



Laminating Adhesives/Data Page

FOD # 0158

Scotch™ 9453 Laminating Adhesive 9471 Laminating Adhesive 9472 Laminating Adhesive

Product Construction

	<u>Adhesive</u>	<u>Liner</u>
9453	3.5 mil (89 microns) #300 “Hi-Strength” Acrylic	3.7 mil (94 microns) 60# Densified Kraft
9471	2.0 mil (51 microns) #300 “Hi-Strength” Acrylic	3.7 mil (94 microns) 60# Densified Kraft Printed
9472	5.0 mil (127 microns) #300 “Hi-Strength” Acrylic	3.7 mil (94 microns) 60# Densified Kraft Printed

Features

- “Hi-Strength” acrylic adhesive bonds to a wide variety of surfaces, including low surface energy plastics.
- 60# densified kraft liner offers excellent die-cutting of metal nameplates.
- Excellent balance of properties.

Applications

- Metal nameplates applied to smooth or textured plastic surfaces.
- Graphic application to surfaces such as wood, fabric, plastic, rubber and textured materials.

Physical Properties

(Typical values based on testing of 3 lots - not for specification use)

ASTM D-3330 (modified)
 (90 degree peel,
 12"/min. 305 mm/min.)
 2 mil aluminum foil to
 stainless steel

<u>Product</u>	20 Minute Dwell	
	<u>Oz./In.</u>	<u>N/100 mm</u>
9453	57	62
9471	36	39
9472	66	72

ASTM D-3330 (modified)
 (90 degree peel,
 12"/min. 305 mm/min.)
 2 mil aluminum to
 various surfaces

	<u>Product</u>	72 Hr. Dwell		Ultimate Bond	
		<u>Oz./In.</u>	<u>N/100mm</u>	<u>Oz./In.</u>	<u>N/100mm</u>
- Metal (Stainless Steel)	9453	77	84	80	88
	9471	51	56	85	93
	9472	98	107	114	125
- High Surface Energy Plastic (Polycarbonate)	9453	67	73	–	–
	9471	51	56	75	83
	9472	82	90	114	125
- Low Surface Energy Plastic (Polypropylene)	9453	52	57	–	–
	9471	36	39	32	35
	9472	55	60	61	67

Environmental Performance

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

- Bond Build-up:** The bond strength of #300 “Hi-Strength” acrylic adhesive increases as a function of time and temperature and has very high initial adhesion.
- Humidity Resistance:** High humidity has minimal effect on adhesive performance. Bond strengths are generally higher after exposure for 7 days at 90 degrees F (32 degrees 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 bond actually shows an increase in strength.
- Temperature Cycling Resistance:** Bond strength generally increases after cycling four times through:
4 hours at 158 degrees F (70 degrees C)
4 hours at -20 degrees F (-29 degrees C)
16 hours at 73 degrees F (22 degrees 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.
- Heat Resistance:** The #300 “Hi-Strength” adhesive is usable for short periods (minutes, hours) at temperatures up to 250 degrees F (121 degrees C) and for intermittent longer periods of time (days, weeks) up to 150 degrees F (66 degrees C).
- Shelf Life:** Product retains its performance and properties for one year from date of receipt if properly stored at room temperature conditions of 72 degrees F (22 degrees C) and 50% relative humidity. Storage in plastic bag is recommended.

Special Consideratons

Adhesive streaks are caused by clumps of fiber used to support the adhesive film. If streak-free adhesive is required, we suggest you evaluate alternative 3M adhesives with #300MP acrylic, such as Scotch brand 9770 and 9774 laminating adhesives.

For maximum bond strength the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane or isopropyl alcohol. Consult manufacturer’s Material Safety Data Sheet for proper handling and storage instructions.

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

7/21/93

Terms and Conditions of Sale for products sold by 3M Identification and Converter Systems Division can be found in the ICSD Price Book and in other appropriate schedules.

Technical Data: All physical properties, statements, and recommendations are either based on tests we believe to be reliable or our experience, but they are not guaranteed. 3M recommends each user determine the suitability of the products for the intended use.

Warranty and Limited Remedy: THE FOLLOWING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, A CUSTOM OR USAGE OF TRADE: 3M warrants its product will be free from all defects.

If a product is proved to be defective, then the exclusive remedy 3M's and seller's sole obligation shall be, at 3M's option, to replace the quantity of the product which is proved to be defective or to refund the purchase price.

Limitation of Liability: 3M and seller shall not be liable for direct, indirect, special, incidental or consequential damages based breach of warranty, breach of contract, negligence, strict liability or any other legal theory.

The foregoing Warranty and Limited Remedy and Limitation of Liability may be changed only by a written agreement signed by authorized officers of 3M and seller.

Scotch, ScotchMark, ScotchCap, and Stamark are trademarks of 3M.



**Identification and Converter
Systems Division**

3M Center, Building 220-7W-03
St. Paul, MN 55144-1000
USA
1 800 223 7427
1 800 258 7511 FAX
e-mail idconvert@mmm.com

3M Canada Inc.

PO Box 5757
London, Ontario
Canada N6A 4T1
1 800 265 1840
519 452 6090 FAX

3M Mexico, S.A. de C.V.

Apartado Postal 14-139
Mexico, D.F. 07070
Mexico
52 5 728 2289
52 5 728 2299 FAX

3M Puerto Rico, Inc.

Puerto Rico Industrial Park
PO Box 100
Carolina, PR 00986-0100
809 750 3000
809 750 3035 FAX