Mounting and antifading (IHC, IF)

Back to IHC/IF products (PH-BA377a)

Technical tip – **Mounting Media** selection guide

There is no universal antifadant due to the fact that biological material is so varied in nature that the fluorescence fading of fluorochromic conjugates is a complex process. Here is a selection guide. You also may select more photostable fluorochromes! See our great FluoProbes dyes.

Mounting	Application	Product	Substitutes to
	(Microscopy, IHC)		
Not hard	Chromogens (Microscopy, IHC)	**Histochoice**	Xylene, Toluene, …
Hard	Chr./FR, AEC,BCIP,DAB	**Clear-Mount**	◀Crystal Mount*, Δ Faramount™
	Chr./AP (BCIP)	**In-Situ Mount**	◀Situ Mount™
	Chr./DAB, AP, sFR, H&E	**Limonene-Mount**	◀Clarion Mount™
	(Fluorescence Microscopy – IF)		
Not Hard.*	Antifade/Soluble&insoluble fluo.	**EverBrite Wet-set**	Δ Gel-Mount™, Δ VectaShield™, Δ PL
		Fluoro-Gel	◀Gel-Mount™, ◀ VectaShield™, Permount, AF1/2/3/4,
		Glycerol-based	◀VectaShield™,
	Atfd/ various fluor.(3 soln.)	**Anti-fading Kit**	Δ SF
Semi perm.	Atfd	**FluoroMount G**	Δ Gel-Mount™ and Δ others
Hard.*	Antifade/ various fluor.& colors	**EverBrite Hard-set**	Δ PL

◀ and Δ indicate respectively the product in the first column is a direct substitute (◀) and good alternative (Δ)

™ The names Gel Mount, Crystal Mount, Situ Mount, and Clarion are all owned by BioMeda Corporation. VectaShield is owned byVector Labs. PermaFix,VM and Citifluor are owned by Citifluor Ltd.

*'Hard' means hardening, curing (contains crosslinker), for permanent mounting.

Glycerol-based Mounting Media

Glycerol-based Mounting Medium	**WU1410, 100ml**	**WU1411, 1L**
Aqueous Mounting Medium for Microscopy		
Glycerol-based Mounting Medium, with DAPI	**, 100ml**	(with DAPI counterstain for DNA)
Glycerol-based Mounting Medium, with DABCO	**WU1421, 100ml**	(DABCO prevents photo-bleaching of FTIC, TR, AMCA, CY dyes, AF4878/494, GFP, TMR)
Glycerol-based Mounting Medium, with DAPI & DABCO	**WU1471, 100ml**	
Glycerol-based Mounting Medium, with PPD	**WU1481, 100ml**	(with 1, 4-phenylenediamine – direct alt.to VectaShield)
Glycerol-based Mounting Medium, with PropylGallate	**WU1431, 100ml**	

See Prices, Technical Sheet

HistoChoice® Mounting media

A mounting media of choice !

- For standard slide preparations
- Suits both thick or thin specimen mounting
- Bubble-free slide preparation (thanks to low viscosity)
- Does not crack or splinter with age and will not discolor
- Compatible with immersion oil microscopy.
- Compatible with Histochoice clearing agent

HistoChoice® Mounting media	**41927A 120 ml**	**41927B, 475 ml**

See Price, Technical sheet

ImmunoMount .

- Non-permanent mountant.
- Economical, organic overnight-drying liquid coverslip.
- Aqueous base for immunostaining and other techniques.
- Non-fluorescing medium with a low viscosity for maximum specimen absorption.
- Resists fading and polymerizes quickly for easier handling of finished slides.
- Refractive index: 1.495 ±0.002 (liquid); 1.586 ±0.002 (dry)
- Viscosity: Low (120-160 cps @ 24ºC).
- pH: 8.0 - 8.8 @ 21-24º C.

ImmunoMount (shandon) **983260, 20 ml** **983264, 6x20ml**

See Price, Technical sheet

Clear-Mount (A Direct Substitute for BioMeda™ Crystal Mount)

Clear-Mount is a water based mounting medium designed for the permanent mounting of hydrated tissues, which may be damaged with organic solvents. Such samples include cell smears, with peroxidase and alkaline phosphatase chromogens.

This mounting medium preserves Fast Red, Aminoethylycarbazole (AEC), NBT/BCIP, INT/BCIP chromogens and is also compatible with counter-stain such as Hematoxylin and Nuclear Fast Red. It is also suitable for chromogens like DAB and DAB with Nickel and Cobalt. It is not compatible with H & E staining. Counterstain hematoxylin and NFR are compatible.This mounting medium does not require coverslip, if required, one can use it after mounting medium is dried and then add organic mounting medium on the top of dried IHM ("double mounting").

