



# Extreme Sealing Tape

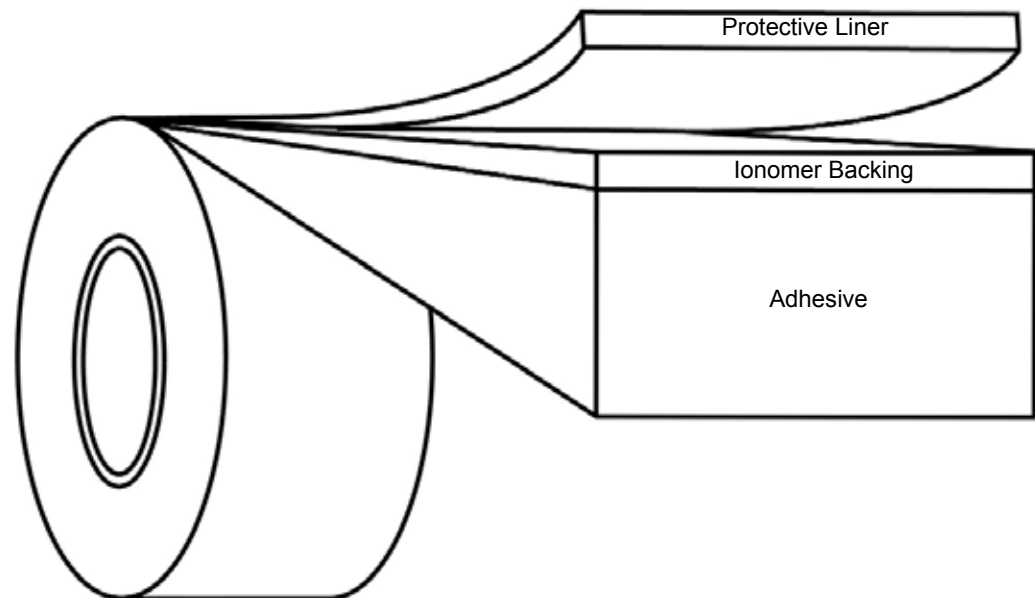
4411N • 4411G • 4412N • 4412G

Technical Data

October, 2011

**Product Description** 3M™ Extreme Sealing Tape is a family of single coated, pressure sensitive adhesive tapes designed for difficult sealing applications. The backing on this tape is an ionomer film that is very tough yet flexible and abrasion resistant. The very soft and thick acrylic adhesive has excellent sealing properties and good outdoor durability. This single coated tape is designed to seal over an existing joint, seam, or penetration. The adhesive is designed to adhere well to the ionomer film so that overlapping layers of this tape can be used while maintaining a strong seal.

## Construction



Construction	Thickness, mils (mm)				Description
	4411N	4411G	4412N	4412G	
Protective Release Liner	3 (0.08)				matte finish, translucent polyester film
Ionomer Backing	4 (0.1)				acrylic and ethylene copolymer
Adhesive	36 (0.9)		76 (1.9)		very conformable multi-purpose acrylic
Total Tape Thickness	40 (1.0)		80 (2.0)		without disposable release liner

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## Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

	3M™ Extreme Sealing Tape			
	4411N	4411G	4412N	4412G
Tape Colour	Translucent White	Translucent Grey	Translucent White	Translucent Grey
Thickness, mil (mm)	1.0 (40)		2.0 (80)	
Tape Density, (g/cm <sup>3</sup> ) lb/ft <sup>3</sup>	0.82 (51)			
Tape Tensile Strength, N/cm <sup>2</sup> (psi) (ASTM D-3759 with D-412 dog bone die C)	220 (320)		110 (160)	
Tape Elongation to Break (ASTM D-3759 with D-412 dog bone die C)	400%			
90 Degree Peel Adhesion, N/cm (lb/in) Based on ASTM D-3330; aluminum substrate, 72 hour room temp with 3M™ VHB™ Tape 5925 and aluminum peel strip backing, 3M™ Adhesion Promoter 111 used on substrates	14.6 (25.6)	15.3 (26.7)	18.1 (31.7)	17.6 (30.8)
Moisture Vapour Transmission Rate g/(m <sup>2</sup> day) (ASTM E96, Procedure E)	10.6			
Max Temperature Tolerance				
Short term (minutes, hours)	149°C (300°F)			
Long term (days, weeks)	93°C (200°F)			
High Pressure Water Resistance	Excellent			
Moisture Resistance	Excellent			
Thermal Shock Resistance	Excellent			
U.V. Resistance:	Samples passed adhesion tests after 2000 hours of accelerated aging. See "3M™ Extreme Sealing Tape 4412 - Exterior Durability Report; October, 2011"			

## Available Sizes

Standard Widths 19mm 25mm, 50mm, 65mm, 75mm, 100mm (3/4", 1", 2", 2.5", 3", 4")

Standard Length 32.9 meters (36 yards) for 4411N and 4411G  
16.5 meters (18 yards) for 4412N and 4412G

Core Inside Diameter 76.2 mm (3" )

Slitting Tolerance ± 0.8 mm (1/32")

