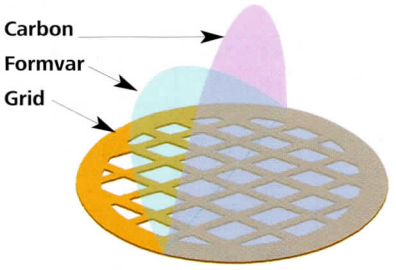
PELCO® Coated Grids Index

Product No.	Mesh/Slot	Grid Material	Coating	Package	Page
Formvar					
01700-F	200 Mesh	Cu	Formvar	pkg/50	229
01706	0.4 x 2mm	Cu	Formvar	pkg/25	229
Formvar Stabilized with Carbon					
01802-F	75 Mesh	Cu	Formvar/Carbon	pkg/50	229
01800	200 Mesh	Cu	Formvar/Carbon	pkg/25	230
01800-F	200 Mesh	Cu	Formvar/Carbon	pkg/50	230
01801	200 Mesh	Cu	Formvar/Carbon	pkg/100	230
01803	200 Mesh (thick)	Cu	Formvar/Carbon	pkg/25	230
01803-F	200 Mesh (thick)	Cu	Formvar/Carbon	pkg/50	230
01800N	200 Mesh	Ni	Formvar/Carbon	pkg/25	230
01800N-F	200 Mesh	Ni	Formvar/Carbon	pkg/50	230
01753-F	300 Mesh	Cu	Formvar/Carbon	pkg/50	230
01754-F	400 Mesh	Cu	Formvar/Carbon	pkg/50	230
01806	0.4 x 2mm	Cu	Formvar/Carbon	pkg/25	230
Carbon Type-B *Formvar with a heavier layer of Carbon*					
01810	200 Mesh	Cu	Carbon Type-B	pkg/25	230
01810G-F	300 Mesh	Au	Carbon Type-B	pkg/50	230
01811	200 Mesh	Cu	Carbon Type-B	pkg/100	230
01813	300 Mesh	Cu	Carbon Type-B	pkg/25	230
01813-F	300 Mesh	Cu	Carbon Type-B	pkg/50	230
01814-F	400 Mesh	Cu	Carbon Type-B	pkg/50	230
Carbon Type-A					
(a) Carbon Type-A *Carbon support film of 15 to 25nm thickness*					
01820	300 Mesh	Cu	(a) Carbon Type-A	pkg/25	230
01821	300 Mesh	Cu	(a) Carbon Type-A	pkg/50	230
(b) Ultrathin Carbon Type-A *Carbon support film of approximately 3nm thickness*					
01822	400 Mesh	Cu	(b) Ultrathin Carbon Type-A	pkg/25	231
01822-F	400 Mesh	Cu	(b) Ultrathin Carbon Type-A	pkg/50	231
01822G-F	400 Mesh	Au	(b) Ultrathin Carbon Type-A	pkg/50	231
(c) Ultrathin Carbon Film on a Holey Carbon Support Film					
01824	400 Mesh	Cu	(c) Ultrathin Carbon on Holey Carbon	pkg/25	231
Silicon Monoxide					
(a) Formvar Stabilized with Silicon Monoxide					
01830	200 Mesh	Cu	Silicon Monoxide/Formvar	pkg/25	231
(b) Silicon Monoxide Type-A					
01829	300 Mesh	Cu	Silicon Monoxide Type A/Formvar	pkg/25	231
01829-F	300 Mesh	Cu	Silicon Monoxide Type A/Formvar	pkg/50	231
Lacey Support Films - NetMesh™ Grids					
(a) Lacey Formvar Stabilized with Carbon					
01881	200 Mesh	Cu	Lacey Formvar/Carbon	pkg/25	231
01881-F	200 Mesh	Cu	Lacey Formvar/Carbon	pkg/50	231
01883	300 Mesh	Cu	Lacey Formvar/Carbon	pkg/25	232
01883-F	300 Mesh	Cu	Lacey Formvar/Carbon	pkg/50	232
(b) Lacey Carbon Type-A					
01890	300 Mesh	Cu	Lacey Carbon Type-A	pkg/25	232
01890-F	300 Mesh	Cu	Lacey Carbon Type-A	pkg/50	232
(c) Lacey Silicon Monoxide on Formvar					
01887-F	300 Mesh	Cu	Lacey Silicon Monoxide on Formvar	pkg/50	232

PELCO® Formvar and Carbon Support Film Grids, Substrates



PELCO® Support Films of Formvar, Carbon and Silicon Monoxide are available on the following 3.05mm O.D. grids: 0.4 x 2mm single slot Cu, 75 mesh Cu, 200 mesh Cu or Ni, 300 mesh Cu or Au and 400 mesh Cu.

Support films on the finer mesh grids can withstand considerable handling during specimen preparation. Those on slot and 75 mesh grids require more gentle handling and are ideal for those applications requiring large viewing areas without grid bar interference.

Our popular line of NetMesh™ Grids (our trademarked lacey films) are available on 200 and 300 mesh grids. These robust films allow for viewing of specimens without interference from underlying support film material. T

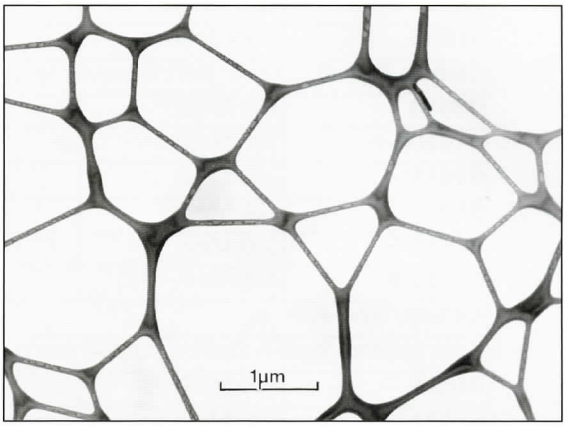
The complete PELCO® line of support films meets the requirements of most applications in all fields of electron microscopy.

Consult "Applications Guide" on page 232 for suggestions on support film choice.

Thickness of Support Films

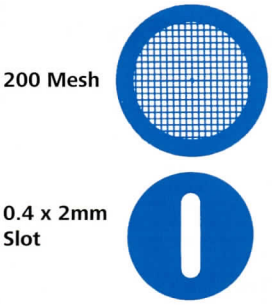
The following is a guide to the relative thickness of the support films. The actual thickness varies depending on a number of factors during the deposition process.

1. **Formvar Layer**, measured with a Tencor Alpha-Step 200 profilometer:
   All Formvar Films - 30 to 60 nm.
2. **Carbon Layer**, measured with a Film Thickness Monitor during evaporation:
   On **Formvar Stabilized with Carbon** - 5 to 10nm
   On **Carbon Type-A** - 15 to 25nm
   On **Carbon Type-B** - 15 to 25nm
   On **Ultrathin Carbon Type-A** - 3 to 4nm
   On **Ultrathin Carbon Film over Holey Carbon Film** - under 3nm



We Offer Six Types of Support Films

1. Formvar: A film of pure Formvar, with no stabilizing coating. These films are useful for your customized coating of stabilizing material or for the support of thin sections.



Mesh	Prod. No.	Description	Unit
200 M	**01700-F**	Formvar, 200 mesh, copper	pkg/50
0.4 x 2mm	**01706**	Formvar, 0.4 x 2mm, copper	pkg/25

2. Formvar, Stabilized with Carbon: A Formvar film covered with a "light" layer of carbon. The heat and electrical conducting properties of carbon help to stabilize the Formvar films when exposed to the electron beam. This is a resilient, all-purpose specimen support film, ideal for mounting thin sections and for applications using lower ranges of magnification. The 200M-TH grids (Prod. No. 01803 and 01803-F) are thicker and more rigid than normal and useful for many applications - particularly where frequent grid handling is involved.

