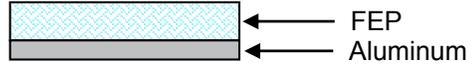


PRODUCT BULLETIN

Aluminum Coated (One Side) FEP



Sheldahl® Brand Materials FEP films that are aluminum coated on one side is used as second surface mirrors to obtain low solar absorptance and high emittance.

This product may be ordered with 0.5, 1, 2, 5, or 10 mil thick FEP that conforms to the requirements of ASTM D-3368. The aluminum coating is nominally 1,000 Å thick. The most common width is 48 inches (1.22 m).

PRODUCT CHARACTERISTICS

Parameter (independent of film thickness)	Specified Value
Intermittent temperature range	-185° C to 260° C (-300° F to 500° F)
Continuous temperature range	-185° C to 150° C (-300° F to 300° F)

Standard Item Number	Thickness mil (µm)	Second Surface Mirror Properties			Typical Weight (g/m ²)	Perforation Item Number
		α	εN	εH		
146431	0.5 (12.5)	≤ 0.14	≥ 0.40	≥ 0.40	28	TBD
146416	1.0 (25)	≤ 0.14	≥ 0.47	≥ 0.48	54	TBD
146377	2.0 (51)	≤ 0.14	≥ 0.60	≥ 0.60	109	TBD
146383	5.0 (127)	≤ 0.14	≥ 0.75	≥ 0.75	273	TBD
146434	10.0 (254)	≤ 0.15	≥ 0.85	≥ 0.85	546	167303

RADIATOR SSM



A Multek Brand

POST PROCESSING – PERFORATION & COVERLAY

This product may be processed after metalizing to enhance its functionality. To facilitate air passage during launch, the film may be Perforated. Standard perforation patterns are on pages 14 - 22.

A protective coverlay may be placed on the film to protect the FEP outer layer.

WARRANTY INFORMATION

Multek warrants that our thermal control materials will meet all acceptance testing criteria for one year from the date of shipment (except Germanium, see product bulletin) if the materials have been stored indoors at standard conditions in their original packaging.

SHELF LIFE

This product shall meet specified values for a minimum of 12 months after the date of shipment provided that the material is stored in its original unopened container at normal interior temperatures (10° C to 27° C/50° F to 80° F).

The shelf life of the material should be much longer than the warranty period. We recommend retesting any material that is more than one year old (or more than one year since most recent testing) prior to use. This will verify that the material has not been accidentally damaged. Multek offers retest services for a nominal fee.

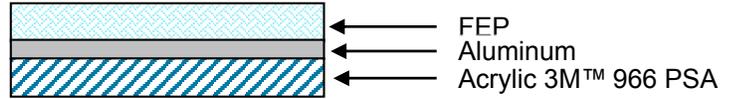
SPECIFICATION AND ITEM NUMBERS

STANDARD NUMBERS		Thickness	PERFORATION NUMBERS	
Multek Specification	Item Number		Multek Specification	Item Number
G402700	146431	0.5 mil	G402704	TBD
G402000	146416	1.0 mil	G402004	TBD
G400500	146377	2.0 mil	G400504	TBD
G400900	146383	5.0 mil	G400904	TBD
G403800	146434	10.0 mil	G403804	167303

Multek manufactures a broad range of vacuum deposited films, laminates and tapes. Ask for additional product bulletins describing other Sheldahl® Brand Materials.

The information on this product bulletin is based on data obtained by our research and is considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data and the results obtained from the use thereof. This information is furnished upon the condition that the recipient shall conduct tests to determine the suitability of the product for his or her particular application.

PRODUCT BULLETIN



Second Surface Aluminum Coated FEP Tape with Acrylic 3M™ 966 Adhesive

Sheldahl® Brand Materials second surface aluminum coated FEP tapes with acrylic 3M™ 966 adhesive are used whenever high emittance and low solar absorptance are needed. The acrylic 3M™ 966 adhesive is nominally 2.3 mils thick, provides a strong bond with low outgassing, and can be used over a moderate temperature range. These tapes may be bonded to structures to control radiative heat transfer. They can also be used on multilayer insulation blankets to close the edges or repair rips in the outer layers.

This product may be ordered with 0.5, 1, 2, or 5 mil thick FEP that conforms to the requirements of ASTM D-3368. The aluminum coating is nominally 1000 Å thick. Although the standard widths for this tape are 1, 2, 3, and 4 inches, it may be ordered in any width needed. Each roll is 108 feet (33 m) long.