Application: Mounting of Immunohisto slides.

Clear-Mount (original formula: with Tris Buffer*) **BT0781, 30 ml** **BT0782, 100ml**

Clear-Mount #BT0781 is formulated with Tris Buffer, but is also available with PIPES, #BT078C buffer (for more stable pH). price Technical Sheet

See Price, Technical sheet

In-Situ Mount (A Direct Substitute for BioMeda™ Situ Mount)

In-Situ mounting medium is a unique mounting medium designed for permanent preservation of tissue sections and cell smear with alkaline phosphatase chromogens like NBT/BCIP and red stain.

Application: Mounting tissues and cell smears.

In-Situ Mounting Medium **DT0975, 30 ml**See Price, Technical sheet

Limonene-Mount (A Direct Substitute for BioMeda™ Clarion Mount)

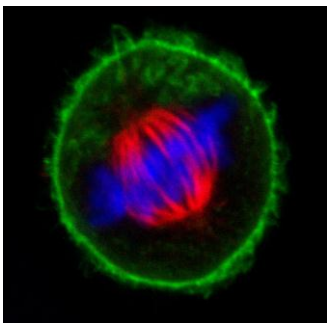
This mounting medium is made with limonene, a natural product from orange peels. It preserves tissues and cell smears that can be dehydrated with organic solvents in immunohistochemistry, e.g. DAB and DAB with nickel or cobalt. Our Limonene-Mount also works well with alkaline phosphatase chromogens, and organic solvent resistant Super Fast Red. It is also a good choice for mounting H & E stained slides.

Application: Mounting tissues and cell smears.

Limonene-Mount **DT096A, 30ml** **DT096B, 100 ml** **DT096C, 250 ml** See price, Technical sheet

Fluoro-Gel (A Direct Substitute for BioMeda™ Gel-Mount)

A n cheap yet efficient mounting and anti-fading media



Fluoro-Gel is a water based mounting medium designed for the permanent mounting of fluorescent stained tissues, which may either be damaged or soluble in organic solvents, such as xylene or toluene. This unique formula prevents rapid photo-bleaching of FITC, TR, AMCA, Cy2/Cy3/Cy5, AF488/AF594, Green Fluorescent Protein (GFP), Tetramethylyrhodamine, Redox, Phycoerythrin (RP-E), Phyocyanin (PC), Allophycocyanin (APC) and many more. The fluorescence is retained during prolonged storage at 4ºC in the dark.

Application: Immunofluorescence, confocal microscopy.

Fluoro-Gel Mounting Medium	**AL2561, 20 ml**	**AL2562, 100 ml**

FluoroGel #AL256 is the original formula: with Tris Buffer.
Rem: is also available with TES buffer #AL256A, and PIPES buffer #AL255D (for more stable pH).

Fluoro-Gel Mounting Medium, with DAPI	**DT094A, 20ml**	**DT094B, 100ml**

Contains 4, 6-diamino-2-phenylindole (DAPI) counterstain for DNA.
Rem: It is also available with with Propidium Iodide (PI) #DT095A, and with Phenylenediamine #DW5310, with PI €DT095A; with DAPI and PPD #96034B.

See Prices, Technical Sheet

Fluoromount G

A classic mounting and anti-fading media

Fluoromount G is a clear liquid semi-permanent mounting medium for slides mounted after a staining procedure having an aqueous final step. Refractive Index is about 1.40. Fluoromount G prevents loss of signal during microscopic examination. It inhibits photobleaching of various fluorochromes, including Fluorescein, much better than classical formulations containing glycerol, polyvinyl alcohol.

Benefits are :

- Reduces fluorochrome quenching during analysis of slides by fluorescence microscopy.
- Provides a semi-permanent seal for long-term storage of slide preparations
- Can be combined with DAPI or other counterstains

Fluoromount G	**FP-483331, 25 ml**
Fluoromount G, with DAPI	**FP-GO3520, 20 ml**

See Prices, Technical sheet

EverBrite mounting and antifading agent

an unique antifade mounting medium : universally preserves fluorescence of all dyes across the entire visible and near-IR spectra!

