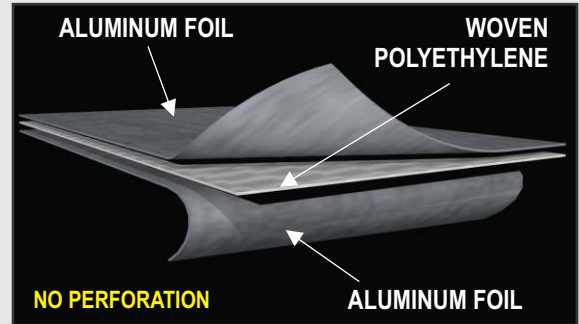


### Product Description:

Page 1 of 2

rFOIL® Ultra NT Radiant Barrier is a heavy duty radiant barrier sheet made up of a single layer of woven polyethylene material bonded to and sandwiched between two highly reflective aluminum foil surfaces.

Ultra NT Radiant Barrier is designed to be used in Sensitive Compartmented Information Facilities (SCIF's). In addition to being a highly effective radiant barrier, Ultra NT solid is also an approved vapor barrier.



### Features:

- Minimum Shielding Effectiveness (100MHz – 10GHz): 85 dB
- Wider frequency test results available
- Highly reflective radiant barrier aluminum foil surface
- Reflects 97% of Radiant Heat
- Thermal performance unaffected by moisture
- Unrolls and cuts easily
- Durable and flexible woven polyethylene base
- Increases sound attenuation for SCIF's

### Applications:

- Sensitive Compartmented Information Facilities (SCIF's)

### Stock Roll Sizes:

Size:	48" x 125' (Solid)
Part No.	1800-48-125S

**(SOLID product)**  
No Perforation



PHYSICAL PROPERTIES	TEST	VALUE
EMISSION	ASTM C1371-04A	0.03
REFLECTIVITY	—	0.97
CORROSIVENESS	ASTM D3310-00	PASSES
FIRE RATING	ASTM E84-10	CLASS 1 / CLASS A
	ASTM E84-10	FLAME SPREAD = 0 / SMOKE DEVELOPED = 20
BLEEDING and DELAMINATION	ASTM C1224-03	NO BLEEDING or DELAMINATION
PLIABILITY	ASTM C1224-03	NO CRACKING
WATER VAPOR PERMEABILITY	ASTM E96-05	0.01 Perms
RESISTANCE TO FUNGI	ASTM C1338-08	PASSES
TENSILE STRENGTH TEAR RESISTANCE	ASTM D2261	LENGTH: 14.93 lbs
		WIDTH: 15.13 lbs
SHIELDING EFFECTIVENESS	IEEE-299-2006	(100Mhz - 10GHz) : 85 dB