Mesh	Prod. No.	Description	Unit
75 M	**01802-F**	Formvar/Carbon 75 mesh, Copper *approx. grid hole size: 292µm*	pkg/50

T = Tech Note on web page

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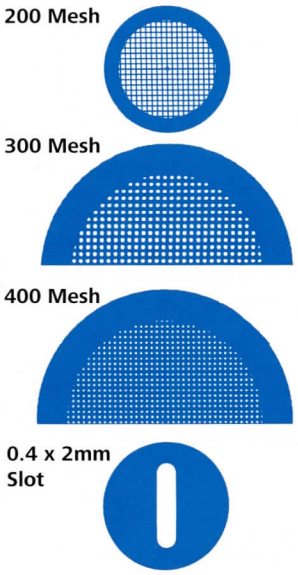
2. Formvar, Stabilized with Carbon: *continued*

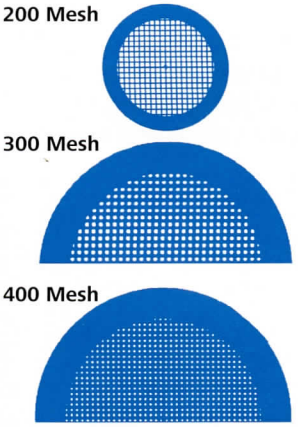


Mesh	Prod. No.	Description	Unit
200 M	**01800**	Formvar/Carbon 200 mesh, Copper	pkg/25
200 M	**01800-F**	Formvar/Carbon 200 mesh, Copper	pkg/50
200 M	**01801**	Formvar/Carbon 200 mesh, Copper	pkg/100
200 M-TH	**01803**	Formvar/Carbon 200 mesh TH, Copper	pkg/25
200 M-TH	**01803-F**	Formvar/Carbon 200 mesh TH, Copper	pkg/50
200 M	**01800N**	Formvar/Carbon 200 mesh, Nickel	pkg/25
200 M	**01800N-F**	Formvar/Carbon 200 mesh, Nickel *approx. grid hole size: 97µm*	pkg/50
300 M	**01753-F**	Formvar/Carbon 300 mesh, Copper *approx. grid hole size: 63µm*	pkg/50
400 M	**01754-F**	Formvar/Carbon 400 mesh, Copper *approx. grid hole size: 42µm*	pkg/50
0.4 x 2mm	**01806**	Formvar/Carbon 0.4 x 2mm Slot, Copper	pkg/25

TH= Thicker Grids

3. Carbon Type-B:

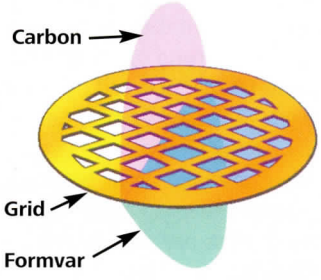
A Formvar film coated with a "heavier" layer of carbon. This is the strongest and most versatile support film we produce. It is stable in the EM under all operating conditions including high magnification with high beam intensity. The films can withstand vigorous specimen preparation techniques. If the carbon surface is hydrophobic, specimen suspensions can be applied to the Formvar surface.



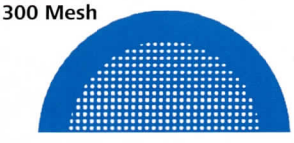
Mesh	Prod. No.	Description	Unit
200 M	**01810**	Carbon Type-B, 200 mesh, Copper	pkg/25
200 M	**01811**	Carbon Type-B, 200 mesh, Copper *approx. grid hole size: 97µm*	pkg/100
300 M	**01813**	Carbon Type-B, 300 mesh, Copper	pkg/25
300 M	**01813-F**	Carbon Type-B, 300 mesh, Copper	pkg/50
300 M	**01813G-F**	Carbon Type-B, 300 mesh, Gold *approx. grid hole size: 63µm*	pkg/50
400 M	**01814-F**	Carbon Type-B, 400 mesh, Copper *approx. grid hole size: 42µm*	pkg/50

4. Carbon Type-A:

Carbon support films with a removable Formvar on the opposite side of the grid. When the Formvar is removed, by dipping in solvent, a pure carbon film remains. (Note: The Ultrathin Carbon Film on a Holey Carbon Support Film, Prod. No. 01824, has no Formvar backing. These films are stable under all EM operating conditions and are for use where the presence of a Formvar layer cannot be tolerated. Pure carbon films tend to be more delicate than those with a Formvar backing and require more delicate handling during specimen preparation than most other support films.



(a) Carbon Type-A: Carbon support film of 15 to 25nm thickness. T



Mesh	Prod. No.	Description	Unit
300 M	**01820**	Carbon Type-A, 300 mesh, Copper	pkg/25
300 M	**01821**	Carbon Type-A, 300 mesh, Copper *approx. grid hole size: 63µm*	pkg/50

T = Tech Note on web page

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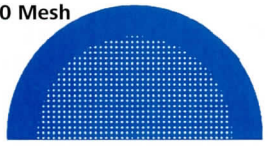
Carbon Type-A: *continued*

(b) Ultrathin Carbon Type-A: Carbon support film of approximately 3nm thickness.

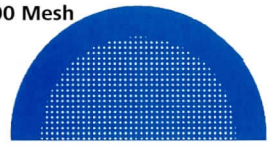
400 Mesh



Mesh	Prod. No.	Description	Unit
400 M	**01822**	Ultrathin Carbon Type-A, 400 mesh, Copper	pkg/25
400 M	**01822-F**	Ultrathin Carbon Type-A, 400 mesh, Copper	pkg/50
400 M	**01822G-F**	Ultrathin Carbon Type-A, 400 mesh, Gold *approx. grid hole size: 42µm*	pkg/50

(c) Ultrathin Carbon Film on a Holey Carbon Support Film: Pure carbon support films with no Formvar backing. This product has an even thinner carbon film which is mounted on a holey carbon film. The carbon support layer lying over the holes is less than 3nm in thickness and is the thinnest support film available. It is particularly useful for high resolution microscopy of low contrast particles and is also ideal for use with the Energy Filtering TEM.

400 Mesh



Mesh	Prod. No.	Description	Unit
400 M	**01824**	Ultrathin Carbon Film on Holey Carbon Support Film, 400 mesh, Copper *approx. grid hole size: 42µm*	pkg/25

5. Silicon Monoxide: Silicon monoxide produces a highly resilient support film which can withstand vigorous specimen preparation techniques. It has low background contrast, is stable under the electron beam and is less hydrophobic than carbon. We offer two types of silicon monoxide support films:

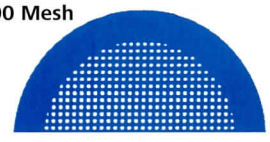
(a) Formvar Stabilized with Silicon Monoxide: A Formvar film coated with a "light" layer of silicon monoxide.

200 Mesh

Mesh	Prod. No.	Description	Unit
200 M	**01830**	Silicon Monoxide/Formvar, 200 mesh, Copper *approx. grid hole size: 97µm*	pkg/25

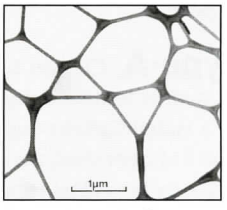
(b) Silicon Monoxide Type-A: Silicon monoxide with a removable Formvar backing on the opposite side of the grid. When the Formvar is removed, by dipping in solvent, a pure Silicon Monoxide film remains. These films are stable under all EM operating conditions and for use where the presence of Formvar cannot be tolerated. Pure Silicon Monoxide is more delicate than those with Formvar backing and require more careful handling during specimen preparation.