• **Protect fluorescence from photobleaching** over a wide range of dye colors
• **Compatible with a wide range of dyes**, including Cy™ dyes
• **Wet-set** allows immediate viewing after sealing coverslip edges
• **Hard-set cures overnight** to form a hard seal, no additional sealing required
• Slides **can be stored at 4°C or -20°**C for months or longer
• Also **available with DAPI** to counterstain nuclei

EverBrite Mounting Medium	**FY060, 10 mL**
EverBrite Mounting Medium with DAPI	**FY3070, 10ml**
EverBrite Hardset Mounting Medium	**LO5510, 10ml**
EverBrite Hardset Mounting Medium with DAPI	**LO5520, 10mL**

See Presentation PH-BA387e, Prices, Technical Sheet

Anti-fading solutions

The Anti-Fading Kit is to reduce the dye photobleaching rate, giving researchers longer observation time. The formulations are proven to be effective for a variety of fluorescence imaging dyes such as fluoresceins (e.g., FITC), rhodamines (e.g., TR), coumarins (e.g., AMCA and calcein blue) and UV-excitable dyes (e.g., DAPI, Hoechst, Indo-1 and Fura-2) etc.

The kit contains all the essential components that can be readily applied to imaging experiments. They are all premixed and ready-to-use solutions.

Anti-fading Kit I *Optimized for Slide Imaging* **FP-CL0510, 3x20 tests**

Contains 1 vials of antifading agent:
Component A, optimized for FITC and other fluorescein-based imaging experiments.
Component B, optimized for multiplexing imaging. In some cases, it enhances initial fluorescence intensity besides its anti-fading effect.
Component C, optimized for multiplexing imaging with minimal photo toxicity

See Prices, Technical Sheet

Biochemicals & **Other** mounting and antifading agents

*mounting and antifading agents:

Glycerol, biotech grade MW: 92.1 **047620, 1 L**
Glycerol, proteomics grade **04762Q, 1L**
04762L, 4L
Mowiol (polyvinylalcohol) **16807A, 50g**

a popular antifading agent; CAS:[9002-89-5];~88% hydrolysis, MW:~31000; ~630 polymerization ; viscosity 3.5-4.5 mPa.s in 4 % in H2O(20°C) , ester number 130-150

p-phenylenediamine **A5612K, 1ml at 1mg/ml**

an anciently popular antifading agent; CAS[106-50-3], MW:108.1. Used typically at 0.1%

specifications of Glycerol #047620 .

Used as anti fading and mounting agent for slide preparation
CAS[56-81-5]; MW : 92.10
Purity > 99.0 %
Heavy metals < 0.0005 %
RNAse, DNase free

Homemade Mowiol medium:

10% Polyvinyl alcohol (PVA), 5% glycerol (Gly), 2.5% DABCO, and 25mM Tris buffer pH 8.5

*other formulated mounting and antifading agents: Please inquire

PH-BA377a: **Citifluor – UVM – PermaFix – PermaFluor .**
FluoroGuard – VectaShield – SlowFade – Prolong – CytoSeal60 – …

Adhesives for Slide preparation in Microscopy

Aron Alpha® -Ethyl Ultra Speed Adhesive (Quickbond)

Aron Alpha , type 200 is a one component, room temperature curing structural adhesive composed mainly of alpha cyanoacrylate monomer in a liquid state. When this monomer is applied in a single thin coating to the bonding surface of the material, it instantly solidifies through polymerization to produce an extra high strength, colorless bond with virtually no shrinkage. Aron Alpha bonds almost any nonporous material except fluorocarbons. Solvents such as gasoline, propane, oil, alcohol or benzene do not affect resinified Aron Alpha. The adhesive itself contains no solvents. The Aron Alpha bond has a high tensile strength but a relatively lower shear strength. Aron Alpha is not a gap filler. Good surface contact is essential. Meets MIL-A-46050 C. Ideal for the bonding of tissues to a tissue-slicer, tissue block or to a blank block etc.

Physical Properties of Type 200

***Before use (Liquid state)**	
Refractive Index, N20°C/D	.1.4363
Viscosity @25°C (Brookfield)	2
Specific Gravity, 20°C/4°C	1.050
Boiling Point, 5mmHg, °F	140-144
Melting Point (°F)	-130
Flash Point (°F)	181
Solubility	acetone, MEK, benzene, toluene, ethylacetate, nitromethane

***After use (Bonded state)**	
Solubility Paramete	10.72
Softening Temp. (Viscat State), (°F)	293
Melting Point (°F)	392 – 406
Specific Gravity, 20°C / 4°C	1.2483
Refractive Index, N20°C/D	1.4870
Electric resistance	10 11-13
Solubility	acetone, nitromethane

RT **72588** **Quick-Bond - Aron Alpha 200** 5x2g/bx TS Price

Biobond; Tissue Section Adhesive

Having prepared the tissue specimen for immunolabeling it is then imperative to perform the incubations with a protocol designed to maximize the specific signal and minimize the background. Some incubation conditions may cause the tissue sections to be removed from the glass slide. Typical tissue section adhesives such as poly-L-lysine, Elmer's glue, chrome alum, etc... are not suitable for use with immunogold labeling because of the increased background caused by the attraction of gold particles to the adhesive on the slide.