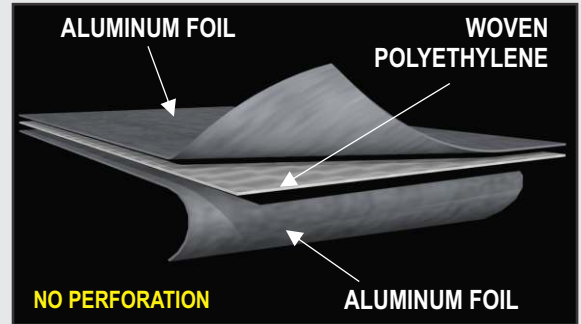
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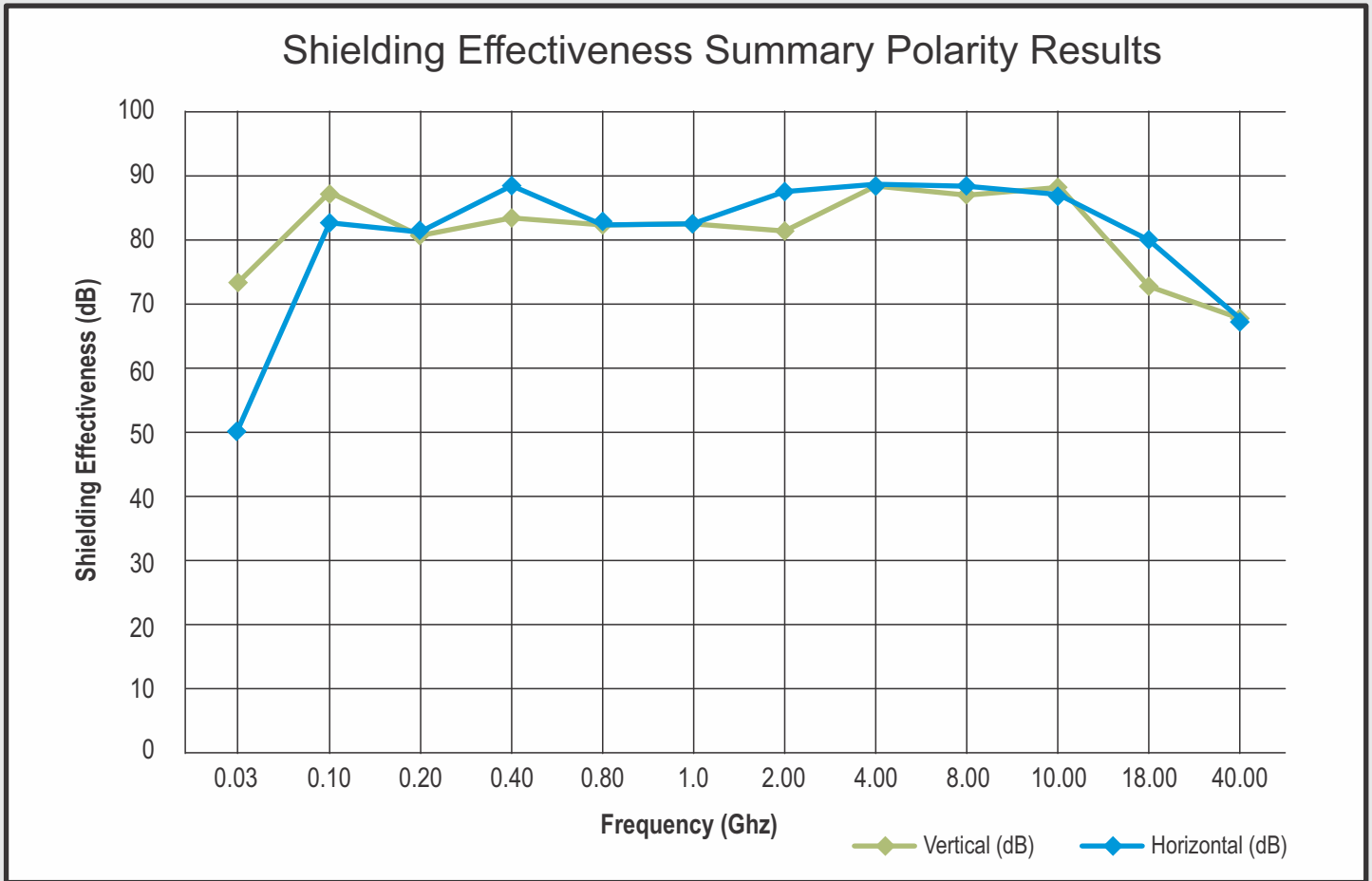
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Application Notes:

The Architectural Specifications for any particular job shall override the information presented on this Technical Data Sheet with regards to the appropriate products to use and the appropriate installation method to use for that particular job.



Shielding Effectiveness - Test Standard IEEE-299 / ASTM D4935  
 Test results for Ultra NT Radiant Barrier 1800-48-125S **(SOLID product)**



**(SOLID product)**  
 No Perforation



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# TECHNICAL DATA SHEET

## 1800P ULTRA NT RADIANT BARRIER (PERFORATED)

Designed for (SCIF's) Sensitive Compartmental Information Facilities  
(Aluminum Foil / Woven Poly / Aluminum Foil)

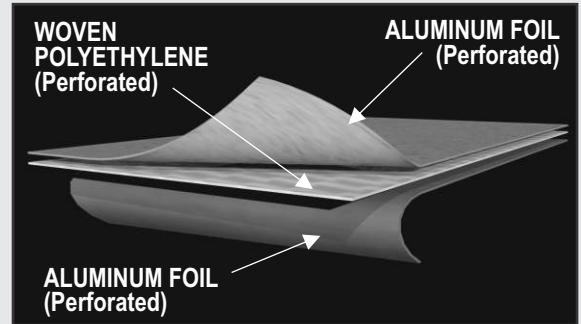


### Product Description:

Page 1 of 2

rFOIL® Ultra NT Radiant Barrier is a heavy duty radiant barrier sheet made up of a single layer of woven polyethylene material bonded to and sandwiched between two highly reflective aluminum foil surfaces.

Ultra NT Radiant Barrier is designed to be used in Sensitive Compartmented Information Facilities (SCIF's). In addition to being a highly effective radiant barrier, Ultra NT solid is also an approved vapor barrier.