300 Mesh

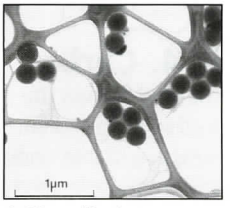


Mesh	Prod. No.	Description	Unit
300 M	**01829**	Silicon Monoxide Type-A, Removable Formvar, 300 mesh, Copper	pkg/25
300 M	**01829-F**	Silicon Monoxide Type-A, Removable Formvar, 300 mesh, Copper *approx. grid hole size: 63µm*	pkg/50

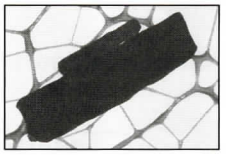
6. Lacey Support Films - NetMesh™ Grids: A lacey network support film. The holes in the lacey support film vary in size from less than a quarter micron to more than 10 microns making them ideal for any type of specimen. Lacey support films are strong and withstand vigorous specimen preparation treatment. The specimen material is supported by the film network but lies across or protrudes into the holes of the mesh. This allows high definition imaging without the effects of underlying support material. Lacey films can be used for specimens ranging from large crystals and other particulate material to virus particles. Smaller particles, such as viruses or bacteria, tend to adhere around the inner edges of the holes, an ideal situation for high resolution microscopy. Lacey films are also ideal for selected area electron diffraction imaging. We offer three types of lacey film:



Lacey Support Film



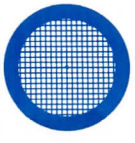
0.26µm dia. Latex on a Lacey Support Film, example of application



Molybdenum Trioxide Crystal on a Lacey Support Film, example of application

(a) Lacey Formvar Stabilized with Carbon: A Lacey Formvar film coated with a "heavy" layer of carbon.

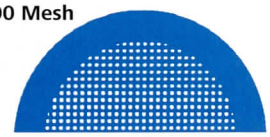
200 Mesh



Mesh	Prod. No.	Description	Unit
200 M	**01881**	Lacey Formvar/Carbon, 200 mesh, Copper	pkg/25
200 M	**01881-F**	Lacey Formvar/Carbon, 200 mesh, Copper *approx. grid hole size: 97µm* *continued on next page*	pkg/50

(a) Lacey Formvar Stabilized with Carbon: A Lacey Formvar film coated with a "heavy" layer of carbon. *continued*

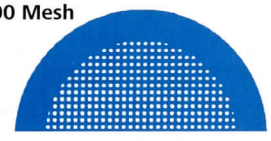
300 Mesh



Mesh	Prod. No.	Description	Unit
300 M	**01883**	Lacey Formvar/Carbon, 300 mesh, Copper	pkg/25
300 M	**01883-F**	Lacey Formvar/Carbon, 300 mesh, Copper *approx. grid hole size: 63µm*	pkg/50

(b) Lacey Carbon Type-A: A Lacey carbon film with a removable Formvar backing on the opposite side of the grid. When the Formvar is removed, by dipping in solvent, the Lacey carbon film remains. These films are stable under all EM operating conditions and for use where the presence of Formvar cannot be tolerated. Pure Lacey Carbon is more delicate than those with Formvar backing and require more careful handling during specimen preparation. T

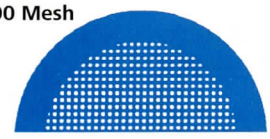
300 Mesh



Mesh	Prod. No.	Description	Unit
300 M	**01890**	Lacey Carbon Type-A, 300 mesh, Copper	pkg/25
300 M	**01890-F**	Lacey Carbon Type-A, 300 mesh, Copper *approx. grid hole size: 63µm*	pkg/50

(c) Lacey Silicon Monoxide on Formvar: A Lacey Formvar film stabilized with Silicon Monoxide. T

300 Mesh



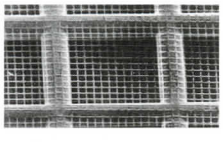
Mesh	Prod. No.	Description	Unit
300 M	**01887-F**	Lacey Silicon Monoxide on formvar, 300 mesh, Copper *approx. grid hole size: 63µm*	pkg/50

Support Film Grids, Substrate Application Guide

T = Tech Note on web page

This Support Film Application Guide will help you determine what support film to use for your particular transmission electron microscopy project. Once you have decided which substrate best suits your needs, you can go back up on the page for a listing of available Support Films.

B= Best G= Good Alternative; - = Not Suitable Substrate Application	Formvar Only Carbon	Formvar Stab. with Carbon	Silicon Monoxide on Formvar	Silicon Monoxide on Type-A	Carbon Type-A	Carbon Type-B	Is Lacey Film suitable for this application?
Applications requiring pure Formvar	B	-	-	-	-	-	No
Bacterial suspensions	-	G	B	B	B	B	Yes
Cell fragment suspensions	-	B	B	B	B	B	Yes
Diffraction studies	-	-	G	G	B	B	Yes
EDS (energy dispersive spectrometry)	-	G	-	-	B	B	Yes
High resolution microscopy	-	-	G	B	B	B	Yes (Type A)
High temperature techniques/ heating stage	-	-	-	G	G	-	No
Low magnification microscopy	G	B	B	G	G	B	No
Particulate suspension, biological	-	G	B	B	B	B	Yes
Particulate suspension, non-biological	-	G	B	B	B	B	Yes
Powders, dry	-	G	B	G	G	B	No
Replicas & low temperature techniques	G	B	-	-	G	B	Yes (Type A)
Thin sections	G	B	G	B	G	B	Yes
Viral suspensions	-	-	G	B	B	B	Yes

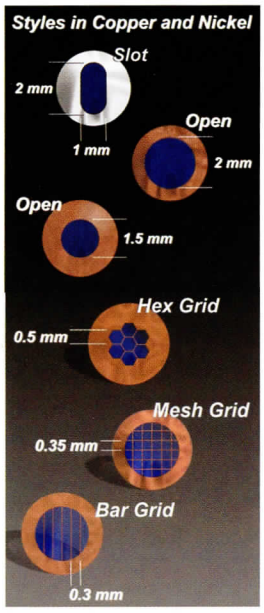


For Quantifoil Substrates go to Support Films page 577

For Silicon Nitride Membranes and Aperture Frames go to page 578-581

LUXFilm™ TEM Supports Large Area TEM Support Frames

LUXFilm™ TEM supports are strong thin films that can span large open areas within the standard 3mm TEM grid diameter. They are available as unobstructed areas up to 2mm diameter or with a few support bars still delivering open areas of 0.3 to 0.5mm. The support films have excellent beam stability and are robust to cryogenic temperatures. The LUXFilm™ TEM Supports improve efficiency and throughput of TEM work by allowing the researcher to view the entire specimen. Important for imaging large structures, tracing features, searching for special details and tomography. The support films are available in 50 and 30nm thickness and with copper and nickel support frames.



Features and benefits of LUXFilm™ TEM Supports:

Strong - LUXFilm™ is about 5x stronger than formvar. The films are compatible with a variety of common stains and ethanol based solutions (not for use with ammonium molybdate stains).

Large unobstructed viewing area - LUXFilm™ TEM supports enable imaging of the entire specimen without interference from grid bars.

Flat - The films are stretched on a copper or nickel supporting frame, exhibiting superior flatness. Used for particle counting or screening applications, meniscus effects are eliminated: particles spread more evenly and do not collect next to grid bars.

Excellent beam stability - The films exhibit very little drift or charging effects in the TEM compared with formvar/carbon. Suitable for electron beam energies from 80 - 300kV.

Wettability - LUXFilm™ has a favorable inherent surface energy for epoxy-embedded sections. Serial ribbons go down flat and tend to "stick" to the film. Surface treatment can be performed to prepare the supports for negative stains and acrylic-embedded specimens.

