High Strength Double Coated Tape with Adhesive 300LSE

9594LE • 9594LEB

Technical Data **May, 2008**

Product Description

3M™ Double Coated Tapes with 3M™ Adhesive 300LSE provides high bond strength to most surfaces, including many low surface energy plastics such as polypropylene and powder coated paints. The acrylic adhesive also provides excellent adhesion to surfaces contaminated with oil typically used with machine parts.

Construction

Product Number	Faceside Adhesive Type/ Thickness	Carrier Type/ Thickness	Backside Adhesive Type/ Thickness	Liner Color, Type, Caliper
3M™ Double Coated Tape 9594LE	300LSE 4.0 mil 0.004" (0.10 mm)	Clear Polyester 0.5 mil 0.0005" (0.013 mm)	300LSE/ 4.0 mil 0.004" (0.10 mm)	Tan, 58# Polycoated Kraft 4.2 mil 0.0042" (0.11 mm)
3M™ Double Coated Tape 9594LEB	300LSE 4.0 mil 0.004" (0.10 mm)	Black Polyester 0.5 mil 0.0005" (0.013 mm)	300LSE/ 4.0 mil 0.004" (0.10 mm)	Tan, 58# Polycoated Kraft 4.2 mil 0.0042" (0.11 mm)

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Typical Physical Properties and Performance Characteristics

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

Product Number	**3M™ Double Coated Tape 9594LE**	**3M™ Double Coated Tape 9594LEB**
Adhesion to stainless steel 180 degree peel	Oz/in (N/100 mm)	Oz/in (N/100 mm)
- Immediate (15 minute dwell RT)	180 (196)	170 (185)
- 72 hour RT	184 (201)	169 (185)
Adhesion to stainless steel ASTM D3330 – 90 degree 2 mil alum		
- 15 minute RT	84 (92)	87 (95)
- 72 hour RT	129 (141)	128 (140)
- 72 hour 158°F (70°F)	157 (172)	171 (187)
Adhesion to other substrates ASTM D3330 – 90 degree 2 mil alum, 72 hour RT		
ABS	108 (118)	94 (103)
Polypropylene	76 (83)	75 (82)
Polycarbonate	156 (171)	148 (162)
Glass	84 (92)	97 (106)
72 hour 158°F (70°C)		
ABS	79 (86)	82 (90)
Polycarbonate	51 (56)	65 (71)
Glass	106 (116)	121 (133)
Shear Strength - ASTM D3654 Modified – (.5 inch^2 sample size)		
1000 grams at 72°F (22°C)	3,649 minutes	1,070 minutes
500 grams at 158°F (70°F)	467 minutes	1,475 minutes
Relative High Temperature Operating Ranges:		
Long Term (days, weeks)	200°F (93°C)	200°F (93°C)
Short Term (minutes, hours)	300°F (149°C)	300°F (149°C)
Relative Solvent Resistance:	Very Good	Very Good

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Application Techniques

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure and moderate heat, from 100°F (38°C) to 130°F (54°C), will assist the adhesive in developing intimate contact with the bonding surface.

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). 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.

*****When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use. These cleaning recommendations may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

Environmental Performance

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.

Liner Configuration Guide

General purpose steel rule die-cutting	58# PCK
Steel rule cutting many nameplates on common sheet	83# PCK
Kiss cutting, steel rule	83# PCK
Rotary die-cutting	PET
Selective die-cutting (cut adhesive before laminate)	Double-linered
Thermoforming	HDPE
Part inspection	HDPE, PET
Embossed metal parts	White PP, HDPE
Metal parts (punch press)	PET

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Adding Liners for 3M™ Double Coated Tapes with Adhesive 300LSE

1. Rotary processing, tape only, on a densified (outside of #4994) kraft liner. In this process, the tape waste will stay with the 58# PCK liner, leaving adhesive die-cuts dispensable from the #4994 (densified kraft) liner.
2. Rotary processing for finished parts. If a densified kraft (DK) liner is necessary, the adhesive should be first laminated to the substrate with pressure. After lamination, remove the 58# PCK liner and laminate the outside of the #4994 (DK) liner.

Application Ideas

- Foam to powder coated painted surfaces.
- Low surface energy plastic adhesion.

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

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

Shelf Life

If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.

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Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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ISO 9001:2000

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.

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