### Features:

- **Minimum Shielding Effectiveness (100MHz – 10GHz): 67 dB**
- Highly reflective radiant barrier aluminum foil surface
- Reflects 97% of Radiant Heat
- Thermal performance unaffected by moisture
- Unrolls and cuts easily
- Durable and flexible woven polyethylene base
- Increases sound attenuation for SCIF's

### Applications:

- Sensitive Compartmented Information Facilities (SCIF's)

### Stock Roll Sizes:

Size:	48" x 125' (Perforated)
Part No.	1800-48-125P

**(PERFORATED)  
product**



PHYSICAL PROPERTIES	TEST	VALUE
EMISSION	ASTM C1371-04A	0.03
REFLECTIVITY	—	0.97
CORROSIVENESS	ASTM D3310-00	PASSES
FIRE RATING	ASTM E84-10	CLASS 1 / CLASS A
	ASTM E84-10	FLAME SPREAD = 0 / SMOKE DEVELOPED = 20
BLEEDING and DELAMINATION	ASTM C1224-03	NO BLEEDING or DELAMINATION
PLIABILITY	ASTM C1224-03	NO CRACKING
WATER VAPOR PERMEABILITY	ASTM E96-05	2.69 Perms
RESISTANCE TO FUNGI	ASTM C1338-08	PASSES
TENSILE STRENGTH TEAR RESISTANCE	ASTM D2261	LENGTH: 14.93 lbs
		WIDTH: 15.13 lbs
SHIELDING EFFECTIVENESS	IEEE-299-2006	(100Mhz - 10GHz) : 67 dB

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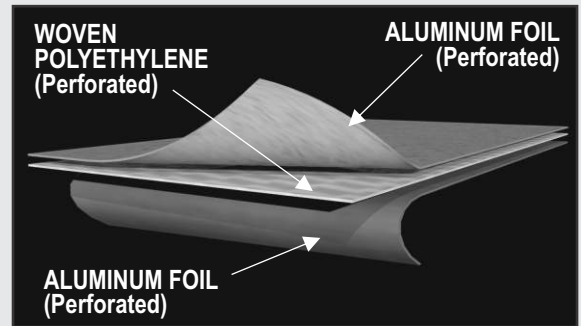
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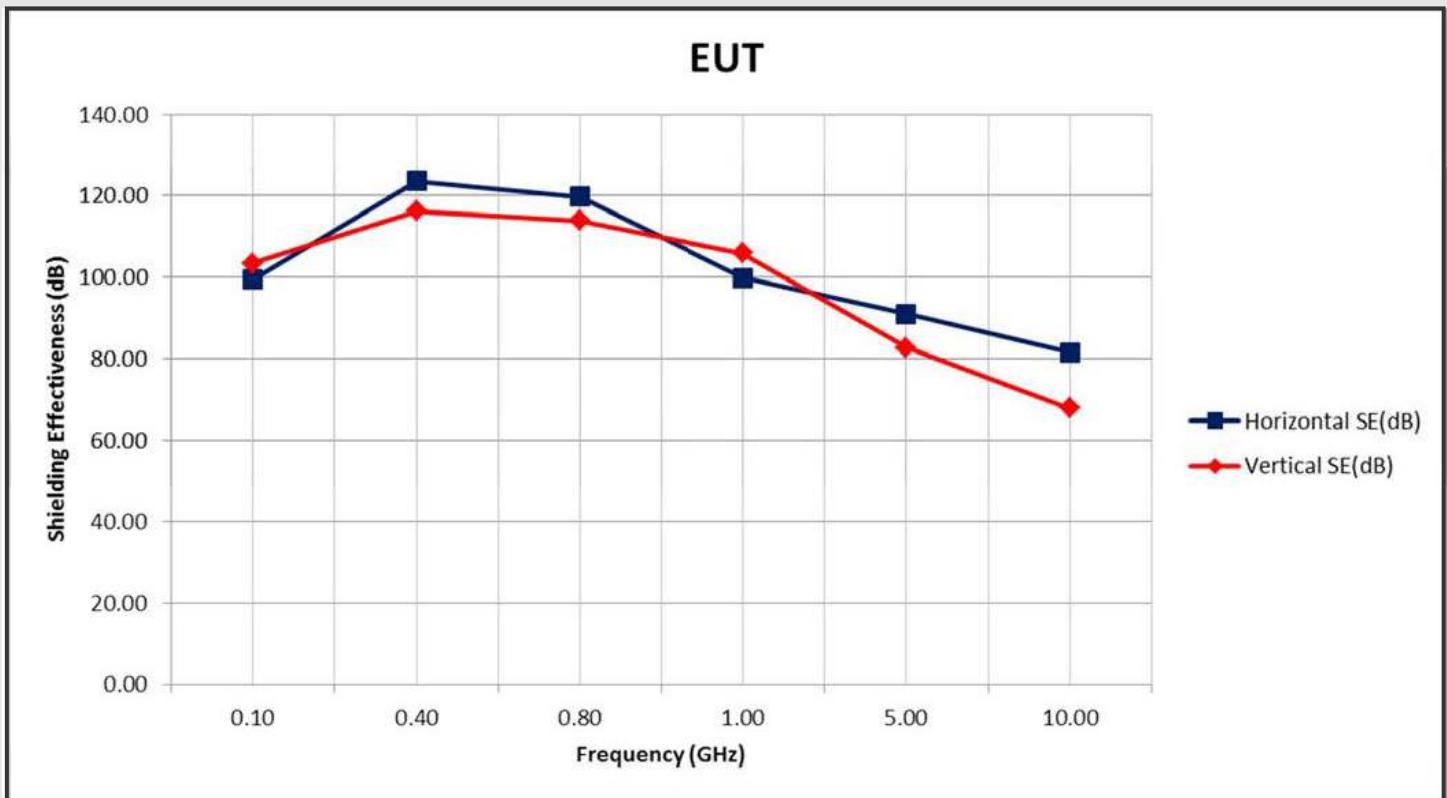
Application Notes:

The Architectural Specifications for any particular job shall override the information presented on this Technical Data Sheet with regards to the appropriate products to use and the appropriate installation method to use for that particular job.



### Shielding Effectiveness - Test Standard IEEE-299 / ASTM D4935

Test results for Ultra NT Radiant Barrier 1800-48-125P (**PERFORATED product**)



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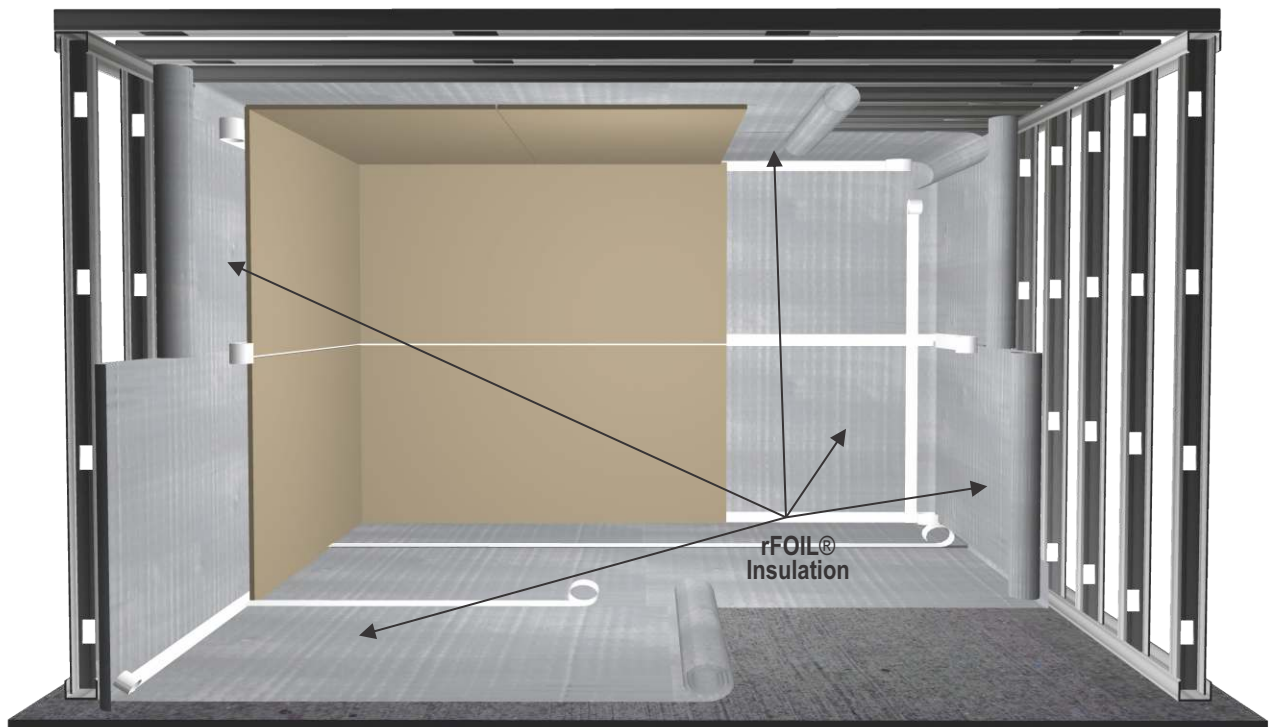
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- REFLECTS 97% OF RADIANT HEAT
- THERMAL PERFORMANCE UNAFFECTED BY MOISTURE
- INCREASES SOUND ATTENUATION FOR SCIF'S
- REDUCES HEATING AND COOLING COSTS
- LOWERS ENERGY USAGE AND UTILITY BILLS

