



Acrylic Foam Tape

4611A, 4612A, 4615A, & 4616A

Technical Data Sheet

June 1998

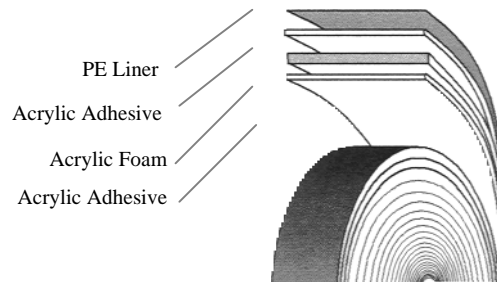
General Description

3M Acrylic Foam Tape (AFT) is a grey, double-coated acrylic foam tape commonly used for the attachment of automotive exterior trim parts. These AFT are medium density foam tapes providing a balance of conformability and strength. The acrylic foam core has unique viscoelastic properties that allow it to elongate and relax when put under load, thereby minimising stress on the adhesive bond line.

Their use in actual auto part applications spans over ten years and their high performance is well acknowledged in the automotive market.

Product Construction

3M Acrylic Foam Tape



Shelf Life

One year from date of receipt by customer when stored at 22°C (72°F) and 50% relative humidity.

Physical Properties

Values shown are typical values not to be used for specification purposes.

Tape	Tape		Liner	
	Thickness (mm)	Colour	Colour	Material
# 4616A	0.2	Grey	White	Polyethylene
# 4615A	0.4		Red	
# 4612A	0.8			
# 4611A	1.2			

Features

- Shows a high initial adhesion strength, with good tape wet-out area.
- Provides a very high final adhesion and peel strength.
- Excels in a variety of weather, solvent and high temperature resistance.
- Follows the shrinkage and elongation of the plastic part (induced by temperature changes), and has good stress relaxation properties.

Usage

Applications involving high surface energy plastics and light weight metals (painted or unpainted). The construction of the tape also allows in some cases the pre-assembly of aluminium products prior to powdercoating. NOTE: This needs to be thoroughly evaluated for each application as it may not work in every application.

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Test Results

Performance tests are run using standard test procedures. These values presented are typical values not to be used for specification purposes.

Group One:

Items		Substrates	# 4616A	# 4615A
Thickness (mm)			0.2	0.4
180° peel strength N/25mm (kgf/25mm)	Initial state	Painted panel	17.6 (1.8)	19.6 (2.0)
		PVC panel	26.5 (2.7)	29.4 (3.0)
	Normal state	Painted panel	20.6 (2.1)	25.5 (2.6)
		PVC panel	29.4 (3.0)	32.2 (3.3)
	At high temperature	Painted panel	12.7 (1.3)	15.7 (1.6)
		PVC panel	13.7 (1.4)	15.7 (1.6)
	Heat ageing	Painted panel	31.4 (3.2)	36.3 (3.7)
		PVC panel	9.8 (1.0)	20.6 (2.1)
	Warm water immersion	Painted panel	24.5 (2.5)	30.4 (3.1)
		PVC panel	22.5 (2.3)	27.4 (2.8)
Shear strength MPa (kgf/c)	Initial state	Painted panel and PVC panel	0.84 (8.6)	0.77 (7.9)
	Normal state		0.87 (8.9)	0.81 (8.3)
	At high temperature		0.29 (3.0)	0.25 (2.6)
	Warm water immersion		0.85 (8.7)	0.78 (8.0)
	Gasoline immersion		0.86 (8.8)	0.78 (8.0)
	Wax remover immersion		0.76 (7.8)	0.71 (7.2)

Painted panel: White colour painted panel used on a vehicle

PVC panel: N200 primer (10 times diluted C100 primer) is applied to the PVC panel

Group Two:

Items		Substrates	# 4612A	# 4611A
Thickness (mm)			0.8	1.2
180° peel strength N/25mm (kgf/25mm)	Initial state	Painted panel	23.5 (2.4)	26.5 (2.7)
		PVC panel	36.3 (3.7)	42.1 (4.3)
	Normal state	Painted panel	31.4 (3.2)	37.2 (3.8)
		PVC panel	37.2 (3.8)	43.1 (4.4)
	At high temperature	Painted panel	19.6 (2.0)	20.6 (2.1)
		PVC panel	20.6 (2.1)	21.6 (2.2)
	Heat ageing	Painted panel	44.1 (4.5)	50.0 (5.1)
		PVC panel	34.3 (3.5)	41.2 (4.2)
	Warm water immersion	Painted panel	38.2 (3.9)	42.1 (4.3)
		PVC panel	35.3 (3.6)	41.2 (4.2)
Shear strength MPa (kgf/c)	Initial state	Painted panel and PVC panel	0.72 (7.3)	0.63 (6.4)
	Normal state		0.74 (7.5)	0.63 (6.4)
	At high temperature		0.23 (2.3)	0.21 (2.1)
	Warm water immersion		0.70 (7.1)	0.60 (6.1)
	Gasoline immersion		0.73 (7.4)	0.62 (6.3)
	Wax remover immersion		0.62 (6.3)	0.55 (5.6)

Painted panel: White colour painted panel used on a vehicle

PVC panel: N200 primer (10 times diluted C100 primer) is applied to the PVC panel

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Test Methods

- (1) Thickness: Measured by a dial thickness gauge (in accordance with JIS Z0237)
- (2) 180° peel strength: Peel off the tape in 180° direction and measure the adhesion to the substrate with a tensile strength test machine after the exposures in the following conditions.
 - (a) Initial state: 23 x 20 min.
 - (b) Normal state: 23 x 24 hrs
 - (c) At high temperature: b) at 80°
 - (d) Heat ageing: b) 80 x 336 hrs. b)
 - (e) Warm water immersion: b) 40 water x 336 hrs. b)Tape size: 25mm width
Rolling pressure: 5kg roller one way
Peeling speed: 50mm/min
- (3) Shear strength: Measure the strength needed to shear
 - a), b), c), e) same conditions as 180° peel strength
 - (f) Gasoline immersion b) gasoline x 1 hr. b)
 - (g) Wax remover immersion: b) wax remover x 1 hr. b)Tape size: 25mm x 25mm
Rolling pressure: 5kg roller one way
Tensile speed: 50mm/min

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