SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

현장을 이해하고, 필요한 솔루션을 연결합니다.

산업안전 · 추락방지 시스템
산업용 소재 · 건축자재
제품 제안부터 공급·시공·설치·교육까지



COMPANY INFORMATION

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TECHNICAL DOCUMENTS

인증서 · 데이터시트 · 기술자료

제품의 규격과 성능, 인증 및 적용 조건을 확인하기 위한 자료입니다.

ABOUT SNAPSHOOT

제품 공급을 넘어, 현장에 맞는 해결책으로

스냅슛은 산업현장의 작업 환경과 요구 조건을 바탕으로
적합한 제품과 시스템을 제안합니다. 현장 실사를 통해 설치 조건을 확인하고,
공급부터 시공·설치 및 사용 교육까지 필요한 과정을 함께합니다.

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전신형 안전대 · 랜야드 · 안전블록
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English-US

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Supersedes: June, 2024

Technical Data Sheet

3M™ Adhesive Transfer Tape 965

Product Details

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

Attribute Name	Value
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.

Attribute Name	Test Method	Value
Adhesive Type		Acrylic
Total Tape Thickness	ASTM D3652	0.6 mm (2.3 mil)
Liner		55# Densified Kraft liner
Liner Thickness		0.08 mm (3.2 mil)

Typical Performance Characteristics

90° Peel Adhesion

Temperature: 23 °C (73 °F)
Test Method: ASTM D3330

Dwell Time	Substrate	Backing	Value
20 min	Stainless Steel	2 mil PET	4.9 N/cm (45 oz/in) [1]
72 h	ABS	2 mil Aluminum Foil	7.5 N/cm (69 oz/in) [1]
72 h	Stainless Steel	2 mil Aluminum Foil	7.9 N/cm (72 oz/in) [1]

[1] 304 mm/min (12 in/min)

Temperature: 23 °C (73 °F)

Attribute Name	Value
Liner Release	22 g/in

Static Shear

Test Method: ASTM D3654

Temperature	Test Condition	Value
23 °C (73 °F)	2000 g	10,000 min [1]
232 °C (450 °F)	400 g	10,000 (showed some slippage) min [1]
70 °C (158 °F)	1000 g	10,000 min [1]
93 °C (200 °F)	1000 g	10,000 min [1]

[1] 25 x 25 mm (1 in x 1 in) sample area, test terminated after 10,000 minutes

Attribute Name	Value
Short Term Temperature Resistance	232 °C (450 °F) [1]
Long Term Temperature Resistance	204 °C (400 °F) [2]

[1] Short Term (minutes, hour)

[2] Long Term (day, weeks)

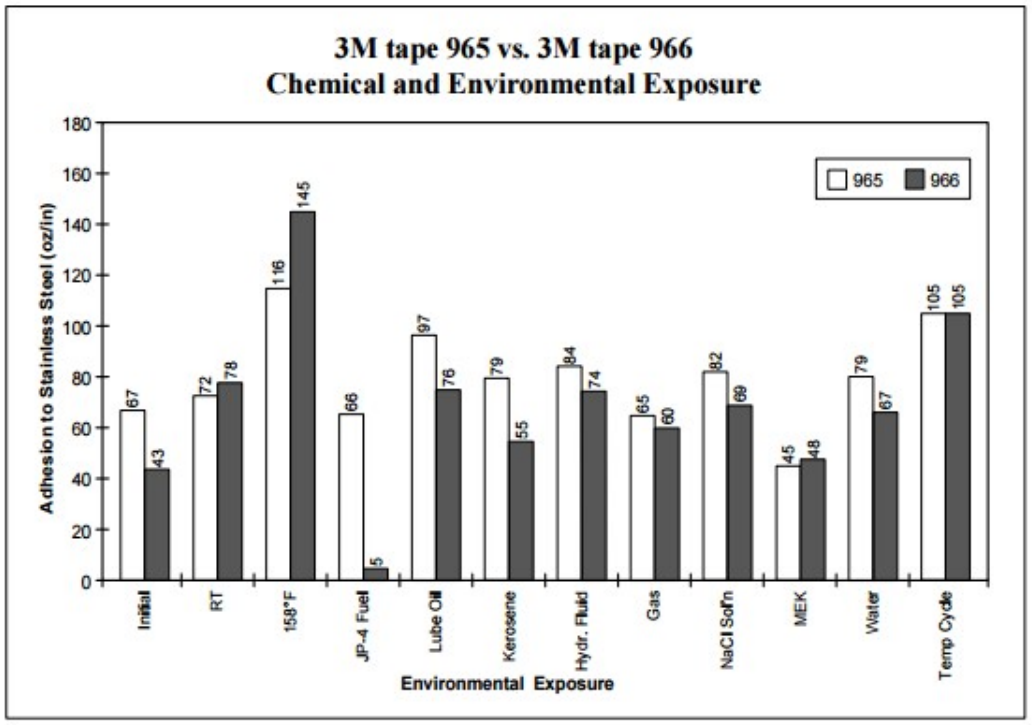
Attribute Name	Value
Additional Test notes	Use on “Low Surface Energy Plastics” such as Polypropylene is not recommended. Consider other 3M™ Adhesive Transfer Tapes with 3M™ Adhesive 300, 300MP, 350 or 300LSE.

Typical Environmental Characteristics

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.

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.

Electrical and Thermal Properties

Attribute Name	Test Method	Temperature	Test Condition	Value
Coefficient of Thermal Expansion	ASTM D696		First Heat (125 ~ 175 °C)	19.9 x 10^{-5} m/m/°C
Coefficient of Thermal Expansion	ASTM D696		Second Heat (25 ~ 175 °C)	58.4 x 10^{-5} m/m/°C
Thermal Conductivity	ASTM C518	41 °C (107 °F)		0.178 W/m/K (0.103 (btu-ft)/(h-ft²-°F))
Thermal Conductivity	ASTM C518	71 °C (160 °F)		0.183 W/m/K (0.106 (btu-ft)/(h-ft²-°F))
Thermal Conductivity	ASTM C518	101 °C (214 °F)		0.187 W/m/K (0.108 (btu-ft)/(h-ft²-°F))

Attribute Name	Test Method	Temperature	Test Condition	Value
Dielectric Constant	ASTM D150	23 °C (73 °F)	1 KHz	2.92
Dissipation Factor	ASTM D150	23 °C (73 °F)	1 KHz	0.025
Dielectric Strength	ASTM D149		500 vac, rms[60 hz/sec]	1,100 V/mil
Insulation Resistance	Mil-I-46058C		24 hr after moisture resistance	9.7 x 10^{12} Ω [1]
Insulation Resistance	Mil-I-46058C		Cycle #10	9.4 x 10^{10} Ω [1]
Insulation Resistance	Mil-I-46058C		Cycle #4	1.5 x 10^{11} Ω [1]
Insulation Resistance	Mil-I-46058C		Before moisture resistance	>1 x 10^{15} Ω [1]
Surface Resistivity				>1 x 10^{15} Ω
Volume Resistivity	ASTM D257	23 °C (73 °F)		4 x 10^{15} Ω-cm

[1] test voltage = 100 VDC

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.

Storage and Shelf Life

Store under normal conditions of 16° to 27°C (60° to 80°F) and 40 to 60% relative humidity in a sealed plastic bag, out of direct sunlight. For best performance, use this product within 24 months from date of manufacture.

Available Sizes

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

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.

Automotive Disclaimer

Select Automotive Applications:
This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

Information

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ISO Statement

This product was manufactured under a 3M quality system registered to ISO 9001 standards.

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