3M™ Adhesive Transfer Tape 9461P

Last Revision Date: May, 2022

Product Description

The 3M™ Adhesive Transfer Tapes with 3M™ High Temperature Acrylic Adhesive 100 are designed for temperature exposure to 450°F (232°C) for short periods of time and/or solvent resistance. They have exceptional shear values even at elevated temperatures. They also offer low “outgassing” properties, which is an important consideration for the aerospace, automotive and electronic industries.

Product Features

3M™ Adhesive Transfer Tapes 941, 966, 9461P, 9461PC and 9462P use the same 3M™ High Temperature Acrylic Adhesive 100 and come with different liners for a variety of die cutting applications. 3M™ Adhesive Transfer Tape 965 uses a slightly modified 3M™ High Temperature Acrylic Adhesive 100 to provide excellent resistance to jet fuel and other chemicals for identification labels on aircraft.

- Excellent bond to metal and high surface energy plastics.
- Outstanding temperature and chemical resistance.
- Two adhesive thicknesses: 1 mil for thin profile labels and 2 mil for rougher surfaces.
- Low outgassing and low leachable chloride, important considerations for electronic and aerospace industries.
- Available on various liners for specialized processing:
  - 62# Densified Kraft for die-cutting metal nameplates
  - 55# Densified Kraft for rotary die-cutting specialty labels
  - 58# Polycoated Kraft for moisture stability

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	Additional Information
Adhesive Type	Acrylic	
Liner	55# Densified Kraft with “3M” printed in green	
Liner Thickness	0.08 mm	
Total Tape Thickness (mil)	1.16 mil	View
Test Method: ASTM D3652		
Total Tape Thickness (mm)	0.03 mm	View
Test Method: ASTM D3652		

Liner Print	None
Liner Thickness	3.2 mil
Dispenser Selection	For assistance in helping you determine the best dispenser for your application, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.

Typical Performance Characteristics

Additional Test notes

Use on “Low Surface Energy Plastics” such as Polypropylene is not recommended. Consider other 3M™ Adhesive Transfer Tapes with 3M™ Adhesive 300, 300MP, 350 or 300LSE.

Property	Values	Additional Information
90° Peel Adhesion	9.3 N/cm	View

Test Method: ASTM D3330

Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	85 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Stainless Steel
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	3.9 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: ABS
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	36 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C

Temp F: 72F
Environmental Condition: 50%RH
Substrate: ABS
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	48 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 20.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Stainless Steel
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

Short Term Temperature Resistance	450 °F
Short Term Temperature Resistance	232 °C
Long Term Temperature Resistance	204 °C
Long Term Temperature Resistance	400 °F

Static Shear	10000 min	View

Test Method: ASTM D3654

Notes: 1in x 1in size; test terminated after 10,000 minutes

Static Shear	10000 min	View

Test Method: ASTM D3654

Notes: 1in x 1in size; test terminated after 10,000 minutes

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Static Shear	10000 min	View

Test Method: ASTM D3654

Notes: 1in x 1in size; test terminated after 10,000 minutes

Static Shear	10000 min	View

Test Method: ASTM D3654

Notes: 1in x 1in size; test terminated after 10,000 minutes

90° Peel Adhesion	5.3 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 20.0
Dwell Time Units: min
Temp C: 23C
Temp F: 72F
Environmental Condition: 50%RH
Substrate: Stainless Steel
Backing: 2 mil PET

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	13 N/cm	View

Test Method: ASTM D3330

Substrate: Stainless Steel
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	119 oz/in	View

Test Method: ASTM D3330

Substrate: Stainless Steel
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	2 N/cm	View

Test Method: ASTM D3330

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Substrate: ABS
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

90° Peel Adhesion	18 oz/in	View

Test Method: ASTM D3330

Dwell/Cure Time: 72.0
Dwell Time Units: hr
Temp C: 23C
Temp F: 72F
Substrate: ABS
Backing: 2 mil Aluminum Foil

Notes: 12 in/min (300 mm/min)

Liner Release	29 g/in

Available Sizes

Property	Values	Additional Information

Standard Roll Length	180 yd
Minimum Available Width	1 in
Maximum Available Width	48 in
Core Size (ID)	76.2 mm
Core Size (ID)	3 in