No autofluorescence - LUXFilm™ TEM Supports exhibit no autofluorescence and no unspecific labeling with antibody stains. This will make the films an ideal choice for correlative microscopy and immunocytochemistry in the EM. The large viewing area assures that all labeled features are visible.

Applications areas for the LUXFilm™ TEM Support films are in demanding and routine TEM imaging with electron beam energies preferably in the 80-300kV range for:

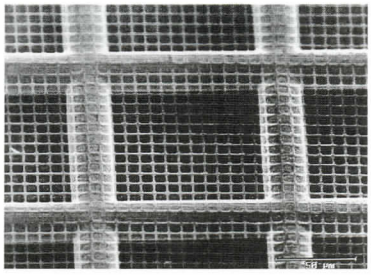
- Large sections
- Tomography
- Thick materials
- Pathology
- Immunocytochemistry
- Particle count and screening.

12810-CU	Ø1.5mm open area on Cu support, 50nm film thickness	pkg/10
12812-CU	Ø2.0mm open area on Cu support, 50nm film thickness	pkg/10
12814-CU	2x1mm open area on Cu support, 50nm film thickness	pkg/10
12810-NI	Ø1.5mm open area on Ni support, 50nm film thickness	pkg/10
12812-NI	Ø2.0mm open area on Ni support, 50nm film thickness	pkg/10
12814-NI	2x1mm open area on Ni support, 50nm film thickness	pkg/10
12821-CU	0.5mm area hex grid Cu support, 50nm film thickness	pkg/10
12823-CU	0.35 mesh grid Cu support, 50nm film thickness	pkg/10
12825-CU	0.3mm bar grid Cu support, 50nm film thickness	pkg/10
12821-NI	0.5mm area hex grid Ni support, 50nm film thickness	pkg/10
12823-NI	0.35mm mesh grid Ni support, 50nm film thickness	pkg/10
12825-NI	0.3mm bar grid Ni support, 50nm film thickness	pkg/10
12830-CU	Ø1.5mm open area on Cu support, 30nm film thickness	pkg/10
12832-CU	Ø2.0mm open area on Cu support, 30nm film thickness	pkg/10
12834-CU	2x1mm open area on Cu support, 30nm film thickness	pkg/10
12830-NI	Ø1.5mm open area on Ni support, 30nm film thickness	pkg/10
12832-NI	Ø2.0mm open area on Ni support, 30nm film thickness	pkg/10
12834-NI	2x1mm open area on Ni support, 30nm film thickness	pkg/10
12841-CU	0.5mm area hex grid Cu support, 30nm film thickness	pkg/10
12843-CU	0.35mm mesh grid Cu support, 30nm film thickness	pkg/10
12845-CU	0.3mm bar grid Cu support, 30nm film thickness	pkg/10
12841-NI	0.5mm area hex grid Ni support, 30nm film thickness	pkg/10
12843-NI	0.35mm mesh grid Ni support, 30nm film thickness	pkg/10
12845-NI	0.3mm bar grid Ni support, 30nm film thickness	pkg/10

QUANTIFOIL Substrates

Four reasons to use Quantifoil:

1. With the known size of the pore of the Quantifoil, one can estimate the size of a particle observed directly.
2. With the defined size and pitch of the holes in the Quantifoil one can use automated electron microscopy for the first time.
3. The Quantifoil 7/2 gives a good portion of "free" area.
4. Hole size and hole distribution uniform over a wide range.



Square Mesh 7 x 7µm and a Bar Width of about 2µm

656-200-CU Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 200M Cu grid pkg/10

656 Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 200M Cu grid . . . . . .each

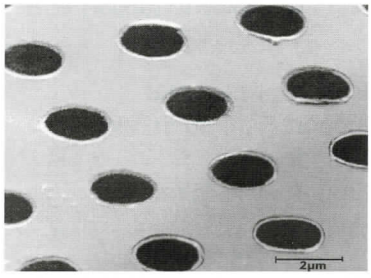
656-200-AU Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 200M Au grid pkg/10

656-200-NI Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 200M Ni grid pkg/10

656-300-CU Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 300M Cu grid pkg/10

656-300-AU Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 300M Au grid pkg/10

656-300-NI Quantifoil Substrate, 7µm square holes and 2µm bars, mounted on a 300M Ni grid pkg/10



Orthogonal Array of 2µm Diameter Holes with about 2µm Separation

657-200-CU Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 200M Cu grid pkg/10

657 Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 200M Cu grid . . . . . .each

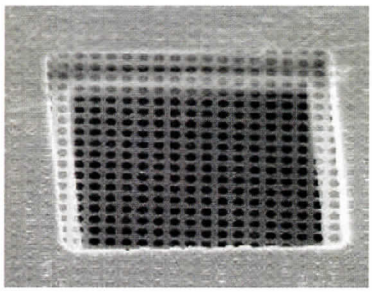
657-200-AU Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 200M Au grid pkg/10

657-200-NI Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 200M Ni grid pkg/10

657-300-CU Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 300M Cu grid pkg/10

657-300-AU Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 300M Au grid pkg/10

657-300-NI Orthogonal Array of 2µm Diameter Holes - 2µm Separation, mounted on a 300M Ni grid pkg/10



Orthogonal Array of 1.2µm Diameter Holes with about 1.3µm Separation

658-200-CU Orthogonal Array of 1.2µm Diameter Holes - 1.3µm Separation, mounted on a 200M Cu grid pkg/10

658-200-AU Orthogonal Array of 1.2µm Diameter Holes - 1.3µm Separation, mounted on a 200M Au grid pkg/10

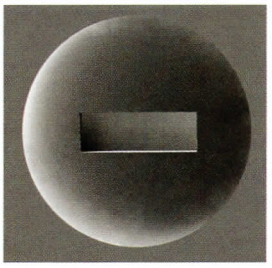
658-200-NI Orthogonal Array of 1.2µm Diameter Holes - 1.3µm Separation, mounted on a 200M Ni grid pkg/10

658-300-CU Orthogonal Array of 1.2µm Diameter Holes - 1.3µm Separation, mounted on a 300M Cu grid pkg/10

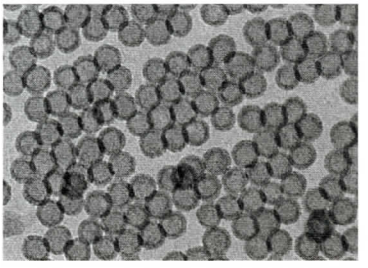
658-300-AU Orthogonal Array of 1.2µm Diameter Holes - 1.3µm Separation, mounted on a 300M Au grid pkg/10

658-300-NI Orthogonal Array of 1.2µm Diameter Holes - 1.3µm Separation, mounted on a 300M Ni grid pkg/10

PELCO® Silicon Nitride Support Films



Tomography Type SiN Support Film



Iron nanoparticles oxidized @350°C on PELCO® Si_3N_4 Support Film.

Haitao Liu, Dept. of Chemistry,
UC Berkeley, California.

■ PELCO® Silicon Nitride Support Films for TEM

The PELCO® Silicon Nitride Support Films for TEM (also called Si_3N_4 membranes) have been developed as an addition to our extensive range of TEM support films to further enable nanotechnology applications and extend molecular biology research. These superior products are made by state-of-the-art semiconductor and patented MEMS fabrication techniques using resilient, low-stress inorganic silicon nitride thin films supported by a sturdy silicon frame. PELCO® Silicon Nitride Support Films are available in seven window sizes combined with either ultra-low-stress 15 or 50nm or low-stress 200nm thin support film thickness on an EM industry standard 3mm diameter frame, making them the most desirable and useful silicon nitride support films in the currrent market place.

