3M

Single Coated Foam Tapes

Technical Data **December, 1996**

(Supersedes November, 1993)

Product Description

3M™ 4100 Series Urethane Foam Tapes
A natural-white, firm, high-density, open-cell foam with pressure-sensitive adhesive on one side. The acrylic adhesive (A-25) offers high initial quick stick to many types of surfaces along with excellent shear strength and high temperature performance. The adhesive is protected by a 0.003 inch (0.08 mm) thick white, silicone treated paper liner.

4104	1/4 in.	(6.0 mm) thick
4108	1/8 in.	(3.0 mm) thick
4116	1/16 in.	(1.5 mm) thick

3M™ 4310 Series Urethane Foam Tapes
A conformable, grey, low-density, open-cell foam with pressure-sensitive acrylic adhesive (A-30) on one side. The adhesive is protected by a 0.003 inch (0.08 mm) thick tan, silicone treated paper liner.

4317	3/8 in.	(9.5 mm) thick
4314	1/4 in.	(6.0 mm) thick
4318	1/8 in.	(3.0 mm) thick

3M™ 4500 Series Vinyl Foam Tapes
A flexible, black, high-density, closed-cell foam with pressure-sensitive acrylic adhesive (A-30) on one side. A 0.003 inch (0.08 mm) thick white, silicone treated paper liner is applied to the non-adhesive side of the foam so that the PVC can be cut to length and applied while leaving the liner in place.

4504	1/4 in.	(6.0 mm) thick
4508	1/8 in.	(3.0 mm) thick
4516	1/16 in.	(1.5 mm) thick

3M™ 4700 Series Vinyl Foam Tapes
A flexible, black, medium-density, closed-cell foam with a pressure-sensitive acrylic adhesive (A-30) on one side. The adhesive is protected by a 0.004 inch (0.1 mm) thick white, silicone treated paper liner which allows for die cutting without having to laminate another liner to the foam.

4714	1/4 in.	(6.0 mm) thick
4718	1/8 in.	(3.0 mm) thick
4726	1/16 in.	(1.5 mm) thick

Single Coated Foam Tapes

		Test Methods	Units
Adhesive Family			
Approximate Thickness			inch (mm)
Thickness Tolerance			%
Color			
Release Liner			inch (mm)
Liner Color			
Standard Length			yard (meter)
Maximum Length			yard (meter)
Standard Roll Diameter			inch (mm)
Available Widths: (Min.-Max.)			inch (mm)
Normal Slitting Tolerance			inch (mm)
Density	Foam with adhesive	ASTM D-3574	lb/cu ft (kg/cu m)
Hardness	Foam with adhesive	ASTM D-2240	Shore 00
Compression Deflection	Compress 25%	ASTM D-3574	psi (kPa)
Compress Set		ASTM D-1667	% loss
Tensile Strength	Die “A”	ASTM D-3574	psi (kPa)
Elongation	Die “A”	ASTM D-3574	%
Thermal Conductivity		ASTM C-518	BTU/hr/°F/sq ft/inch (W/m-K)
Dielectric Strength		ASTM D-149	volts/mil
Surface Resistivity	Non-adhesive side	ASTM D-257	ohms/sq
Surface Resistivity	Adhesive side	ASTM D-257	ohms/sq
Water Absorption	30% Compression	ASTM D-1056	% by Volume
Flammability Recognition	Foam with adhesive	UL 94HBF File #E76581	meets requirements
Flammability Recognition	Foam with adhesive	F.M.V.S.S. 302	meets requirements
Flammability Recognition	Foam with adhesive	F.A.R. 25.853 B-2	meets requirements
Flammability Recognition	Foam with adhesive	F.A.R. 25.853 B-3	meets requirements
Mold Resistance	Foam with adhesive	ASTM G21-70	Growth after 28 days

