrier for dimensional stability and improved handling with ease of die cutting and laminating. The high tack acrylic 3M adhesive 420 provides both high performance at a wide temperature range and excellent adhesion to many plastics.

Product Features

- A polyester carrier in the products provides dimensional stability and improved handling with ease of die cutting and lamination compared to adhesive transfer tapes.
- 3M™ Adhesive 420 provides good temperature and chemical resistance and withstands tough application environments.
- 3M™ Adhesive 420 provides good shock resistance when dropped at various temperatures.
- 3M™ Adhesive 420 provides good adhesion to both HSE and LSE substrates.

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

Property	Values		Attribute Modifier	Notes
Total Tape Thickness without liner	0.2 mm	7.9 mil		
Carrier Thickness	0.012 mm	0.5 mil		
Adhesive Type	420		Faceside	Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.
Adhesive Type	420		Backside	Backside adhesive is on the exterior of the roll, exposed when liner is removed.
Adhesive Carrier	Clear Polyester			
Liner	58# Polycoated Kraft			
Liner Color	Tan		Primary	
Liner Thickness	0.11 mm	4.2 mil		

Adhesive Thickness		Attribute Modifier	Notes
0.095 mm		Backside	The caliper listed is based on a calculation from manufacturing controlled adhesive coat weight. While past data pages have listed nominal thicknesses of 1 and 2 mils, the coat weight (and theoretical caliper) has not changed.
3.7 mil		Backside	Backside adhesive is on the exterior of the roll, exposed when liner is removed.
0.095 mm	3.7 mil	Faceside	Faceside adhesive is on the interior of the roll, exposed when unwound and liner removed.

Property: Adhesive Thickness

Typical Performance Characteristics

Relative High Temperature Operating Ranges		Test Condition
149 °C	300 °F	Short Term (minutes, hours)
121 °C	250 °F	Long Term (days, weeks)

Property: Relative High Temperature Operating Ranges

Typical Performance Characteristics (continued)

180° Peel Adhesion		Dwell/Cure Time	Dwell Time Units	Substrate
7.1 N/cm	65 oz/in	15	min	Stainless Steel
8.2 N/cm	75 oz/in	15	min	Polycarbonate (PC)
7.1 N/cm	65 oz/in	15	min	ABS
4.9 N/cm	45 oz/in	15	min	Polypropylene (PP)
9.4 N/cm	85 oz/in	72	hr	Stainless Steel
8.8 N/cm	80 oz/in	72	hr	Polycarbonate (PC)
8.2 N/cm	75 oz/in	72	hr	ABS
4.9 N/cm	45 oz/in	72	hr	Polypropylene (PP)

Property: 180° Peel Adhesion
 Method: ASTM D3330
 Temp C: 22C
 Temp F: 72F
 Environmental Condition: 52%RH
 Backing: Aluminum Foil
 notes: 12 in/min (300 mm/min)

Property	Values	Method	Test Condition	Notes
Static Shear	>10,000 min	ASTM D3654	1000 g @ Room Temperature	1 in ² sample size
Static Shear	>10,000 min	ASTM D3654	500 g @ 70°C (158°F)	1 in ² sample size
UV Resistance	Adhesive is resistant to oxidation and ozone when exposed to air or ultraviolet light.			

Available Sizes

Property	Values		Attribute Modifier
Note	Subject to Minimum Order Requirements		
Minimum Available Width	12.7 mm	1/2 in	
Maximum Available Width	1372 mm	54 in	
Normal Slitting Tolerance	±0.08 mm	±1/32 in	
Core Size	76.2 mm	3 in	ID

Available Sizes (continued)

Maximum Length		Width
164 m	180 yd	1/2 in to 63/64 in
329 m	360 yd	1 in to 54 in

Property: Maximum Length

Typical Environmental Performance

Humidity Resistance

No adverse effect on the bond after exposed to 100% relative humidity at 100°F (38°C).

Environmental Resistance

Humidity Resistance: High humidity has minimal effect on adhesive performance. No significant reduction in bond strength is observed after exposure for 7 days at 90°F (32°C) and 90% relative humidity.

UV Resistance: When properly applied, nameplates and decorative trim parts are not adversely affected by exposure.

Water Resistance: Immersion in water has no appreciable effect on the bond strength. After 100 hours at room temperature, the high bond strength is maintained.

Temperature Cycling Resistance: High bond strength is maintained after cycling four times through:

- 4 hours at 158°F (70°C)
- 4 hours at -20°F (-29°C)
- 4 hours at 73°F (22°C)

Chemical Resistance: When properly applied, nameplate and decorative trim parts will hold securely after exposure to numerous chemicals including oil, mild acids, and alkalis.

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 improve 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.*

*Note: Carefully read and follow the manufacturer’s precautions and directions for use when using solvents. Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

Application Equipment

To apply adhesives in a wide web format, lamination equipment is required to ensure acceptable quality. To learn more about working with pressure-sensitive adhesives please refer to technical bulletin, Lamination Techniques for Converters of Laminating Adhesives (70-0704-1430-8).

For additional dispenser information, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.

Storage and Shelf Life

Store in original cartons at 70°F (21°C) and 50% relative humidity.

If stored under proper conditions, these products retain their performance and properties for 24 months from date of manufacture.

Trademarks

3M is a trademark of 3M Company.

3M™ Double Coated Tape 94220

References

Safety Data Sheet (SDS)

https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=94220

Family Group

	94210	94215	94220
Adhesive Type Attribute Modifier: Faceside	420	420	420
Relative High Temperature Operating Ranges (°C) Test Condition: Short Term (minutes, hours)	149	149	149
Relative High Temperature Operating Ranges (°C) Test Condition: Long Term (days, weeks)	121	121	121
Adhesive Thickness (mm) Attribute Modifier: Backside	0.044	0.069	0.095
Liner Color Attribute Modifier: Primary	Tan	Tan	Tan
Adhesive Type Attribute Modifier: Backside	420	420	420
Adhesive Thickness (mm) Attribute Modifier: Faceside	0.044	0.069	0.095
Total Tape Thickness without liner (mm)	0.1	0.15	0.2
Carrier Thickness (mm)	0.012	0.012	0.012
Adhesive Carrier	Clear Polyester	Clear Polyester	Clear Polyester
Liner	58# Polycoated Kraft	58# Polycoated Kraft	58# Polycoated Kraft
Liner Thickness (mm)	0.11	0.11	0.11

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

Information

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