Furthermore, the surface of glass slides is uneven and it is activated by the silicon tetrahedral structure. It, therefore, provides active sites for absorbtion of proteins or reactions with chemicals and reagents. Thus, it is important to minimize this possibility by coating the surface with a material that is of low reactivity towards reagents. BIOBOND produces a very strong adhesion between the glass slide and the tissue section for subsequent incubations, as well as a protective layer to minimize the interaction between the charged glass surface with the reagents.

BIOBOND is suitable for all kinds of tissue specimens including but not limited to paraffin wax, resin sections, cell smears, cytospins and cryostat sections. It is supplied in a 20 ml vial, which is sufficient to coat at least 1000 slides.

0-5°C **71304** **Biobond** 20 ml TS Price

Certified Conductive Adhesives

A new reliable line of conductive adhesives which are certified by the Bureau Veritas Quality International. Quality Standards: ISO 9001; EN29001; ANSI/ASQC Q91.

Silver Conductive 18DB70X

Silver Conductive Coating 18DB70X is a direct substitute for Silver Conductive Fluid 416, which is no longer available. This material was specially formulated for use in geographic areas that demand the use of low VOC (Volatile Organic Compounds) products. It also provides low ohms at very thin dry film thickness on almost any surface, and exhibits excellent long term shielding and grounding properties.

Typical Properties:

*As supplied (Liquid)		*As applied:		*When applied:	
Pigment	Silver	: VOC	0.5 lb/gal (59.6g/l)	: Sheet resistance:	0.015 ohms/sq. in./mil (25µm)
Binder	Acrylic	: Diluent:	Acetone (1:1 ratio by volume)	: Attenuation:	75 dB
Solids content by weight:	50.8% ± 5%	: Drying time:	5 minutes air dry to touch/10 minutes to handle then 5 minutes at 180°–225°F(82° – 107°C) or air cure for 24 hrs.	: .	.
Density:	13.9 lb/gal (1.67kg/l)	:		:	

RT	**12684-15**	**Silver Conductive Coating**	15 g	TS	Price

Silver Conductive Adhesive Paste 478SS

Our adhesive 478SS is a conductive, silver-based polymer which is used for thick film coatings where liquid silver is not an option. Once cured, it offers a very high Tg (glass transition temperature) 153°F (67°C) to prevent blocking, and offers superior adhesion to polyester film. Adhesive 478SS can be cured at 200°F (93°C) within 15 minutes. Higher temperatures will reduce the time needed to achieve a final cure.

Typical Properties:

* As Supplied		* As Cured	
Pigment	: Silver	.	: .
Binder	: Polyester	.	: .
Color	: Silver	Color	: Silver
Dilutent	: Carbitol acetate	Sheet resistance	: <0.025 ohm/sq @1 mil
Consistency	: Paste (13,000-28,000 cps)	.	: .
Solid content	: 72.5-75.5%	.	: .
Flash point	: 230°F (110°C)	.	: .
Shelf life	: 6 months under original seal	.	: .

RT	12685-15	**Silver Conductive Adhesive 478SS**	15g	TS	Price
RT	12685-25	**Silver Conductive Adhesive 478SS Thinner**	25 ml	TS	Price

Silver Conductive Adhesive 503

A High Temperature Conductive Paint

Silver paint 503 is a flexible, high temperature conductive material designed for a wide variety of uses, and adheres to most substrates.

ADVANTAGES:

- Withstands ambient temperatures of over 500°F (260°C).
- Remains flexible over temperature range of –40°F to 500°F.
- Highly conductive – good adhesion to substrates.
- Dries at room temperature.
- Ready to use – easy to apply.

Typical Properties

* As supplied:		* As Cured:	
Pigment	: Specially treated silver 56%	Color	: Silver

Binder	: Fluoroelastomer	Service temperature	: 525°F (275°C)
Carrier	: Methyl Isobuthyl Ketone (MIBK)	Sheet resistance	: 0.05 ohms/sq. in/ 1mil dry film
Color	: Silver - Consistency: fluid	.	: .
Density	: 14.6 lbs/gal (1.75kg/L)	.	: .
Solid content by weight	: 18%	.	: .
Weight solids	: 62%	.	: .
Viscosity	: 1700cps	.	: .

Shelf life for this product is two years under original seal. Store in cool place.