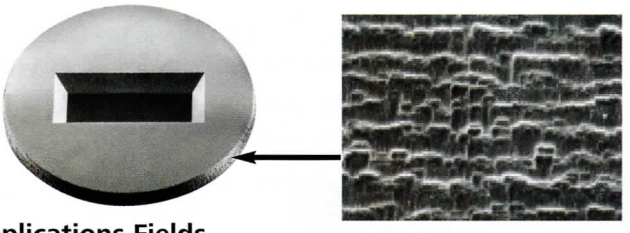
Silicon Nitride Support Films have the advantages of being chemically and mechanically robust and can withstand temperature changes up to 1000°C. They are extremely stable and suitable to conduct a variety of nanotechnology experiments with particles or cells mounted directly on the support films.

The PELCO® Silicon Nitride Support Films are indispensable tools for virtually all fields of nanotechnology research. They enable direct deposition and *in situ* observations of dynamic reactions over a wide temperature range. The support film can be used as a passive support film but can also play a role as an active participant in experiments.

PELCO® Silicon Nitride Support Films are manufactured using state-of-the-art semiconductor and MEMS manufacturing techniques. The Silicon Nitride Support Film is grown on a silicon wafer to the desired thickness of 15nm, 50nm or 200nm. The specimen viewing area is created by etching away a window in the silicon substrate, leaving a perfectly smooth, resilient and chemically robust silicon nitride film.

The frame is manufactured as a 3mm silicon disc with smooth EasyGrip™ edges for easy manipulation by tweezers and will fit perfectly in standard TEM holders. Thickness of the silicon frame is 50µm and 200µm. Easy handling capabilities and smoothness of the edges are design advantages over other brands of silicon nitride support films. The PELCO® Silicon Nitride Support Films are manufactured like grids and are completely free from debris particles. The mechanical and chemical stability allow for cleaning of the Silicon Nitride Support Films with chemicals (solvents, acids and bases), glow discharge and plasma cleaning. Ultrasonic cleaning should not be used, as it can easily shatter the Silicon Nitride membrane.

EasyGrip™ Edge



Applications Fields

- Cell biology: attached cells can be grown in their environment on the support film and subsequently analyzed
- Analysis of colloids, aerosols, nanoparticles
- Self-assembled mono-layers
- Polymer research
- Thin film research (directly deposited on the Silicon Nitride Support Film)
- Materials science
- Properties of nano-structures for semiconductor devices
- Semiconductor: characterization of thin films
- Catalyst development

Product Description

Defining parameters for the PELCO® Silicon Nitride Support Films are:

- Film Thickness: resilient, ultra-low-stress 15nm and 50nm giving rise to minimum absorption to enable clear imaging; robust, low stress 200nm for better handling and use on multiple platforms;
- Window Sizes: 0.25 x 0.25mm, 0.75 x 0.75mm, 0.5 x 0.5mm, 1.0 x 1.0mm and 0.5 x 1.5mm. Multiple window sizes: 2 ea rectangular 0.1 x1.5mm and 3 x 3 array of 0.1 x 0.1mm;
- Frame Thickness: silicon support structure is 200µm standard. This allows for fitting in all standard TEM holders. 50µm for special TEM holders;
- Surface Roughness: The RMS (Rq) is 0.65 ±0.06nm which gives a mean roughness (Ra) of 0.45 ± 0.02nm;
- Frame Diameter: EM standard 3mm diameter disc, fully compatible with TEM holders and with EasyGrip™ edges for improved handling;
- Packaging: Packaged under cleanroom conditions in the PELCO® #160 TEM Grid Box. Each box holds 10 support films.

Ordering Information

50nm Membrane Thickness/200µm Frame:

21505-10 Silicon Nitride Support Film, 50nm with 0.25 x 0.25mm Window pkg/10
21505-100 Silicon Nitride Support Film, 50nm with 0.25 x 0.25mm Window pkg/100
21500-10 Silicon Nitride Support Film, 50nm with 0.5 x 0.5mm Window pkg/10
21500-100 Silicon Nitride Support Film, 50nm with 0.5 x 0.5mm Window pkg/100

ordering information continued on next page

50nm Membrane Thickness: *continued*

21501-10 Silicon Nitride Support Film, 50nm with 0.75 x 0.75mm Window pkg/10
21501-100 Silicon Nitride Support Film, 50nm with 0.75 x 0.75mm Window pkg/100
21502-10 Silicon Nitride Support Film, 50nm with 1.0 x 1.0mm Window pkg/10
21502-100 Silicon Nitride Support Film, 50nm with 1.0 x 1.0mm Window pkg/100
21504-10 Silicon Nitride Support Film, 50nm with 0.5 x 1.5mm Window pkg/10
21504-100 Silicon Nitride Support Film, 50nm with 0.5 x 1.5mm Window pkg/100

200nm Membrane Thickness/200µm Frame:

21525-10 Silicon Nitride Support Film, 200nm with 0.25 x 0.25mm Window pkg/10
21525-100 Silicon Nitride Support Film, 200nm with 0.25 x 0.25mm Window pkg/100
21520-10 Silicon Nitride Support Film, 200nm with 0.5 x 0.5mm Window pkg/10
21520-100 Silicon Nitride Support Film, 200nm with 0.5 x 0.5mm Window pkg/100
21521-10 Silicon Nitride Support Film, 200nm with 0.75 x 0.75mm Window pkg/10
21521-100 Silicon Nitride Support Film, 200nm with 0.75 x 0.75mm Window pkg/100
21522-10 Silicon Nitride Support Film, 200nm with 1.0 x 1.0mm Window pkg/10
21522-100 Silicon Nitride Support Film, 200nm with 1.0 x 1.0mm Window pkg/100
21524-10 Silicon Nitride Support Film, 200nm with 0.5 x 1.5mm Window pkg/10
21524-100 Silicon Nitride Support Film, 200nm with 0.5 x 1.5mm Window pkg/100

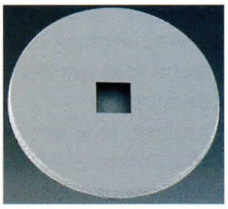
15nm Membrane Thickness/200µm Frame:

21560-10 Silicon Nitride Support Film, 15nm with 0.25 x 0.25mm Window pkg/10
21568-10 Silicon Nitride Support Film, 15nm with 2 each 0.1 x 1.5mm Windows pkg/10
21568-10 Silicon Nitride Support Film, 15nm with 9 each 0.1 x 0.1mm Windows pkg/10

50nm Membrane Thickness/50µm Frame:

21570-10 Silicon Nitride Support Film, 50nm on 50µm frame thickness, with 0.25 x 0.25mm Window pkg/10
21578-10 Silicon Nitride Support Film, 50nm on 50µm frame thickness, with 2 each 0.1 x 1.5mm Windows pkg/10
21579-10 Silicon Nitride Support Film, 50nm on 50µm frame thickness, with 9 each 0.1 x 0.1mm Windows pkg/10

PELCO® Hydrophobic and Hydrophilic Silicon Nitride Membrane Surfaces



50nm Silicon Nitride membranes have been modified using Atomic Layer-Deposited (ALD) techniques to change their surface properties. Depending on the process used, both Hydrophobic and Hydrophilic substrates have been created with the following advantages:

- Choice between low and high surface energies
- Smooth and conformal substrates
- Enhanced wetting and biocompatibility (hydrophilic)
- No need for plasma treatment of surface prior to cell growth
- Hydrophobic coating offers novel platform for deposition and growth of nanomaterials

These coatings are available on 50nm Silicon Nitride Membranes with a window size of 0.5 x 0.5mm on a 200µm silicon frame with a diameter of 3mm, compatible with all standard TEM grid holders.