Thickness Tolerance ± 10%

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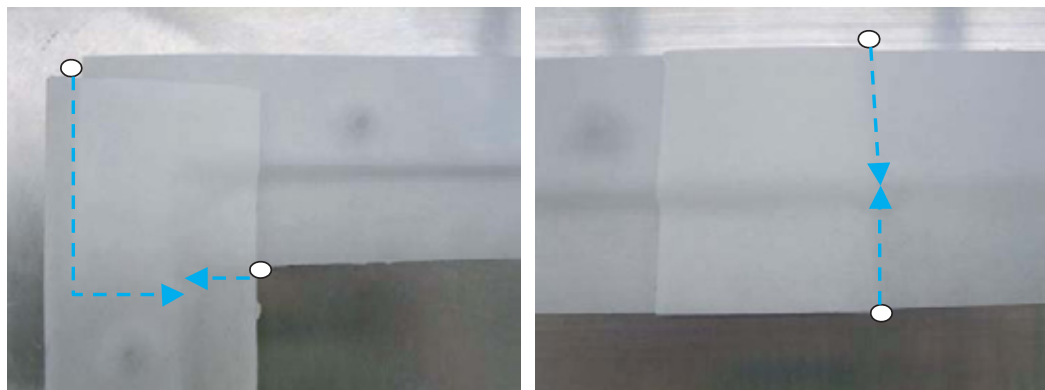
## Application Guidelines

Depending on the surfaces to be sealed, one of three basic surface preparations will be required:

- 1) Good cleaning with a 50:50 mixture of isopropyl alcohol\* and water followed by application of 3M™ Adhesion Promoter 111 for bonding to metals and most paints, or
- 2) Good cleaning with a 50:50 mixture of isopropyl alcohol\* and water followed by application of 3M™ Primer 94 for bonding to plastics and rubbers, or
- 3) Good cleaning with a 50:50 mixture of isopropyl alcohol\* and water followed by application of 3M™ Adhesion Promoter 115 for bonding to glass

Ideal tape application is accomplished when temperature is between 21°C (70°F) and 38°C (100°F). The tape generally reaches full bond strength after 24 hours but provides a seal immediately. Tape application to surfaces at temperatures below 10°C (50°F) is generally not recommended. Once properly applied, low temperature holding is generally satisfactory.

With the protective release liner still attached to the tape, apply tape by hand using light hand pressure. If applying the tape over a “step” or ridge, use a thin plastic tool to press the tape tightly into the corners of adjoining surfaces and around other irregularities. Using a soft roller, such as a medium nap paint roller, apply medium pressure to conform tape on contours, seam edges, rivets, or screw heads. Peel off the protective release liner. To optimize adherence and conformance to uneven surfaces, a final tape roll down should be done after the non-stretchy, release liner has been removed. **A very small dab of 3M™ 4000UV Hybrid Adhesive Sealant Fast Cure should be used at any corner or step where sections of Extreme Sealing Tape meet or terminate or where sealing over irregular surfaces.**



The blue arrows in the above images indicate potential capillary paths for water intrusion in the case of a poor bond. The white circles indicate where 3M 4000UV should be applied to guard against such water intrusion. The general configurations of the corner and step can describe most common arrangements. For configurations other than these, the general principle is to use 3M 4000UV in any place where water could seep past the tape in the event of a poor bond.

\*Consult manufacturer’s directions for use and precautions when using cleaning solvents. This cleaning recommendation may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

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## 90 Degree Peel Adhesion Strength

(Based on ASTM D-3330; various substrates, 72 hour room temp with 3M™ VHB™ 5925 tape and aluminum peel strip backing, adhesion promoter or primer used on substrates)

		Surface Preparation	3M™ Extreme Sealing Tape							
			4411N		4411G		4412N		4412G	
			lb/in	N/cm	lb/in	N/cm	lb/in	N/cm	lb/in	N/cm
Substrate	Stainless	AP111	15.1	26.4	15.6	27.3	18.0	31.5	17.6	30.7
	Aluminum	AP111	14.6	25.6	15.3	26.7	18.1	31.7	17.6	30.8
	Truck Paint	AP111	14.4	25.3	14.6	25.6	19.2	33.6	17.4	30.5
	Glass	AP115	15.4	27.0	14.7	25.8	18.9	33.2	16.3	28.5
	PC	P94	15.6	27.3	14.6	25.5	18.1	31.6	18.1	31.7
	Acrylic	P94	14.9	26.0	15.0	26.2	18.8	32.9	16.5	28.9
	ABS	P94	16.0	28.1	15.5	27.1	18.5	32.3	18.4	32.2
	PVC	P94	15.5	27.2	14.7	25.8	19.1	33.5	18.3	32.1
	PP	P94	15.0	26.3	14.9	26.1	18.0	31.6	17.3	30.2

### Notes:

1. For metals and paints, 3M™ Adhesion Promoter 111 was used to increase adhesion to maximum levels.
2. For glass, 3M™ Silane Glass Treatment AP115 was used to increase adhesion to maximum levels and to provide long term durability on glass.
3. For plastics, 3M™ Primer 94 was used to increase adhesion to maximum levels. Note that Primer 94 has high levels of VOC's and may not be available for purchase in all areas.

## Storage

Store in original cartons at 4-38°C (40-100°F) and 0-95% relative humidity. Optimum storage conditions are 22°C (72°F) and 50% relative humidity.

## Shelf Life

When stored under proper conditions, product retains its performance and properties for 24 months from date of manufacture. The date of manufacture is listed as a run number beginning with the letter “K” and followed by a 5 digit Julian calendar code (YYDDD). The first two digits refer to the year of manufacture. The last three digits refer to the days after January 1. For example, run #K10273 would translate to a September 30, 2010 date of manufacture.

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## Technical Information and Product Use

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

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ISO 9001:2008

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2008 standards.



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