



# Acrylic Plus Tape Series EX4500

## For Primerless Application of Exterior Trim Parts

### Technical Data Sheet

December 2014

#### General Description

3M™ Acrylic Plus Tape Series EX4500 is a series of deep black, double-coated acrylic foam tapes designed for the attachment of automotive exterior trim parts – without the use of adhesion promoter. 3M series EX4500 tapes offer an advanced adhesive system – on both sides of the product – that adheres well to traditional, medium surface energy, and scratch- and mar-resistant automotive paint and polymer systems. The initial product offering will be in the 45 mil (1.1 mm) caliper.

3M series EX4500 tapes offer the following key features:

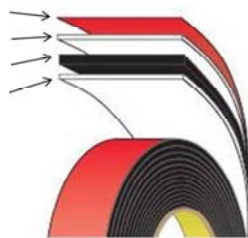
- Primerless adhesion capability – allowing for adhesion to medium surface energy plastics without the use of adhesion promoter.
- Excellent adhesion to traditional, low surface energy, and scratch and mar resistant automotive paints and medium surface energy plastics on both liner and non-liner sides of the product.
- Unique foam core that provides stress relaxation when high application loads are encountered, while maintaining tight bond-line aesthetics under normal conditions.
- Deep black color which provides excellent bond-line appearance.

Typical applications for 3M series EX4500 tapes include bumper sensors, garnishes, nested components and window visors, and other aftermarket accessories.

#### Product Construction

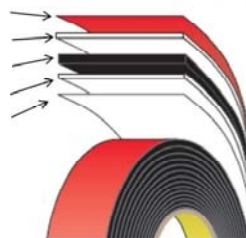
##### EX4511

ML2 polyethylene liner  
JLx-2 acrylic adhesive  
Black acrylic foam core  
JLx-1 acrylic adhesive



##### EX4511T

ML1 polyethylene liner  
JLx-2 acrylic adhesive  
Black acrylic foam core  
JLx-1 acrylic adhesive  
Secondary Liner



#### Liner Options

Liner	Configuration	Heat-Bond Tab Compatibility
ML1 Available on T versions (Levelwound Only)	Red Polyethylene 1-side silicone-coated with secondary liner	Yes (3M™ Tapping Tape 5400)
ML2	Red Polyethylene 2-side silicone-coated	No Contact Technical Service for options

#### Physical Properties

	EX4508	EX4511	EX4515
Thickness Range	N/A	1.14 mm (0.045 in.) +/- 0.13 mm (0.005 in.)	N/A
Density Range	N/A	592 kg/m3 (37 lb/ft3) +/- 56 kg/m3 (3.5 lb/ft3)	N/A

## **Roll Width and Length**

3M™ Acrylic Plus Tapes are initially available in the following standard widths. Millimeter widths are rounded to the nearest whole numbers and 1/8-inch increments starting with 1/4 inch.

**Minimum widths: 4 mm Levelwound, 5 mm Planetary (standard versions)**

### **Planetary**

EX4511

<b>Roll Width</b>	<b>Roll Width Tolerance</b>	<b>Roll Length (max)</b>
< 8 mm (< 0.276 in)	+/- 0.40 mm (+/-0.015 in)	66 meters (72 yards)
8 - 9 mm (0.276 – 0.375 in)	+/- 0.40 mm (+/-0.015 in)	99 meters (108 yards)
10 - 18 mm (0.394 – 0.709 in)	+/- 0.40 mm (+/-0.015 in)	132 meters (144 yards)
> 18 mm (> 0.709 in)	+/- 0.80 mm (+/- 0.031 in)	132 meters (144 yards)

### **Levelwound**

EX4511 – EX4511 T

<b>Roll Width</b>	<b>Roll Width Tolerance</b>	<b>Roll Length (max)</b>
4 - 14 mm (0.157 – 0.551 in)	+/- 0.40 mm (+/-0.015 in)	900 meters (984 yards)
15 - 16 mm (0.591 – 0.630 in)	+/- 0.40 mm (+/-0.015 in)	700 meters (765 yards)