Specifications

- **Hydrophobic:** 5nm atomic layer-deposited alumina and fluoro-methyl-silane on ultra-low-stress silicon nitride membrane
- **Hydrophilic:** 5nm atomic layer-deposited hydroxylated alumina on 50nm ultra-low-stress silicon nitride membrane
- **Surface Energy:**

Surface	Surface Energy (mJ/m²)	Standard Deviation
SiN Membrane	46.1	4.3
Hydrophobic	24.6	4.4
Hydrophilic	76.1	2.2

- **Surface Roughness:**

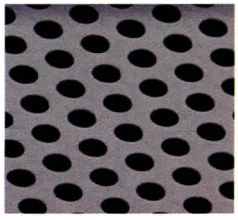
Rq= Surface Roughness; Ra= Roughness Average

Surface	Surface Roughness (nm)	Standard Deviation (nm)
SiN Membrane	Rq=0.65 / Ra=0.45	0.06 / 0.02
Hydrophobic	Rq=0.66 / Ra=0.40	0.03 / 0.05
Hydrophilic	Rq=0.57 / Ra=0.40	0.04 / 0.03

- **Film Thickness:** resilient, ultra-low-stress 50nm
- **Window Size:** 0.5 x 0.5mm
- **Frame Thickness:** silicon support is 200µm standard
- **Frame Diameter:** EM standard 3mm diameter disc, fully compatible with standard TEM holders (no broken edges)
- **EasyGrip™:** edges for easy handling with tweezers
- **Packaging:** The PELCO® Silicon Nitride Support Films are packaged under cleanroom conditions in the PELCO® #160 TEM Grid Storage box. Each box holds 10 support films.

21550-10 PELCO® Hydrophilic 50nm Silicon Nitride Membrane, 0.5 x 0.5mm Window pkg/10
21552-10 PELCO® Hydrophobic 50nm Silicon Nitride Membrane, 0.5 x 0.5mm Window pkg/10

■ PELCO® Holey Silicon Nitride Support Films for TEM



Advanced MEMs technologies have been applied to incorporate many improvements into this truly unique next generation holey Silicon Nitride support membrane. Holey membranes or support films are also referred to as perforated or patterned films. The platform for this holey Silicon Nitride support film is the low stress 200nm Silicon Nitride support film on a circular 3mm silicon frame with a 0.5 x 0.5mm membrane. The diameter of the holes is 2.5µm with a pitch of 4.5µm in an array of 100 rows x 100 columns in a hexagonal high density arrangement. This design has a number of advantages over previously offered products:

- Relatively large open area
- Added resilience of membrane
- Practical hole size for experiments
- A boundary of 25µm non-perforated membrane surrounding the holey membrane area
- TEM standard circular shape
- EasyGrip™ edge for improved handling

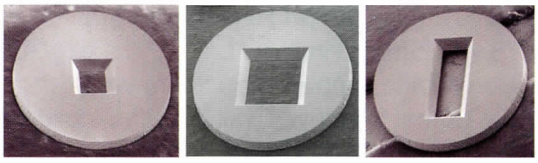
Specifications

Defining parameters for the PELCO® Holey Silicon Nitride Support Films are:

- **Membrane Thickness:** 200nm for added resilience
- **Window Size:** 0.5 x 0.5mm
- **Hole Size and Pitch:** 2.5µm circular holes with a 4.5µm pitch
- **Pattern:** Close packed hexagonal arrangement of 100 x 100 rows/columns with a total of 10,000 holes. A 25um boundary of non-perforated membrane surrounds the perforated area
- **Perforated Area:** 0.45 x 0.45mm
- **Frame Thickness:** Silicon support structure is 200µm standard. This allows for fitting in standard TEM holders and gives a sturdy support frame
- **Surface Roughness:** The RMS (Rq) is 0.65 ±0.06nm which gives a mean roughness (Ra) of 0.45 ±0.02nm
- **Frame Diameter:** TEM standard 3mm diameter disc, fully compatible with regular TEM holders and with EasyGrip™ edges for improved handling
- **Packaging:** The PELCO® Holey Silicon Nitride Support Films are packaged under cleanroom conditions in the PELCO® #160 TEM Grid Storage Box. Each box holds 10 support films

21535-10 PELCO® Holey Silicon Nitride Support Film, 200nm, 2.5µm holes pkg/10

■ PELCO® Silicon Aperture Frames (without support film)



0.5 x 0.5mm 1.0 x 1.0mm 1.5 x 0.5mm

The PELCO® Silicon Aperture Frames are 3mm disc-type frames with a thickness of 200µm and square or rectangular apertures. They offer a variety of applications:

- Support frame to attach TEM lamellae made with FIB
- Support frame for thin films, foils, wires and fibers
- Mask for thin film research (deposition mask)

Specifications

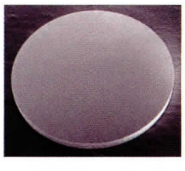
- **Aperture Opening Sizes:** 0.5 x 0.5mm, 1 x 1mm, and 0.5 x 1.5mm
- **Window Side Angle:** 35.26°
- **Aperture Frame Thickness:** 200µm
- **Aperture Frame Diameter:** 3mm
- **Aperture Material:** Si
- **Surface:** Top side Si, bottom side (larger opening) has 50nm Si_3N_4
- **Packaging:** The PELCO® Silicon Aperture Frames are packaged under cleanroom conditions in the PELCO® #160 TEM Grid Storage Box. Each box holds 10 Aperture Frames.

21540-10 PELCO® Silicon Aperture Frame (no support film), 0.5 x 0.5mm pkg/10

21541-10 PELCO® Silicon Aperture Frame (no support film), 1.0 x 1.0mm pkg/10

21542-10 PELCO® Silicon Aperture Frame (no support film), 1.5 x 1.5mm pkg/10

■ PELCO® Silicon Nitride Coated 3mm Discs (blanks)



These 3mm Silicon discs have an ultra-flat (Ra 0.45 ± 0.2nm) 50nm ultra-low-stress Silicon Nitride layer on both sides. The ultra-low-stress film is nonstoichid metric and closer to SiN than Si_3N_4. They can be used for a number of applications:

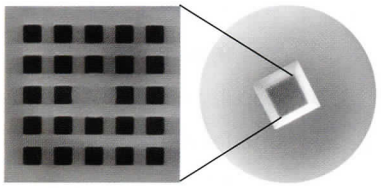
- Specimen mounts for SEM and FESEM applications
- Specimen discs for AFM applications
- Blanks to build the PELCO® Liquid Cell™ together with the PELCO® Silicon Nitride Membrane

Specifications

- **Film Thickness:** 50nm ultra-low-stress Silicon Nitride on both sides
- **Disc Thickness:** 200µm silicon support
- **Disc Diameter:** 3mm
- **Surface Roughness:** The RMS (Rq) is 0.65 ±0.06nm which gives a mean roughness (Ra) of 0.45 ±0.02nm
- **Packaging:** The PELCO® Silicon Aperture Frames are packaged under cleanroom conditions in the PELCO® #160 TEM Grid Storage Box. Each box holds 10 Blanks.

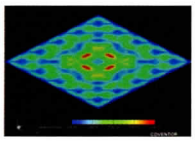
21555-10 PELCO® Silicon Nitride Discs, ø3mm . . .pkg/10

■ PELCO® Silicon Dioxide Support Films for TEM



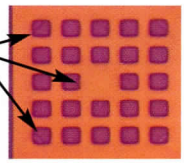
These PELCO® membranes of Silicon Dioxide (SiO_2) offer superior flatness. Using advanced MEMS manufacturing technologies combined with novel stress-reducing techniques, we have been able to provide Silicon Dioxide Support Films with unsurpassed flatness and a membrane thickness of only 40nm. It is truly the next generation Silicon Dioxide membranes.