RADIATOR SSM

PRODUCT CHARACTERISTICS

Parameter (independent of film thickness)	Specified Value
Adhesion to stainless steel	≥ 20 oz./inch of width
Intermittent temperature range	-185° C to 230° C (-300° F to 450° F) ^A
Continuous temperature range	-60° C to 120° C (-75° F to 250° F) ^A

^A Zero peel strength of acrylic pressure sensitive adhesive is at about -45°C (-50°F).

Standard Item Number	Thickness mil (µm)	Second Surface Mirror Properties			Typical Weight (g/m ²)	Perforation Item Number
		α	εN	εH		
TBD	0.5 (12.5)	≤ 0.14	≥ 0.40	≥ 0.40	88	TBD
146433	1.0 (25)	≤ 0.14	≥ 0.47	≥ 0.48	115	166631
146372	2.0 (51)	≤ 0.14	≥ 0.60	≥ 0.60	169	TBD
146379	5.0 (127)	≤ 0.14	≥ 0.75	≥ 0.75	333	146380
146537	10.0 (254)	≤ 0.15	≥ 0.85	≥ 0.85	606	TBD



A Multek Brand

POST PROCESSING – PERFORATION, EMBOSSING, & COVERLAY

This product may be processed after metalizing and combining the adhesive to the film to enhance its functionality. We offer a standard perforation pattern with 0.76 mm (0.03 in.) diameter holes on 6.35 mm (0.25 in.) centers, with a nominal 1.1% open area. We can also place a coverlay on the tape to protect it from accidental damage during handling and application.

The raw material for these tapes may be embossed prior to coating to provide a more diffuse reflection pattern.

WARRANTY INFORMATION

Multek warrants that our thermal control materials will meet all acceptance testing criteria for one year from the date of shipment (except Germanium, see product bulletin) if the materials have been stored indoors at standard conditions in their original packaging.

SHELF LIFE

This product shall meet specified values for a minimum of 12 months after the date of shipment provided that the material is stored in its original unopened container at normal interior temperatures (10° C to 27° C/50° F to 80° F).

The shelf life of the material should be much longer than the warranty period. We recommend retesting any material that is more than one year old (or more than one year since most recent testing) prior to use. This will verify that the material has not been accidentally damaged. Multek offers retest services for a nominal fee.

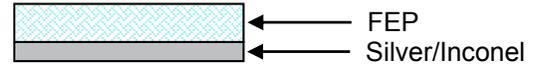
SPECIFICATION AND ITEM NUMBERS

Standard Part Numbers		Thickness	PERFORATION Part Numbers	
Multek Specification	Item Number		Multek Specification	Item Number
G402800	TBD	0.5 mil	G402801	TBD
G402900	146433	1.0 mil	G402901	166631
G400200	146372	2.0 mil	G400201	TBD
G400800	146379	5.0 mil	G400801	146380
G409200	146537	10.0 mil	G409201	TBD

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PRODUCT BULLETIN



Silver Coated (One Side) FEP

Sheldahl® Brand Materials FEP films that are silver coated on one side are used as second surface mirrors to obtain low solar absorptance and high emittance.

This product may be ordered with 0.5, 1, 2, 5, or 10 mil thick FEP that conforms to the requirements of ASTM D-3368. The silver coating is nominally 1500 Å thick. We apply a 275 Å overcoat of Inconel to prevent the silver from oxidizing. This product is manufactured in 4 feet (1.22 m) wide by 10 feet (3 m) long sheets.

PRODUCT CHARACTERISTICS

Parameter (independent of film thickness)	Specified Value
Intermittent temperature range	-185° C to 260° C (-300° F to 500° F)
Continuous temperature range	-185° C to 150° C (-300° F to 300° F)

Standard Item Number	Thickness mil (µm)	Second Surface Mirror Properties			Typical Weight (g/m ²)	Perforation Item Number
		α	εN	εH		
146399	0.5 (12.5)	≤ 0.09	≥ 0.40	≥ 0.40	28	TBD
146400	1.0 (25)	≤ 0.09	≥ 0.47	≥ 0.48	54	170769
146374	2.0 (51)	≤ 0.09	≥ 0.60	≥ 0.60	109	146376
146401	5.0 (127)	≤ 0.09	≥ 0.75	≥ 0.75	273	170203
146435	10.0 (254)	≤ 0.10	≥ 0.80	≥ 0.85	546	TBD

RADIATOR SSM



A Multek Brand

POST PROCESSING – PERFORATION & COVERLAY

This product may be processed after metalizing to enhance its functionality. To facilitate air passage during launch, the film may be Perforated. Standard perforation patterns are on pages 14 - 22.

