



1-800-773-0062
www.marianinc.com

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

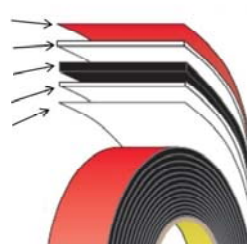
EX4511

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™ Tabbing 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

Roll Width	Roll Width Tolerance	Roll Length (max)
< 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

Roll Width	Roll Width Tolerance	Roll Length (max)
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)

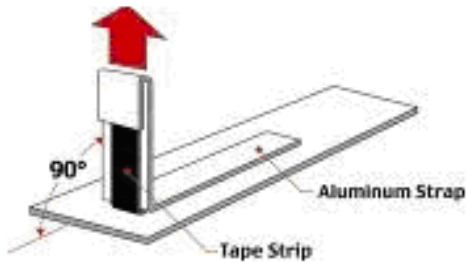
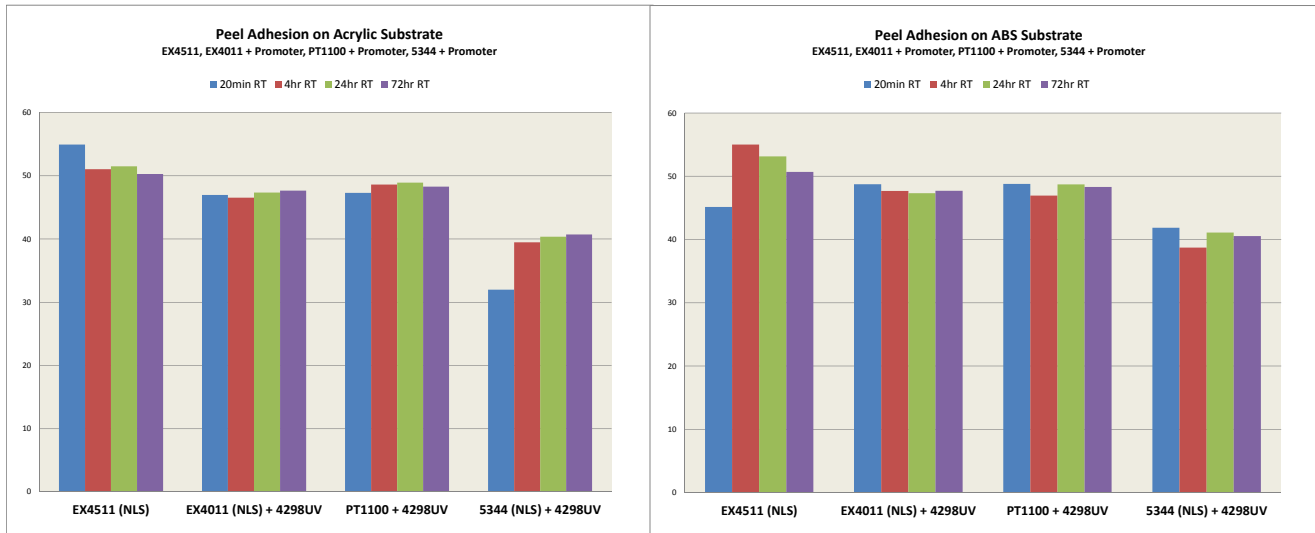
Performance Properties

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.

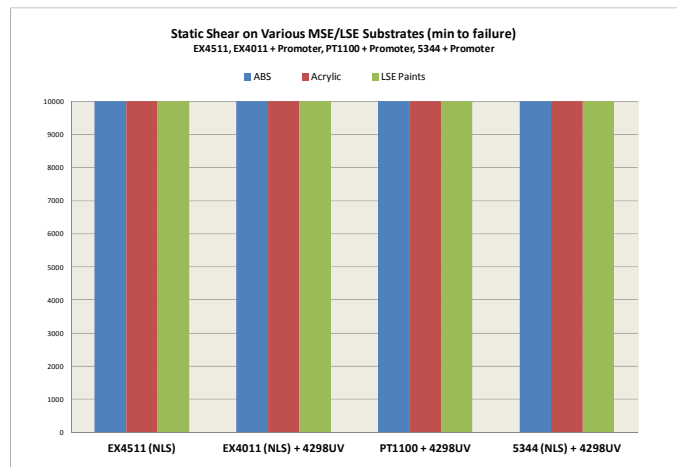
90° Peel Adhesion Testing



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.

Developmental Product: This 3M product is a developmental product that has not been introduced or commercialized for general sale, and its formulation, performance characteristics and other properties, specifications (if any), availability, and pricing are not guaranteed and are subject to change or withdrawal without notice.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty, Limited Remedy, and Disclaimer: This 3M product is sold or made available "AS IS." 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



Automotive Division
 3M Center, Building 223-1S-02
 St. Paul, MN 55144-1000
www.3M.com/autosolutions
 1-800-328-1684

© 3M 2014. All rights reserved.
 3M is a trademark of 3M Company
 Printed in U.S.A.



ISO/TS 16949:2009