Electrical and Thermal Properties

Property	Values	Additional Information
Insulation Resistance	>1 x 10^15 Ω	View

Test Method: Mil-I-46058C

Notes: test voltage = 100 VDC

Insulation Resistance	1.5 x 10^11 Ω	View

Test Method: Mil-I-46058C

Notes: test voltage = 100 VDC

Insulation Resistance	9.4 x 10^10 Ω	View

Test Method: Mil-I-46058C

Notes: test voltage = 100 VDC

Insulation Resistance	9.7 x 10^12 Ω	View

Test Method: Mil-I-46058C

Notes: test voltage = 100 VDC

Dielectric Constant 1KHz	2.92	View

Test Method: ASTM D150

Temp C: 23C
Temp F: 72F

Dissipation Factor 1KHz	0.025	View

Test Method: ASTM D150

Temp C: 23C
Temp F: 72F

Dielectric Strength	1100 V/mil	View
Test Method: ASTM D149		
Thermal Conductivity	0.103 (btu-ft)/(h-ft²-°F)	View
Test Method: ASTM C518		
Thermal Conductivity	0.178 W/m/K	View
Test Method: ASTM C518		
Thermal Conductivity	0.106 (btu-ft)/(h-ft²-°F)	View
Test Method: ASTM C518		
Thermal Conductivity	0.183 W/m/K	View
Test Method: ASTM C518		
Thermal Conductivity	0.108 (btu-ft)/(h-ft²-°F)	View
Test Method: ASTM C518		
Thermal Conductivity	0.187 W/m/K	View
Test Method: ASTM C518		
Volume Resistivity	4 x 10^15 Ω-cm	View
Test Method: ASTM D257 Temp C: 23C Temp F: 73F		
Surface Resistivity	>1 x 10^15 Ω	
Surface Resistivity	>5.6 x 10^16 Ω	
Coefficient of Thermal Expansion	19.9 x 10^-5 m/m/°C	View
Test Method: ASTM D696		
Coefficient of Thermal Expansion	58.4 x 10^-5 m/m/°C	View
Test Method: ASTM D696		

Typical Environmental Performance

Property	Values	Additional Information
Chemical and Environmental Exposure	The 3M™ High Temperature Acrylic Adhesive 100 is well known in industry for environmental and chemical resistance. For many applications, any one of the products in this grouping will perform satisfactorily when exposed to different chemicals or temperatures. Jet fuels, however, are a challenge for pressure sensitive products. More specifically, the Aviation Turbine Fuel, Grade JP-4 (MIL H-T-5624), will attack many of the best adhesives within 72 hours. In response to the demands of this market and the corresponding military specification MIL-T- 9906C, 3M™ Adhesive Transfer Tape 965 was developed as it differs slightly in chemistry from the rest of the 3M adhesive 100 family to provide the extra chemical resistance. - In addition to the added fuel resistance, 3M tape 965 retains all of the notable features of the adhesive 100: excellent adhesion to metals, good adhesion to high surface energy plastics, low outgassing, and excellent static shear values for room temperature and heated conditions. The chart below shows adhesion values (to stainless steel) of 3M™ Adhesive Transfer Tapes 965 and 966, with an emphasis on fuel and oil exposure. The data represents representative or typical values and should not be used for specification purposes.	
Environmental Resistance	Bond Build-up: The bond strength of 3M™ Adhesive 100 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°F (32°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, the bond actually shows an increase in strength. - Temperature Cycling Resistance: Bond strength generally increases after cycling four times through: 4 hours at 158°F (70°C) 4 hours at -20°F (-29°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™ TF, sodium chloride solution, mild acids and alkalis.
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Heat Resistance:
The 3M adhesive 100 is usable for short periods (minutes, hours) at temperatures up to 450°F (232°C) and for longer periods (days, weeks) up to 300°F (149°C).
-
Low Temperature Service: -40°F (-40°C). Parts should be tested for low temperature shock service.

Storage and Shelf Life

Humidity controlled storage 60°F (16°C) to 80°F (27°C) and 40 to 60% R.H. and in a plastic bag.
If stored properly, product retains its performance and properties for 24 months from date of manufacture.

Recognition/Certification

TSCA: These products are defined as articles under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements. Additional regulatory information for IATD products is available on the regs website: www.3m.com/regs.
MSDS: 3M has not prepared a MSDS for these products which are not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, the products should not present a health and safety hazard. However, use or processing of the products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards.
UL: 3M™ Adhesive Transfer Tapes 941, 966 and 9462P have been recognized by Underwriters Laboratories Inc. under Standard UL 969 Marking and Labeling in File MH26206. For more information on the UL Certification, please visit the website at http://www.3m.com/converter, select UL Recognized Materials, and then select the specific product area.

Bottom Matter

3M
Industrial Adhesives and Tapes Division
3M Center, Building 225-3S-06
St. Paul, MN 55144-1000
800-362-3550

Trademarks

Automotive Disclaimer

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Handling/Application Information

Application Examples

Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C) and 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 satisfactory. For more specific information, contact Customer Service at 1-800-223-7427.

The liner used for 3M™ Adhesive Transfer Tapes 9461P, 9461PC 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 3M™ Label Material 8070, 8071 or 8074 because of the potential for liner caused pre-destruct.

3M™ Adhesive Transfer Tape 965 has been specially modified to provide outstanding performance for fuel line identification labels, bar code labels for harsh environments and specially performance-engineered labels for automotive, aerospace and industrial markets. It also meets MIL-T-9906C specification requirements.

Application Techniques

For maximum bond strength the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane or isopropyl alcohol.*

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.

*Note: Carefully read and follow the manufacturer's precautions and directions for use when working with solvents. These cleaning recommendations may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/p/d/b40065965/
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=9461P

ISO Statement

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

Information

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