Drying:

Air dry coated part approximately 10 minutes (depending on humidity) before carrying out resistance hecks. Air dry to touch in 30 seconds and it is ready for use in 2 minutes.

12686-15 **Silver Conductive Adhesive 503** 15g TS Price

Graphite Conductive Adhesive 154

Adhesive 154 is an easy-to-apply resistance coating designed to provide high lubricity, conductivity, and excellent release properties to many non-conductive substrates, including most plastics. It is made from a dispersion of colloidal graphite in an isopropanol base which quickly air-dries, forms an uniform thin film adherent layer. Air dries to touch in 5 minutes and is ready for use in 30 minutes. After air drying, bake for 5 minutes at 167°F (75°C) to achieve optimum coating qualities in a shorter curing cycle.

Specifications:

*** As supplied**		*** As cured**		
Pigment	: Graphite	Color	:	Matte black
Color	: Black	Service temp	:	150°F (65°C)
Binder	: Celluosic resin	Sheet resistance	:	1.2 K ohms/sq inch @1 mil dry film
Carrier	: Isopropanol	.	:	.
Dilutent	: Isopropanol or equivalent	.	:	.
Consistency	: Liquid	.	:	.
Weight solids	: 20%	.	:	.
Volume solids	: 14%	.	:	.
Flash point	: 52°F (11°C)	.	:	.
Shelf life	: 6 months under original seal	Shelf life	:	6 months under original seal

RT **12691-30** **Graphite Conductive Adhesive 154** 30g TS Price

Graphite Conductive Adhesive 112

Adhesive 112 is an air drying graphite coating of unusually high conductivity. It provides excellent static bleed properties and acts as a protective energy absorbing layer. It also offers good shielding performance (30-50 db over 50-450 MHz) at a coating thickness of 2 mils. It is water based and useful in solvent prohibited applications.

To use: Air dry until all water has flashed off. Air dries to touch in 20 minutes, to handle in 25 minutes. It will continue to harden for 24 hours. It can be forced dried at temperatures up to 160°F (71°C).

Specifications:

*** As supplied**		*** As cured**	
Pigment	: Graphite	Color	: Black
Color	: Black	Service temp	: 350°F (117°C)
Binder	: Acrylic	Sheet resistance	: 20 ohms/square @ 1 mil
Volume solids	: 34%	.	: .
Flash point	: 52°F (11°C)	.	: .
Shelf life	: 6 months under original seal	.	: .

RT 12693-30 Graphite Conductive Adhesive 112 30g TS Price

Carbon Conductive Adhesive 502

A High Temperature Conductive Paint

Conductive adhesive 502 is a combination of specially processed carbon particles in a fluoroelastomer resin system designed to provide high resistance values. In its cured form, it exhibits both high and low temperature flexibility and moisture resistance.

Advantages:

- Withstands ambient temperatures of over 500°F (260°C).
- Remains flexible over temperature range of –40°F to over 500°F (260°C).
- Cures at room temperature.
- Good adhesion to a variety of substrate.
- Excellent oxidation resistance.
- Ready to use - easy to apply.

Typical Properties

*** As supplied**		*** As cured**	
Pigment	: Specially Processed Carbon	Color	: Black
Binder	: Fluoroelastomer	Max service Temperature	: 525°F (275°C)
Diluent	: MethylEethylKketone (MEK)	Sheet resistance	: 130 ± 100 ohms/sq.in./ 1 mil dry film
Color	: Black	.	: .
Consistency	: Fluid	.	: .
Density	: 7.2lbs/gal (0.87 kg/l)	.	: .
Solid content by weight	: 13%	.	: .
Viscosity	: 600 ± 200 mPas (Brookfield RVT @ 20rpm)	.	: .
Flask point	: 23°F (-°5C)	.	: .

Shelf life for this product is one year under original seal. Store in cool place

Drying

Air drying of the product is adequate for most applications.
To assure complete solvent loss, the coating can be baked for 15 minutes at 302°F (150°C).

RT	**12694-30 (12684-30)**	**Carbon Conductive Adhesive 502**	30 g	TS

Colloidal Compounds and Conductive Adhesives

A) Silver Adhesives:

Liquid; Colloidal Silver: 1-Methoxy-2-propanol base. Fast drying. Average grain size less than 1 µm and Silver content is 60%. Sheet resistance is 0.02 ohm per square inch @ 1 mil thickness. Comes with a brush attached to the cap. Service temperature is 30 minutes at 200°C.