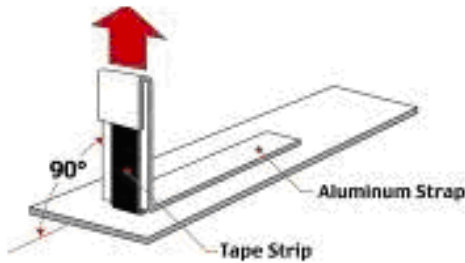
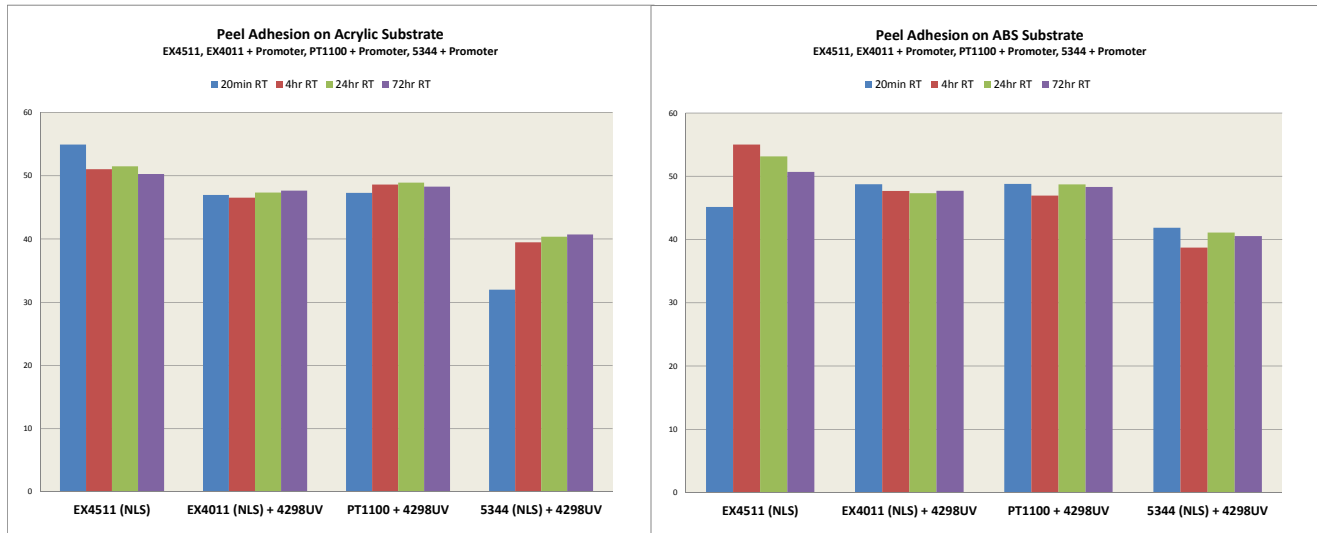
## **Performance Properties**

Typical performance of 3M™ Acrylic Plus Tape EX4511 is shown below. Peel values depend on plastic substrate characteristics and/or paint composition. These values are for reference only.

### **Notes:**

1. The following technical information and data is based upon limited 3M testing conditions and should not be used for specification purposes.
2. Care should be taken to make sure the surface is clean and dry prior to application of the tape and not to saturate the tape with strong polar solvents, like alcohols, after initial application.
3. After adhesion build, the JLx adhesive is durable to typical automotive environmental conditions and chemicals and provides a robust attachment solution. For questions regarding the application process, please contact your 3M technical service representative.
4. When using solvents, extinguish all ignition sources, including pilot lights and follow the manufacturer's precautions and directions for use.

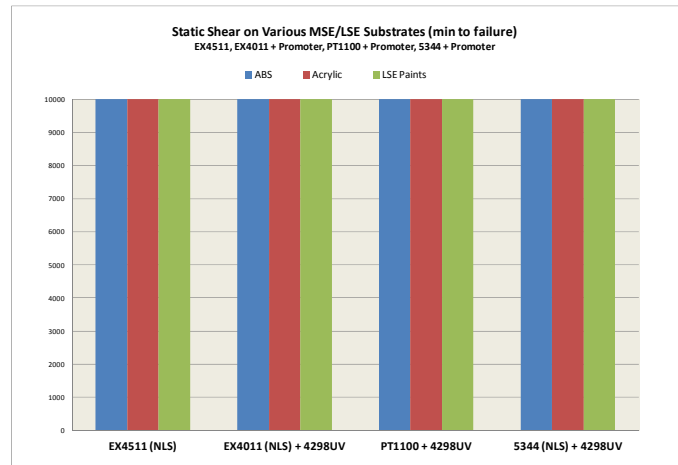
## 90° Peel Adhesion Testing



Peel Tested @ 300mm/min  
 All data shown in N/cm

Note: 4298UV is a 3M™ Adhesion Promoter

## Static Shear Performance



Static Shear Sample 1"x1"  
 24hr RT dwell – 500g @ 80C Test  
 No adhesion promoter used in LSE paint testing  
 Testing complete after 10k mins

Note: 4298UV is a 3M™ Adhesion Promoter

## Substrate Recommendations

Typical performance of 3M™ Acrylic Plus Tape EX4511 above is on Medium Surface Energy (MSE) substrates. Refer to the table below for indications on most suitable substrates for use with 3M tape EX4511. Please speak with a 3M technical service representative when using very low surface energy substrates such as RIM, PP or TPO.

EX4500 Recommended Substrate Matrix		
Paints	Medium to High Surface Energy	
	Low Surface Energy	
Plastics	ABS	
	Acrylic	
	AES	
	ASA	
	Polycarbonate	
	PC/ABS	
	PMMA	
	RIM	
	Nylon	
	TPO, PP/EPDM, PP	

Recommended  
 Contact your 3M technical service representative

## Shelf Life

One year from date of receipt by customer when stored at 4° C - 30° C (40° F - 100° F) and 0 - 95% relative humidity. Optimum storage conditions are 22° C (72° F) and 50% relative humidity.

## Contact Information

The information provided in this technical document is intended as a guide for this product. For more information or help in selecting a 3M product for an application, please contact your 3M technical service representative or call 1-800-328-1684.

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