**Page 1 of 2**

\* The following installation guidelines are for informational purposes only and are not intended to supersede any Architectural Specifications. The Architectural Specifications for any particular job shall override the information presented on this Installation Sheet with regards to the appropriate products to use and the appropriate installation method to use for that particular job.



## SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL <sup>®</sup> INSULATION PRODUCT	1800-48-125S (Solid) or 1800-48-125P (Perforated)
rFOIL <sup>®</sup> TAPES	15513 or 15512 (Aluminum)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL<sup>®</sup> Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL<sup>®</sup> Reflective Insulation products and rFOIL<sup>®</sup> makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL<sup>®</sup> Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL<sup>®</sup> Reflective Insulation products near and around electrical wiring and devices.

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Page 2 of 2

- 1) Measure all walls, ceilings and floors for the area(s) requiring shielded from RF transmission. Cut the Ultra NT Radiant Barrier to the appropriate lengths, by adding 12" additional to cover all walls, ceilings and floors of the area to be covered.
- 2) Attachment methods vary depending on framing type.
  - a. Wood framing: Attach by stapling the Ultra NT directly to the wood, with staples spaced 6-10" apart.
  - b. Steel framing: Attach the Ultra NT directly to the framing with double-sided tape or an approved construction adhesive or spray adhesive (please consult the architectural specifications for approved adhering materials).
  - c. Concrete: Attach with an approved construction adhesive or spray adhesive to adhere the Ultra NT to the wall (please consult the architectural specifications for approved adhering materials).
- 3) If the Ultra NT is to be installed between layers of 5/8" gypsum board, attach with approved drywall screws for panel installation (please consult the architectural specifications for approved fastening methods).
- 4) At all joints, overlap all Ultra NT at least 6" and seal all seams using a recommended foil tape. Please consult the architectural specifications for approved types of tapes for a particular project (i.e. -aluminum, electrically conductive, etc...).
- 5) Where the wall meets the ceiling, extend the Ultra NT across the joint, so that it extends at least 6" onto the ceiling.
- 6) Where the wall meets the floor, extend the Ultra NT across the joint, so that it extends at least 6" onto the floor.
- 7) Completely cover the floors and ceilings, extending the Ultra NT to the walls, covering the 6" overlap created in steps 5-6 above.
- 8) If single-point grounding is specified, this may be from any point of the SCIF enclosure, but must be independent from standard electrical grounding already in place.



Please remember these general rules: make sure all joints have a minimum 6" overlap and that all seams are sealed using aluminum foil tape. It is important to make sure that all wall, ceiling, and floor surfaces are covered using Ultra NT Radiant barrier material. Once installed, the Ultra NT Radiant barrier can be covered with any type of finish. If drywall is used to finish the walls and ceilings it is also recommended to use black phosphate fine thread drywall screws for panel installation unless otherwise specified.

### SUGGESTED PRODUCTS FOR THIS APPLICATION

rFOIL® INSULATION PRODUCT	1800-48-125S (Solid) or 1800-48-125P (Perforated)
rFOIL® TAPES	15513 or 15512 (Aluminum)

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL® Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL® Reflective Insulation products and rFOIL® makes no claims that these construction systems are universally accurate.
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- c) Exercise caution when using rFOIL® Reflective Insulation products near and around electrical wiring and devices.

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15512, 15513



# Venture Tape™ Aluminum Foil Tape 1521 CW

Technical Data

January, 2017

**Product Description** 3M™ Venture Tape™ Aluminum Foil Tape 1521CW is a 1.4 mil high strength dead soft aluminum foil coated with a cold weather solvent acrylic pressure sensitive adhesive.