RT	**12640**	**Silver Paste**	25g	TS Price
RT	**12641**	**Silver Colloidal Extender**	25 ml	TS Price

Paste; Colloidal Silver: Clear Lacquer base. Thick base – Ideal for non-flowing required. Easily applied with micro spatula or wooden toothpick. Particle size ranging 0.4 – 1 µm, 80% are less than 1 µm. Cure in 16 to 20 hours at room temperature or 30 minutes at 125 – 150 °C.

RT	**12640**	**Silver Paste**	25g	TS Price
RT	**12641**	**Silver Colloidal Extender**	25 ml	TS Price

B) Graphite Adhesives:

Water Base: Flat surface texture. The average flake size is 1µm.
Service temperature: 306°C.

RT	**12650**	**Graphite, Water base**	50g	TS Price

Isopropanol base: Flat surface texture. The average flake size is 1µm.
Service temperature is 204°C.

RT	**12660**	**Graphite, Isopropanol base**	30g	TS Price
RT	**12661**	**Graphite Extender**	30 ml	TS Price

C) CCC Carbon Adhesive

An electrically Carbon Conductive Cement for specimen mounting in all SEM work. After drying of the cement, immediate investigation of conductive specimens is possible. Non-conductive specimens need only to be coated with carbon or metal.

Thinner is available if the cement viscosity is too thick.

RT	**12664**	**CCC Adhesive**	30g	TS Price
RT	**12665**	**CCC Thinner**	30 ml	TS Price

D) Leit-C-Plast

A special adhesive with very high electrical conductivity and permanent plasticity for the preparation of big specimens in SEM work.

RT	**12667**	**Leit-C-Plast**	15g	TS Price

E) Tempfix Adhesive

A thermoplastic adhesive for mounting powder specimens and small particles for SEM. It does not contain any solvents and it is stable in high vacuum. It is not sticky at room temperature but becomes adhesive at 40°C and melts at 120°C. Tempfix may also be used as an embedding medium.

RT	**12668**	**Tempfix Adhesive Set**	each	TS Price

F) EMS Conductive Epoxy Gold- Paste

EMS one part Epoxy Gold Paste is a gold-filled conductive bonding, exhibiting high electrical conductivity and bond strength. This Gold Paste is used in preference to silver-epoxy or other silver preparations to avoid silver migration problems, or when a higher signal is required.

This Gold Paste is well suited to all SEM work, and it bonds well to alumina ceramic substrate, phenolic circuit boards, and transistor headers. It is also useful in a variety of applications in solid state and hybrid circuits including attachment, bonding semiconductor devices, heat sinks, capacitor chips.

Properties of Epoxy Gold-Paste:

Composition	: 88% Gold
System	: One-part epoxy
Viscosity	: 175,000 cps
Pot Life (25°C)	: 6 months
Cure	: 15 hrs. @150°C, or 1 hr. @ 150°C plus 2 hrs. @200°C
Elec. Resist (Ohm-cm)	: 4 x 104
Bond Shear Strength	: 1000 psi
Outgasing (postcure)	: 0.70% 1000 hrs @125°C
Thinner	: Butyl carbitol acetate or butyl cellosolve acetate
Serv. Temp. Range	: -65°C to +200°C

RT	**12640-01**	**Gold Epoxy Paste**	2 g	TS	Price
RT	**12685-26**	**Gold Thinner(Butyl Carbitol Acetate)**	25 ml	TS	Price

G) EMS Conductive Gold-Paste

This EMS Conductive Gold-Paste is a one part adhesive. Fast drying – dries at room temperature. Maximum service temperature is 65°C. This adhesive is not for permanent use, useful for testing and temporary work where a high signal is required from the adhesive.

Gold content is ~75%, including sphere sizes < 2 µm, and flake size <10 µm, in organic binders and a solvent. Keep refrigerated for good shelf life.

Sheet resistance is 0.02 to 0.05 ohm-cm @ 1 mil thickness.

RT	**12642**	**EMS Conductive Gold-Paste**	2 gm	TS	Price
RT	**12643**	**Conductive Gold-Paste Extender**	25 ml	TS	Price

ask for 'Mounting of Powders, Granules, and Fibers' document ()

Electrically/Thermally Conductive Adhesives (ETC)

We offer a broad line of electrically and thermally conductive materials, which provide solutions to a variety of electrical, electronic, and thermal design problems throughout the laboratories and industries.