Environmental Exposure

Resistance to high temperature service conditions

4100 Series – 200°F (93°C) continuous
350°F (176°C) - 30 minutes maximum time

4310 Series – 150°F (66°C) continuous
250°F (121°C) - 30 minutes maximum time

4500 Series – 150°F (66°C) continuous
250°F (121°C) - 30 minutes maximum time

4700 Series – 150°F(66°C) continuous
250°F (121°C) - 30 minutes maximum time

Resistance to low temperature service conditions

4100 Series-Cold flex at 0°F (-18°C) no cracks*

4310 Series-Cold flex at -20°F (-29°C) no cracks*

4500 Series-Cold flex at 0°F (-18°C) no cracks*

4700 Series-Cold flex at 0°F (-18°C) no cracks*

*Tape slowly bent around a 1/4 in. diameter mandrel

Solvent Resistance*

Solvent	4100 Series Adhesive Foam		4310 Series Adhesive Foam		4500 Series Adhesive Foam		4700 Series Adhesive Foam	
Acetone	Softens	Softens	No effect	No effect	Softens	Swells	Softens	Swells
Ammonia Cleaner	No effect	No effect	No effect	No effect	No effect	No effect	No effect	No effect
Engine Oil	No effect	No effect	No effect	No effect	No effect	No effect	No effect	No effect
Gasoline	Softens	Swells	Softens	No effect	No effect	No effect	No effect	No effect
JP-4 (jet fuel)	Softens	Swells	Softens	No effect	No effect	No effect	No effect	No effect
MEK	Softens	Softens	Softens	Swells	Softens	Swells	Softens	Swells
Mineral Spirits	No effect	Swells	Softens	No effect	No effect	No effect	No effect	No effect
Soapy Water	No effect	No effect	No effect	No effect	No effect	No effect	No effect	No effect

*Visual observations of tape bonded to steel panels and immersed totally in solvents for 24 hours.

Products

Typical Physical Properties and Performance Characteristics

	4104	4108	4116	4314	4317	4318
	A-25	A-25	A-25	A-30	A-30	A-30
	0.250 (6)	0.125 (3)	0.062 (1.5)	0.250 (6)	0.375 (9.5)	0.125 (3)
	15	15	20	15	10	30
	Natural-white	Natural-white	Natural-white	Charcoal grey	Charcoal grey	Charcoal grey
	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)
	White	White	White	Tan	Tan	Tan
	18 (16.5)	36 (32.9)	36 (32.9)	18 (16.5)	9 (8.2)	36 (32.9)
	25 (22.9)	50 (45.7)	100 (91.4)	18 (16.5)	9 (8.2)	36 (32.9)
	15 (380)	15 (380)	11 (280)	15 (380)	13 (330)	15 (380)
	1/4-36 (6-914)	1/4-46 (6-1168)	1/4-46 (6-1168)	1/4-46 (6-1168)	3/8-46 (9-1168)	1/4-46 (6-1168)
	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)
	12 (192)	16 (256)	18 (288)	2 (32)	2 (32)	2 (32)
	75	75	75	8	6	10
	4 (27.6)	6 (41.4)	12 (82.8)	0.3 (2.1)	0.3 (2.1)	0.3 (2.1)
	8	8	12	5	5	5
	115 (795)	130 (895)	115 (795)	25 (170)	25 (170)	25 (170)
	100	80	80	125	125	125
	0.5 (0.066)	0.5 (0.066)	0.5 (0.066)	0.3 (0.043)	0.3 (0.043)	0.3 (0.043)
	50	70	90	40	40	20
	1×10^{15}	6×10^{14}	1×10^{14}	2×12^{12}	3×10^{12}	6×10^{12}
	1×10^{15}	1×10^{15}	3×10^{15}	6×10^{12}	5×10^{12}	1×10^{13}
	open cell - NA	open cell - NA	open cell - NA	open cell - NA	open cell - NA	open cell - NA
	yes	no	no	no	yes	no
	yes	yes	yes	yes	yes	no
	yes	yes	no	yes	yes	no
	yes	yes	yes	yes	yes	yes
	none	none	none	none	none	none

Product Features

4100 series urethane foam tapes are a firm rigid open cell urethane that offers excellent cushioning characteristics while allowing air or gas vapors to pass through the open cells. This product is placed on a 1.5 in. wide common core when the tape is 3/4 in. or less in width. Skip slitting is also used for roll stability on these narrow sizes.

Note: 4100 series urethane tapes may turn yellow when exposed to light. Such yellowing affects only the appearance and not the physical performance of the tapes.

4310 series urethane foam tapes are a very soft, conformable low density foam which can help seal out air, dust and light when compressed 50%. Application ideas include: recessed lighting, door, window and cabinet seals. It also can be used to help cushion, damp sound and absorb vibration in electronics such as printers, key boards, computers, aircraft lights and automotive dash boards. This tape is available on individual cores and in blocks of 1.5 inches when the tape is 3/4 inch or less in width. **Note:** Extra care should be taken when handling these delicate rolls of tape.

