



Laminating Adhesives Data Page

FOD # 0355

3M™ 966 Laminating Adhesive
9461P Laminating Adhesive
9462P Laminating Adhesive
941 Laminating Adhesive
941N Laminating Adhesive

Product Construction

	<u>Adhesive</u>	<u>Liner</u>
966	2.0 mils (51 microns) #100 “Hi-Temperature” Acrylic Adhesive	3.8 mils (97 microns) 60# Densified Kraft
9461P	1.0 mil (25 microns) #100 Hi-Temperature Acrylic Adhesive	3.2 mil (80 microns) 55# Densified Kraft (printed)
9462P	2.0 mils (50 microns) #100 “Hi-Temperature” Acrylic Adhesive	3.2 mils (80 microns) 55# Densified Kraft
941	2.0 mils (51 microns) #100 “Hi-Temperature” Acrylic Adhesive	4.0 mils (102 microns) 58# Polycoated Kraft
941N	2.0 mils (51 microns) #100 “Hi-Temperature” Acrylic Adhesive	6.5 mils (162 microns) 86# Polycoated Kraft

Features

- Excellent bond to metal and high surface energy plastics.
- Outstanding temperature and chemical resistance.
- Two adhesive thicknesses available: 9461P for thin profile labels. 966, 941, 941N, and 9462P for labels to be applied to rougher surfaces.
- Low outgassing adhesives and low leachable chloride for use in the electronic industry, including hard disk drives.

- Available on various liners for specialized processing:
 - 60# Densified Kraft for die-cutting metal nameplates.
 - 55# Densified Kraft for rotary die-cutting specialty labels.
 - 58# Polycoated Kraft for polycarbonate graphic panels.
 - 86# Polycoated Kraft for polycarbonate end tabs and plastic nameplates on a common sheet.

Applications

- Nameplates in harsh environments where high chemical and temperature resistance is required.
- Photographic bar code labels for printed circuit boards.
- Ideal for hard disk drive industry.
- Performance engineered labels for fuel line identification.
- For aerospace applications where low outgassing properties are required, 3M 966 and each of the products list on different liners meets the requirements of NASA Reference Publication 1124 Revised (titled: Outgassing Data for Selecting Spacecraft Materials).

Physical Properties

(Typical values - not for specification use)

	<u>Prod.</u>	20 Minute Dwell	
		<u>Oz./In.</u>	<u>N/100 mm</u>
ASTM D-3330 (modified) (90 degree peel, 12"/min. (305 mm/min.) 2 mil aluminum			
Metal (Stainless Steel)	9461P}	48	53
	966 }		
	9462P}	53	58
	941 }		
	941N }		
High Surface Energy Plastic (ABS)	966 }		
	9462P}	44	48
	941 }		
	941N }		

	<u>Prod.</u>	<u>72 Hr. Dwell</u>		<u>Ultimate Bond</u>	
		<u>Oz./In.</u>	<u>N/100mm</u>	<u>Oz./In.</u>	<u>N/100mm</u>
ASTM D-3330 (modified) (90 degree peel, 12"/min. 305 mm/min.) 2 mil aluminum to various surfaces					
Metal (Stainless Steel)	9461P }	85	93	119	130
	966 }				
	9462P }	78	85	145	159
	941 }				
	941N }				
High Surface Energy Plastic (ABS)	9461P }	36	39	18	20
	966 }				
	9462P }	54	59	40	44
	941 }				
	941N }				
Low Surface Energy Plastic (Polypropylene)	9461P }				
	966 }				
	9462P }	Not suggested, consider #300, #300MP or #350			
	941 }				
	941N }				

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 3M #100 "Hi-Temperature" Acrylic Adhesive increases as a function of time and temperature.
- Humidity Resistance: High humidity has a minimal effect on adhesive performance. Bond strengths are generally higher after exposure for 7 days at 90 deg. F (32 deg. C) and 90% relative humidity.
- U.V. Resistance: When properly applied, nameplates and decorative trim parts are not adversely affected by outdoor exposure.
- Water Resistance: Immersion in water has no appreciable effect on the bond strength. After 100 hours in room temperature water the bond actually shows an increase in strength.
- Temp. Cycling Resistance: Bond strength generally increases after cycling four times through:
4 hours at 158 deg. F (70 deg. C)
4 hours at -20 deg. F (-29 deg. C)
16 hours at room temperature

- Chemical Resistance:** When properly applied, nameplate and decorative trim parts will hold securely after exposure to numerous chemicals including gasoline, oil, Freon (TM) TF, sodium chloride solution, mild acids and alkalis.
- Heat Resistance:** The #100 “Hi-Temperature” adhesive is usable for short periods (minutes, hours) at temperatures up to 450 degrees F (232 degrees C) and for longer periods of time (days, weeks) up to 300 degrees F (149 degrees C).
- Low Service Temp:** -40 degrees F (-40 degrees C).
- Shelf Life:** Product retains its performance and properties for two years from date of manufacture if properly store at room temperature conditions of 72 degrees F (22 degrees C) and 50% R.H. Storage in plastic bag is recommended.

Special Considerations/Application Tips

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 deg. F (38 deg. C) to 130 deg. F (54 deg. C), causing the adhesive to develop intimate contact with the bonding surface.

Ideal adhesive application temperature range is 70 deg. F to 100 deg. F (21 deg. C to 38 deg. C). Initial application to surfaces at temperatures below 50 deg. F (10 deg. 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 satisfactory. For more specific information contact our Customer Service and Sales Support “hot line” at 1-800-223-7427.

The liner used for 9461P and 9462P is not intended to provide premium release characteristics. Testing is urged for applications where liner release is critical. These products are not recommended for use with non-transferable facestocks—such as Scotch 8070, 8071, 8072 or 8074 facestocks—because of the potential for liner caused pre-destruct.

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