Product Construction	Backing	Adhesive	Color	Liner	Standard Roll Length
	Aluminum Foil	Acrylic	Natural Aluminum	Release Liner	50 yds (45.7 m)

- Features**
- Excels in demanding temperature and humidity applications
  - Conforms well to irregular surfaces
  - Specifically designed for cold weather conditions
  - Hand tearable

### Typical Physical Properties

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

Test	Typical Value	Typical Value (Metric)	Test Method
Total Tape Thickness	2.8 mils	0.07 mm	ASTM-D3652
Backing Thickness	1.4 mils	0.04 mm	ASTM-D3652
Peel Adhesion	46 oz/in	12.8 N/25 mm	ASTM-D3330
Tensile Strength	15 lb/in	67 N/25 mm	ASTM-D3769
Elongation	4%	4%	ASTM-D3759
Service Temperature	-40° to 250°F	-40° to 121°C	

- Application Ideas**
- Applies easily to both fibrous and sheet metal ducts

- Classifications**
- UL723 Classified (10/10 Flame/Smoke Rating) [UL file #R10984]
  - U.S. Coast Guard Approved (CGA #164.112/63/0)

# 3M™ Venture Tape™ Aluminum Foil Tape 1521CW

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**Storage** Store in a clean, dry place. Temperature of 40-80°F (4-26°C) and 40 to 50% relative humidity are recommended.

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**Shelf Life** To obtain best performance, use this product within 12 months from date of manufacture

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**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.

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**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.

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ISO 9001

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

**3M**

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# 3M™ Aluminum Foil Tape 1170

## Aluminum Foil with Conductive Adhesive

Data Sheet

April 2010

<b>Description</b>	3M™ Aluminum Foil Tape 1170 consists of a 1-ounce rolled aluminum foil backing and an electrically conductive, pressure-sensitive acrylic adhesive. This tape is supplied on a removable liner for easy handling and die-cutting. It has excellent solder ability.
<b>Agency Approvals &amp; Self Certifications</b>	Meets flame retardant requirements of UL510, Product Category OANZ2, File E17385  RoHS 2002/95/EC   RoHS Compliant 2002/95/EC* means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2002/618/EC, unless the substance is in an application that is exempt under RoHS. This information represents 3M's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.
<b>Applications</b>	3M Aluminum Foil Tape 1170 is typically used as an EMI/RFI shielding tape for applications in the electronics industry such as static charge draining, seaming shielded rooms, cable wrapping and surface contact to non-solderable materials.
<b>Shielding Effectiveness</b>	Many factors determine true shielding effectiveness of a shielding tape, including type and thickness of foil, adhesive type, intimacy of contact, smoothness of application surface, frequency of the EMI signal, etc. Typical shielding effectiveness for 1170 Tape is >85dB, 1MHz to 2 GHz, ASTMD-4935 test method.
<b>Typical Properties</b>	Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (~23°C) unless otherwise stated.

### Physical

Property (Test Method)	Typical Value US units (metric)
<b>Color</b>	Silver Metallic
<b>Adhesive</b>	Acrylic Conductive
<b>Type of Backing</b>	Aluminum
<b>Backing Thickness</b>	2.0 mil (0.05mm)
<b>Total Thickness (ASTM D1000)</b>	3.2 mils (0.081mm)
<b>Electrical Resistance<sup>1</sup></b>	0.010 Ω/□
<b>Flame Retardancy<sup>2</sup></b>	Pass
<b>Breaking Strength (ASTM D3759)</b>	20 lbs/in (35N/10mm)
<b>Elongation -% at break</b>	5%
<b>Adhesion Strength (ASTM D3330)</b>	35 oz/in (3.8N/10mm)
<b>Temperature Range</b>	-40°C to 130°C
<b>Shielding Effectiveness<sup>3</sup></b>	>85 dB, 1MHz to 2 GHz

1. Mil-STD-202 Method 303 maintained at 5 psi (3.4N/cm<sup>2</sup>) measured over 1 in<sup>2</sup> surface area. Conductive particles in the adhesive provide the electrical path between the application substrate and the foil backing.
2. UL Recognized for flame retardancy per UL 510, Product Category OANZ2, File E17385
3. ASTMD-4935 Test Method

# 3M™ Aluminum Foil Tape 1170

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<b>Shelf Life &amp; Storage</b>	This product has a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).
<b>Availability</b>	Please contact your local distributor; available from <a href="http://3M.com/oem">3M.com/oem</a> [Where to Buy] or call 1-800-676-8381.

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<b>Important Notice</b>	All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product, which are not contained in 3M's current publications, or any contrary statements contained on your purchase order, shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.
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