The 4500 and 4700 series vinyl foam tapes are durable, flexible closed cell vinyls which can help seal out dust, light and moisture when placed under 30% compression. These vinyl tapes offer excellent aging characteristics and will remain flexible when exposed to elevated temperatures and UV light. Application ideas include: dust and moisture seal for appliances, computers, copiers and other electronic and transporation equipment. These tapes are suitable for use in clean rooms.

Products

Typical Physical Properties and Performance Characteristics

	4504	4508	4516	4714	4718	4726
	A-30	A-30	A-30	A-30	A-30	A-30
	0.250 (6)	0.125 (3)	0.062 (1.5)	0.250 (6)	0.125 (3)	0.062 (1.5)
	15	15	20	15	20	30
	Black	Black	Black	Black	Black	Black
	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.10)	0.003 (0.10)	0.003 (0.10)
	White	White	White	White	White	White
	18 (16.5)	36 (32.9)	36 (32.9)	18 (16.5)	36 (32.9)	36 (32.9)
	25 (22.9)	50 (45.7)	100 (91.4)	25 (22.9)	50 (45.7)	100 (91.4)
	15 (380)	15 (380)	11 (280)	15 (380)	15 (380)	11 (280)
	1/4-44 (6-1117)	1/4-44 (6-1117)	1/8-44 (3-1117)	1/4-46 (6-1168)	1/4-46 (6-1168)	1/8-46 (3-1168)
	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)	± 1/32 (± 1.0)
	20 (320)	20 (320)	25 (400)	14 (225)	18 (288)	20 (230)
	50	50	55	40	50	50
	4 (27.6)	4 (27.6)	4 (27.6)	2 (13.8)	2 (13.8)	3 (20.7)
	15	15	15	5	5	15
	90 (620)	100 (690)	130 (895)	75 (515)	95 (650)	130 (895)
	200	200	200	200	200	200
	0.3 (0.043)	0.3 (0.043)	0.3 (0.043)	0.3 (0.043)	0.3 (0.043)	0.3 (0.043)
	50	100	140	50	60	80
	1×10^{11}	4×10^{10}	1×10^{10}	3×10^{10}	5×10^{10}	2×10^{11}
	2×10^{11}	1×10^{11}	2×10^{11}	2×10^{11}	2×10^{11}	4×10^{11}
	5	5	5	10	10	10
	yes	yes	yes	yes	yes	yes
	yes	yes	yes	yes	yes	yes
	yes	yes	yes	yes	yes	yes
	yes	yes	yes	yes	yes	yes
	none	none	none	none	none	none

General Information

3M Single Coated Foam Tapes have adhesion to a variety of substrates, including latex-painted wood, lacquered wood, enameled steel, glass, aluminum, stainless steel, acrylic, ABS, and PVC (non-plasticized). Tape adhesion is typically satisfactory within 20 minutes and continues to build with additional time. The user is responsible for determining whether the tape is fit for a particular purpose and suitable for user's method of application.

For Tape Application:

1. Bond strength is dependent upon the amount of adhesive-to-surface contact. Firm application pressure develops better adhesive contact and thus improves bond strength.
2. To obtain optimum adhesion, the bonding surface must be clean, dry, and well unified. Some typical surface cleaning solvents are isopropyl alcohol and heptane. **Note:** Be sure to follow the solvent manufacturer's directions for use and precautions when handling solvent.s
3. 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 because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

Note: Values presented have been determined by standard test methods and are typical or representative values not to be used for specification purposes.

Shelf Life is 18 months from date of manufacture when stored in the original cartons at 60-80°F (156-27°C) and 50% relative humidity.

Single Coated Foam Tapes

For Additional Information

For additional information call toll-free 1-800-362-3550. For sales assistance, call the 3M branch office nearest you. Address correspondence to: 3M Industrial Tape and Specialties Division, 3M Center Bldg. 220-8E-04, St. Paul, MN 55144-1000. Our FAX number is 612-733-9175.

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ISO 9002

This Industrial Tape and Specialties Division product was manufactured under a 3M quality system registered to ISO 9002 standards.

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Industrial Tape and Specialties Division
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10% post-consumer

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