Properties Electrically/Thermally Conductive

Product Number	525	556	597A	598FS
Filler	Silver	Silver	Silver	Nickel
Mix Ratio by Weight: Resin : Hardener	NA	1:1	NA	NA
Mixes Specific Gravity, g/cc @ 25°C	1.85	2.8	2.3/2.1	2.87/1.5
Mixes Viscosity, @25°C, cps	Paste	Paste	Paste/Paste	Paste/480
Pot Life, 100g mass @25°C, hrs.	N/A	1	N/A	N/A
Recommended Cure, hr/°F	2/300	24/RT	2/RT+2/200	2RT+2/200
Alternative Cure, hr/°F	6/250	4/170 or 2/210	--	--
Temperature Resistance, °F (°C)	340 (171)	340 (171)	1200 (649)	1000 (538)
CTE, in/in/°F x 106 (°C)	29.0 (52.2)	13.9 (25.0)	9.6 (17.3)	6.5 (11.7)
Thermal Conductivity, Btu-in/hr-ft2-°F	62.2	65.0	63.1	17.9
Tensile Shear Strength, psi *	2,500	1,500	--	--
Volume Resistivity, ohm-cm	0.01	0.0052	0.0002	0.005
Dielectric Strength, volts/mil	–	–	–	–
Chemical Resistance	Excellent	Excellent	Excellent	Excellent
Color	Silver	Silver	Silver	Dark Gray

Properties Thermally Conductive

Product Number	568	805	860
Filler	Aluminum	Aluminum	Aluminum Nitride
Mix Ratio by Weight: Resin : Hardener	1:1	100:12	1;1
Mixes Specific Gravity, g/cc @ 25°C	.85	1.66	1.9
Mixes Viscosity, @25°C, cps	Paste	85,000	Paste
Pot Life, 100g mass @25°C, hrs.	4.0	≤1.0	4.0
Recommended Cure, hr/°F	2/200	2/100+2/200	2/200
Alternative Cure, hr/°F	24-48/RT	24-48/RT	24-48/RT
Temperature Resistance, °F (°C)	400 (204)	572 (300)	400 (204)
CTE, in/in/°F x 106 (°C)	33.0 (60.0)	25.0 (45.0)	18.7 (33.3)
Thermal Conductivity, Btu-in/hr-ft2-°F	9.0	12.5	8.5
Tensile Shear Strength, psi *	1,400	1,200	1,375
Volume Resistivity, ohm-cm	1.0 x 105	1.0 x 1014	1.0 x 1014
Dielectric Strength, volts/mil	80	50	250
Chemical Resistance	Excellent	Good	Excellent
Color	Grey	Grey	Grey

* Tested according to ASTM D1002-94. This is a standard test method for determining the shear strength of a single lap-joint metal coupons in tension loading.

Application Notes:

Surface Preparation: All surfaces must be free of oil, dirt, corrosives, oxides, paint or other foreign matter.

Mixing: Two-component products should be mixed thoroughly to a uniform consistency. Preheat high viscosity epoxies to approximately 125°F to facilitate pouring and mixing.

Application: In most cases, the adhesive should be applied to both surfaces maintaining a glue line of less than 10 mils (25.4µm). After assembling the parts, pressure should be applied to the assembly to prevent warpage and reduce air entrapment. Refer to curing guidelines in above property chart.

RT	**50380-525**	**ETC Bond 525—Electrically conductive** Silver filled, one-part epoxy paste. Good chemical resistance and mechanical strength to 340°F.	5g	TS	Price
RT	**50380-556**	**ETC Bond 556—Electrically conductive.** Silver filled, 1:1 Epoxy paste. Good corrosion resistance and mechanical strength to 340°F.	5g	TS	Price
RT	**50380-597**	**ETC Bond 597A—Electrically and thermally conductive.** Silver filled. One part system. Inorganic system for bonding applications up to 1200°F.	5g	TS	Price
RT	**50380-598**	**ETC Bond 598FS—Electrically and thermally conductive.** Nickel filled. One part system. Low viscosity. For applications up to 1000°F.	50g	TS	Price
RT	**50380-568**	**ETC Bond 568—Thermally conductive.** Aluminum filled, 1:1 epoxy paste. Excellent mechanical strength to 400°F. Packed	2 x 25g	TS	Price
RT	**50380-805**	**ETC Bond 805—Thermally conductive.** Aluminum filled. Two part epoxy paste. Low shrink rate. Excellent mechanical strength to 570°F.	2 x 25g	TS	Price
RT	**50380-860**	**ETC Bond 860—Thermally conductive.** Aluminum nitride filled. 1:1 epoxy paste. Excellent mechanical & thermal properties to 400°F.	2 x 25g	TS	Price

EPO-TEK – Epoxy Conductive Adhesive

EPO-TEK® EE129-4

Epo-Tek® EE129-4 is a room temperature cure, silver-filled epoxy, designed for making electrical connection in SEM mounting sample, circuit assembly, semiconductor, LCD applications.
Epo-Tek® EE129-4 comes with two parts: A & B and mixing ratio is 1:1.
Shelf life is one year at room temperature.

