



Laminating Adhesives

9453LE • 9471LE • 9472LE

Technical Data

September, 1999

Product Description:

- 3M™ High-strength Acrylic Adhesive 300LSE provides very high bond strength to most surfaces.
- Excellent bond to low surface energy plastics, such as polypropylene and powder coatings.
- Excellent adhesion to lightly oiled surfaces typical of machine parts.
- Thickness range of 2.0 mils, 3.5 mils and 5.0 mils for use on smooth, rough and textured surfaces.
- Extremely smooth adhesive for excellent graphics appearance.
- Polycoated kraft liner for die-cutting end tabs and waste removed nameplates on a common carrier.

Product Construction:

Product	Adhesive 9453LE	Adhesive 9471LE	Adhesive 9472LE
Adhesive: (Solvent Free)	3.5 mils (88 microns) 3M High-strength Acrylic Adhesive 300LSE	2.0 mils (51 microns) 3M High-strength Acrylic Adhesive 300LSE	5.0 mils (127 microns) 3M High-strength Acrylic Adhesive 300LSE
Liner:	4.0 mils (100 microns) 58# Polycoated kraft	4.0 mils (100 microns) 58# Polycoated kraft	4.0 mils (100 microns) 58# Polycoated kraft

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Typical Physical Properties and Performance Characteristics:

Typical Adhesion Properties

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

Peel Adhesion - ounces/inch (Newtons/100 mm) ASTM D3330, modified: 90° peel, 2 mil aluminum backing.

Typical Adhesion Chart

	3M™ Laminating Adhesive	15 Minute Room Temperature		72 Hour Room Temperature	
		Oz./In.	N/100 mm	Oz./In.	N/100 mm
Stainless Steel	9453LE	90	98	100	109
	9471LE	71	78	75	82
	9472LE	109	119	140	153
ABS	9453LE	80	88	113	124
	9471LE	70	77	79	86
	9472LE	102	112	128	140
Polypropylene	9453LE	89	97	103	113
	9471LE	69	75	74	81
	9472LE	115	126	136	149

The properties defined are based on the attachment of impervious faceplate materials (such as aluminum) to a stainless steel test surface.

Bond Build-up: The bond strength of 3M™ High-strength Acrylic Adhesive 300LSE increased as a function of time and temperature, and has very high initial adhesion.

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.

U.V. 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.

Temperature Resistance: The 3M high-strength acrylic adhesive 300LSE is usable for short periods (minutes, hours) at room temperatures up to 300°F (148°C) and for intermittent longer periods of time (days, weeks) up to 200°F (93°C).

Lower Service Temperature: -40°F (-40°C).

Shelf Life: Product retains its performance and properties for two years from date of manufacture if properly stored at room temperature conditions of 72°F (22°C) and 50% relative humidity. Storage in plastic bag is recommended.

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Available Sizes:	Width and Length (subject to minimum order requirements):
	Limitations: 1/2 in. to 63/64 in.: Maximum 180 yards 1 in. to 54 in.: Maximum 360 yards
	Minimum Slit Width: 1/2 in.
	Maximum Slit Width: 54 in.
	Normal Slitting Tolerance: ± 1/32 in.
	Core 3.0 in.

Application Techniques: For maximum bond strength, the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane or isopropyl alcohol. Carefully read and follow manufacturer's precautions and directions for use when using cleaning solvents.

Bond strength can also be improved with firm application pressure and moderate heat, from 100°F (38°C) to 130°F (54°C), causing the adhesive to develop intimate contact with the bonding surface.

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 for most pressure-sensitive adhesives because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

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- General Information:**
- Plastic nameplates or graphic overlays for use on low surface energy plastics.
 - Waste removed nameplates on a common sheet for ease of application.
 - Attaching membrane switch assemblies to powder coated surfaces and low surface energy plastics.
 - Graphic overlays with end tabs for easy liner removal.
 - Graphic application to surfaces such as wood, fabric, plastic, where very high bond strength is required.
 - Attaching identification material to lightly oily surfaces typical of machine parts.

Application Ideas:

Processing:

Slitting and die-cutting: This adhesive is very aggressive and may be difficult to convert depending on your application requirements. Chilling the adhesive between 35°F and 50°F will improve the processability. In addition, dies can be lubricated with Laminoleum evaporative stamping oil, which is available from Metal Lubricants Company (708-333-8900), or with Lubri-Blade 907 from Ceramic Technologies Inc. (800-258-8495). You may also refer to our Technical Bulletin on 300LSE converting.

Roll Laminating: A combination of metal and rubber rollers with moderate pressure is recommended.

Note: Please refer to the **3M Slitting/Die-cutting Technical Bulletin** for further details.

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For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-362-3550. Address correspondence to: 3M Bonding Systems Division, 3M Center, Building 220-7E-01, St. Paul, MN 55144-1000. Our fax number is 612-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-809-750-3000. In Mexico, phone: 5-728-2180.

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ISO 9002

This Bonding Systems Division product was manufactured under a 3M quality system registered to ISO 9002 standards.

3M

Bonding Systems Division

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