A protective coverlay may be placed on the film to protect the FEP outer layer.

WARRANTY INFORMATION

Multek warrants that our thermal control materials will meet all acceptance testing criteria for one year from the date of shipment (except Germanium, see product bulletin) if the materials have been stored indoors at standard conditions in their original packaging.

SHELF LIFE

This product shall meet specified values for a minimum of 12 months after the date of shipment provided that the material is stored in its original unopened container at normal interior temperatures (10° C to 27° C/50° F to 80° F).

The shelf life of the material should be much longer than the warranty period. We recommend retesting any material that is more than one year old (or more than one year since most recent testing) prior to use. This will verify that the material has not been accidentally damaged. Multek offers retest services for a nominal fee.

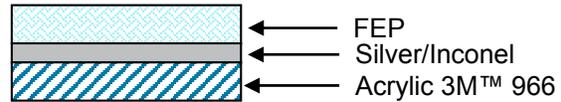
SPECIFICATION AND ITEM NUMBERS

STANDARD NUMBERS		Thickness	PERFORATION NUMBERS	
Multek Specification	Item Number		Multek Specification	Item Number
G401300	146399	0.5 mil	G401304	TBD
G401400	146400	1.0 mil	G401404	170769
G400300	146374	2.0 mil	G400304	146376
G401500	146401	5.0 mil	G401504	170203
G404000	146435	10.0 mil	G404004	TBD

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PRODUCT BULLETIN



Second Surface Silver Coated FEP Tape with Acrylic 3M™ 966 Adhesive

Sheldahl® Brand Materials second surface silver coated FEP tapes with acrylic 3M™ 966 adhesive are used whenever high emittance and low solar absorptance are needed. The acrylic 3M™ 966 adhesive is nominally 2.3 mils thick, provides a strong bond with low outgassing, and can be used over a moderate temperature range. These tapes may be bonded to structures to control radiative heat transfer. They can also be used on multilayer insulation blankets to close the edges or repair rips in the outer layers.

This product may be ordered with 0.5, 1, 2, 5 or 10 mil thick FEP that conforms to the requirements of ASTM D-3368. The silver coating is nominally 1500 Å thick. We apply a 275 Å overcoat of Inconel to prevent the silver from oxidizing. Although the standard widths for this tape are 1, 2, 3, and 4 inches, it may be ordered in any width needed. Each roll is 108 feet (33 m) long.

PRODUCT CHARACTERISTICS

Parameter (independent of film thickness)	Specified Value
Adhesion to stainless steel	≥ 20 oz./inch of width
Intermittent temperature range	-185° C to 230° C (-300° F to 450° F) ^A
Continuous temperature range	-60° C to 120° C (-75° F to 250° F) ^A

^A Zero peel strength of acrylic pressure sensitive adhesive is at about -45°C (-50°F).

Standard Item Number	Thickness mil (µm)	Second Surface Mirror Properties			Typical Weight (g/m ²)	Perforation Item Number
		α	ε _N	ε _H		
TBD	0.5 (12.5)	≤ 0.09	≥ 0.40	≥ 0.40	88	TBD
146430	1.0 (25)	≤ 0.09	≥ 0.47	≥ 0.48	115	TBD
146368	2.0 (51)	≤ 0.09	≥ 0.60	≥ 0.60	169	146369
146411	5.0 (127)	≤ 0.09	≥ 0.75	≥ 0.75	333	146412
146534	10.0 (254)	≤ 0.10	≥ 0.80	≥ 0.85	606	169383

RADIATOR SSM



A Multek Brand

POST PROCESSING – PERFORATION, EMBOSSEDING & COVERLAY

This product may be processed after metalizing and combining the adhesive to the film to enhance its functionality. We offer a standard perforation pattern with 0.76 mm (0.03 in.) diameter holes on 6.35 mm (0.25 in.) centers, with a nominal 1.1% open area. We can also place a coverlay on the tape to protect it from accidental damage during handling and application.

The raw material for these tapes may be embossed prior to coating to provide a more diffuse reflection pattern.

WARRANTY INFORMATION

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SHELF LIFE

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SPECIFICATION AND ITEM NUMBERS

STANDARD NUMBERS		Thickness	PERFORATION NUMBERS	
Multek Specification	Item Number		Multek Specification	Item Number
G400600	TBD	0.5 mil	G400601	TBD
G402500	146430	1.0 mil	G402501	TBD
G400100	146368	2.0 mil	G400101	146369
G401900	146411	5.0 mil	G401901	146412
G409100	146534	10.0 mil	G409101	169383

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