The Silicon Dioxide (SiO_2) Support Films are manufactured using the PELCO® 200nm Silicon Nitride (Si_3N_4) Support Films with the 0.5 x 0.5mm window as a platform. The 0.5 x 0.5mm membrane is patterned into 50 x 50µm apertures and etched back to the thermally-deposited Silicon Dioxide leaving a structure-free 40nm SiO_2 thin membrane suspended by a 200nm optically transparent (Si_3N_4) support mesh. The bar size between the SiO_2 apertures is 30µm and the boundary width is 65µm. The result is a Silicon Dioxide Support Film with a truly superior flatness.



< Presentation of film flatness using a simulation for the displacement of SiO_2 membrane versus x-y position on the 500 x 500 µm grid.

Optical image showing only minor distortion > Areas with minor distortion



< 60 degree tilted image of one 50 x 50µm Silicon Dioxide Support Film showing smooth surface.

Thermal Silicon Dioxide is one of most functionalized surfaces in analytical chemistry and can be used as a platform to study base materials and biological entities. The support films can be either used as a passive physical support for TEM imaging or as an active participant in experiments. The Silicon Dioxide Support Films have excellent chemical, physical and thermal stability. Examples of applications are:

- Nanomaterial deposition and growth
- Thin film analysis and characterization
- Catalyst research and development
- Support for FIB lamellae
- Study of attached biological molecules.

Specifications

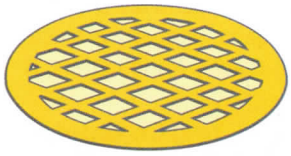
Defining parameters for the PELCO® Silicon Dioxide Support Films are:

- **Membrane Thickness:** 40nm
- **Aperture Size / Number:** 50 x 50µm / 24 apertures
- **Pattern:** 5 rows x 5 columns with 200nm Si_3N_4 support structure, 30µm bar width and 65µm boundary
- **Total Window Area:** 0.5 x 0.5mm
- **Frame Thickness:** Silicon support is 200µm.
- **Frame Diameter:** TEM standard 3mm diameter disc, fully compatible with regular TEM holders and with EasyGrip™ edges for improved handling
- **Packaging:** The PELCO® Silicon Dioxide Support Films are packaged under cleanroom conditions in the PELCO® #160 TEM Grid Storage Box. Each box holds 10 support films.

21530-10 PELCO® Silicon Dioxide Support Film . . .pkg/10

■ Substratek™ Metallic TEM Substrate

innovative experimental nanotech TEM supports



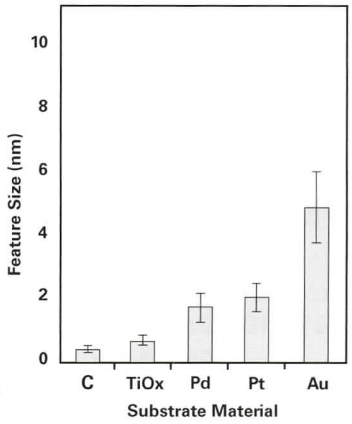
Substratek™ TEM substrates are ultrathin metallic support films on standard 3mm TEM grids. These metallic films are specially manufactured with a patented process (US Patent #7348570 B2, March 25, 2008) as experimental platforms and are electron transparent to allow for imaging using a TEM. The ultrathin Substratek™ substrates enable nano- and microfabrication directly on the substrates subsequent and imaging with a TEM without the need for extensive sample preparation. Direct nanoscale imaging without extensive TEM preparation does not require expensive thinning tools, it also saves time and it avoids introduction of preparation artifacts. Compared to the widely used carbon support films, ultrathin and electron transparent metallic films have a high surface energy and therefore more suitable for fabrication processes.

Important properties of the ultrathin Substratek™ metallic support films are:

- Electron transparent with a 2-3nm thickness
- Small feature sizes do not obscure sample features
- Chemically stable (can be used for electroplating)
- Robust enough to act as substrates
- High surface energy.

They are ideally suited for use as integrated research platforms for applications as diverse as:

- Nanofabrication
- Electron-beam lithography
- Micro-contact printing
- Electrochemistry or electroplating
- Nano-crystal growth
- Carbon nano tubes
- X-ray analysis of carbon containing materials
- Surface and interface science



The Substratek™ TEM substrates are metallic ultrathin films on a standard 3mm TEM grid. Available substrate materials are Au, Pt, Pd (2-3nm thickness) and TiOx (10-20nm thickness) on 300 and 400mesh TEM grids. The Au, Pt and Pd substrates are deposited on gold TEM grids, the TiOx substrate is deposited on copper TEM grids; these material have proven to be stable substrates with a small feature size in the support film. The TiOx substrate is more bio-compatible and can also be used for life-science applications. They are supplied in a PELCO® #160 TEM grid box in quantities of 10 and 25.

continued on next page

Substratek™ Metallic TEM Substrate

continued

References:

1. Allred DB, Zin MT, Hong MA, Sarikaya M, Baneyx F, Jen AK, Schwartz DT, 2007, "Direct nanofrabrication and transmission electron microscopy on a suite of easy-to prepare ultrathin film substrates", Thin Solid Films, 515(13): 5341 - 5347.

2. Allred DB, Cheng A, Sarikaya M, Baneyx F, Schwarz DT, 2008, "Three-dimensional architecture of inorganic nanoarrays electro-posited through a surface-layer protein mask", Nano Letters, 8 (5): 1434 - 1438.

3. Ominami Y, Ngo Q, Suzuki M, Austin AJ, Yang CY, Cassell AM, Li J, 2006, "Interface characteristics of vertically aligned carbon nanofibers for interconnect applications", Applied Physics Letters, 89 : 263114 (1-3).

TEM substrates on 400 mesh TEM grids

G400: Pitch 62µm; Hole Width 37µm; Bar Width 25µm; Transmission 37%

21410-10 Substratek™, 2-3nm Pt on 400 mesh Au TEM Grid pkg/10

21410-25 Substratek™, 2-3nm Pt on 400 mesh Au TEM Grid pkg/25

21420-10 Substratek™, 2-3nm Au on 400 mesh Au TEM Grid pkg/10

21420-25 Substratek™, 2-3nm Au on 400 mesh Au TEM Grid pkg/25

21430-10 Substratek™, 2-3 Pd on 400 mesh Au TEM Grid pkg/10

21430-25 Substratek™, 2-3nm Pd on 400 mesh Au TEM Grid pkg/25

21440-10 Substratek™, 10-20nm TiOx on 400 mesh Cu TEM Grid pkg/10

21440-25 Substratek™, 10-20nm TiOx on 400 mesh Cu TEM Grid pkg/25

TEM substrates on 300 mesh TEM grids

G300: Pitch 83µm; Hole Width 58µm; Bar Width 25µm; Transmission 49%

21310-10 Substratek™, 2-3 Pt on 300 mesh Au TEM Grid pkg/10

21310-25 Substratek™, 2-3 Pt on 300 mesh Au TEM Grid pkg/25

21320-10 Substratek™, 2-3 Au on 300 mesh Au TEM Grid pkg/10

21320-25 Substratek™, 2-3 Au on 300 mesh Au TEM Grid pkg/25

21330-10 Substratek™, 2-3 Pd on 300 mesh Au TEM Grid pkg/10

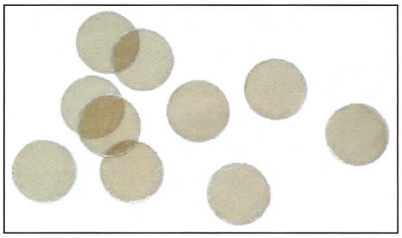
21330-25 Substratek™, 2-3 Pd on 300 mesh Au TEM Grid pkg/25

21340-10 Substratek™, 10-20 TiOx on 300 mesh Cu TEM Grid pkg/10

21340-25 Substratek™, 10-20 TiOx on 300 mesh Cu TEM Grid pkg/25

Mica Substrates

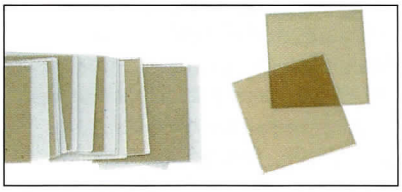
Highest Grade Mica Discs



Highest Grade V-1
Size 9.9mm (.39") dia.
popular with AFM users
Interleaved

50 AFM Mica Disks, Quality Grade V-1, Highest Quality, 9.9mm diameter, interleaved pkg/10

Hi-Grade Mica



Grade V-2
Size, 25 x 25mm (1 x 1")
0.23 to 0.3mm (.009 - .012") thick
Sheets interleaved

52-6 Hi-Grade Mica, Grade V-2, 25 x 25mm pkg/20

Mica Sheets

Three sizes available, presenting many fresh, clean surfaces for such EM applications as carbon filming and particle spraying. Thickness, .23mm (.009").

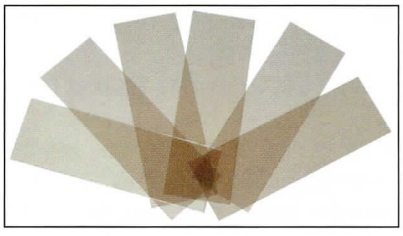
52 PELCO® Mica Sheets, Grade V-5, 50 x 76mm (2 x 3") pkg/10

53 PELCO® Mica Sheets, Grade V-5, 25 x 76mm (1 x 3") pkg/20

54 PELCO® Mica Sheets, Grade V-5, 10 x 40mm (.39 x 1.57") pkg/100

Highest Grade Mica Sheets

slide size

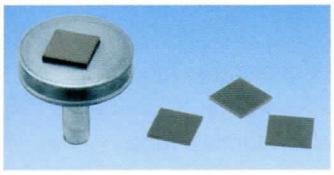


Highest quality V-1 Mica
Size, 25 x 76mm (1 x 3")
.15 to .177mm (.006-.007") thick
Sheets interleaved

56 Highest Grade V-1 Mica, 25 x 76mm pkg/10

Silicon Chip Specimen Supports

grow cells on these specimen supports for SEM viewing



Si-chips are opaque, of low electrical resistance and have surface properties equal to glass (including smoothness). They are chemically inert and make good substrates for growing or mounting cells. They also provide an excellent smooth background for imaging small particles.
Si-chips are precleaned before packaging.

Applications: Specimen support for mounting cell structures and ferritin particles, useful for determining resolution and contrast capabilities of the "in-the-lens" field emission SEMs.

Ordering information: 4" wafer is precut into 5x7mm or 5x5mm chips that can be easily separated in the laboratory.
Cut into 5x7mm chips approximately 187 chips/wafer.
Cut into 5x5mm chips approximately 270 chips/wafer.

Properties:

Surface finish roughness <10 angstroms
Orientation (111)
Resistance 1-30 Ohms
Type P (Boron) if 1 primary flat
Type N (Phosphor) if also a secondary flat, 45 degrees from primary flat, is present
No SiO_2 top coating
Wafer thickness is 18-21 mil (460-530 µm)
Wafer is polished on one side
Before dicing they are rinsed in de-ionized water for cleaning

courtesy KR Peters

Peters KR, 1985. Working at higher magnifications in scanning electron microscopy with secondary and backscattered electrons on metal coated biological specimens and imaging macromolecular cell membrane structures. Scanning Electron Microscopy, IV: 159.
Apkarian, RP, High-resolution signal detection of specimen-specific secondary electrons in an analytical SEM, "Proc.. 44th Ann. Meeting of the EMSA", 1986, GW Bailey, Ed., San Francisco Press, 658.

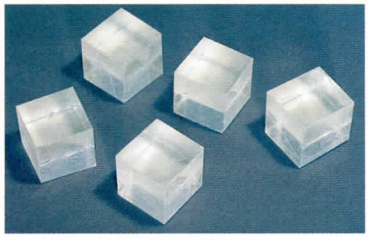
16006 4" (10cm) dia., 10x10mm diced Silicon Wafer, 55 chips/wafer . . . . . .each
16007 4" (10cm) dia., 5x7mm diced Silicon Wafer, 187 chips/wafer . . . . . .each
16008 4" (10cm) dia., 5x5mm diced Silicon Wafer, 270 chips/wafer . . . . . .each

4" Silicon Wafer

This 4" (10cm) silicon wafer can be used either as a substrate for thin film research or to make small silicon substrates by dicing the wafer into smaller pieces using a scriber. The wafer is shipped in a 4" wafer carrier.

16010 4" Silicon Wafer . . . . . .each
16012 2" Silicon Wafer . . . . . .each
16013 3" Silicon Wafer . . . . . .each

Single Crystal Substrates (NaCl, KBr and KCl)

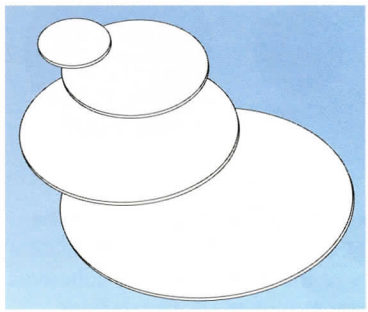


High purity, optical grade single crystals of sodium chloride (NaCl), potassium bromide (KBr) and potassium chloride (KCl) form excellent substrates to grow epitaxial films. The orientation of the vacuum coated thin films is directly related to the orientation of the single crystal substrate thereby creating single crystal films. Ideal for thin film research, education and studies of properties of single crystal films.

All three materials are supplied with (100) orientation with a crystal size of 10 x 10 x 10mm in packs of 5. For most applications it is advisable to use freshly cleaved substrates. The cleaved surfaces produce atomically flat areas however, cleavage steps over different atomic planes should be expected.

46-2 NaCl Crystals, 10 x 10 x 10mm M pkg/5
46-6 KBr Crystals, 10 x 10 x 10mm pkg/5
46-8 KCl Crystals, 10 x 10 x 10mm pkg/5

PELCO® Quartz Substrate Discs



The PELCO® quartz discs or wafers are made from high quality fused quartz (Technical data on GE 124 Quartz) ground and optical-grade polished on both sides. The discs can be used as substrates for thin film research and are also suitable for optical research. The quartz wafers have excellent chemical resistance against a wide variety of solvents. They have also excellent heat resistance with high dimensional stability over a wide temperature range. Available in sizes from 1" to 4" with thickness of 1/16" and 1/8". 1/16"= 1.59mm, 1/8"= 3.18mm. T

16001-1 Quartz Disc, 1" x 1/16", polished . . . . . .each
16001-2 Quartz Disc, 1" x 1/8", polished . . . . . .each
16002-1 Quartz Disc, 2" x 1/16", polished . . . . . .each
16002-2 Quartz Disc, 2" x 1/8", polished . . . . . .each
16002-51 Quartz Disc, 2.5" x 1/16", polished . . . . . .each
16002-52 Quartz Disc, 2.5" x 1/8", polished . . . . . .each
16003-1 Quartz Disc, 3" x 1/16", polished . . . . . .each
16003-2 Quartz Disc, 3" x 1/8", polished . . . . . .each
16004-1 Quartz Disc, 4" x 1/16", polished . . . . . .each
16004-2 Quartz Disc, 4" x 1/8", polished . . . . . .each

T = Tech Note on web page
M = MSDS on web page