Maximum Bond Line Cure Schedules:

100°C	15 minutes
80°C	1 hour
70°C	2 hours
23°C	24 hours

Pot Life: 3 hours

EPO-TEK129-4 Features:

- Low temperature cures capable from23°C to 80°C.
- Suggested for cryogenic cooling applications.
- Works well in SEM, microscopy applications.
- Works well in aerospace hybrid circuits and ITO electrodes in LCD packaging and assembly.
- Reasonable pot life of 3 hours, allows for preparation.
- Smooth thixotropic paste allows for many way of application.

Works well with surface like Au, Ag-Pd, Cu, brass, Kovar, stainless steel, as well as ceramic, PCB, solder masks, most plastic and glasses.

Typical properties: (to be used as a guide only, not a specification)

Physical Properties

Color:	Part A –silver; Part B – silver	
Consistency:	Smooth, thixotropic – 4000 cPs	
Viscosity (@ 100 RPM / 23°C):	2,000 – 4000 cPs	
Thixotropic Index:	4.6	
Glass Transition Temp (Tg):	≥ 45°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):	Below Tg: 30 x 10-6 in/in/°C Above Tg: 227 x 10-6 in/in/°C	
Shore D hardness:	63	
Lap Shear Strength @ 23°C:	1,110 psi	
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi	
Degradation Temp (TGA):	303°C	
Weight Loss:	@200°C: 0.18% @300°C: 2.06%	@250°C: 0.54%
Operating Temp:	Continuous: -55°C to 150°C Intermittent: -55°C to 250°C	
Storage Modulus @ 23°C:	156, 318 psi	
Ion:	Cl- 223 ppm Na+ 26 ppm	NH4+ 22 ppm K+ 12 ppm
Particle Size:	≤ 45 microns	

Electrical Properties:

Volume Resistivity @ 23°C:	≤ 0.0003 Ohm-cm
Volume Resistivity @ 23°C (23°C/24 hour cure):	0.01 Ohm-cm

***Thermal Properties**

Thermal Conductivity:	1.60 W/mK

RT **12670-EE** **Epo-Tek® EE129-4 Adhesive** 1 oz TS Price

EPO-TEK® H20E

Epo-Tek® H20E is a two component, 100% solid silver-filled epoxy system, silver-resin paste and liquid hardener, mixing ration is 1:1.

- Epo-Tek H22E features high thermal conductivity, and is very well suited for extensive high temperature applications (300 – 400°C).
- Epo-Tek H20E is also a conductive adhesive of choice for old or new applications.
- Its applications include: chip bonding and electronic bonding as well as SEM mounting.
- H20E contains no solvents and will not outgas.
- When cured, H20E isl resistant to solvents, resin and moisture.
- Long Pot life (2 ½ days).
- Shelf life is one year when store at 23°C.

Maximum Bond Line Cure Schedule:

175°C	45 seconds
150°C	5 minutes
120°C	15 minutes
80°C	3 hours

Typical properties: (to be used as a guide only, not a specification)

***Physical Properties**

Color:	Part A –silver; Part B – silver	
Consistency:	Smooth, thixotropic	
Viscosity (@ 100 RPM / 23°C):	2,200 – 3,200 cPs	
Thixotropic Index:	3.69	
Glass Transition Temp (Tg):	≥ 80°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):	Below Tg: 31 x 10-6 in/in/°C Above Tg: 158 x 10-6 in/in/°C	
Shore D hardness:	75	
Lap Shear Strength @ 23°C:	1,475 psi	
Die Shear Strength @ 23°C:	> 5 kg / 1,700 psi	
Degradation Temp (TGA):	425°C	
Weight Loss:	@200°C: 0.59% @300°C: 1.67%	@250°C:1.09%
Operating Temp:	Continuous: -55°C to 200°C Intermittent: -55°C to 300°C	
Storage Modulus @ 23°C:	808, 700 psi	
Ion:	Cl- 73 ppm Na+ 2 ppm	NH4+ 98 ppm K+ 3 ppm
Particle Size:	≤ 45 microns	

***Electrical Properties:**

Volume Resistivity @ 23°C:	≤ 0.0004 Ohm-cm
Volume Resistivity @ 23°C (23°C/24 hour cure):	0.01 Ohm-cm

***Thermal Properties**

Thermal Conductivity:	2.50 W/mK 29 W/mK, Based on Thermal Resistance Data: R=L x K-1 x A-1
Thermal Resistance: (Junction to Case):	TO-18 package with nickel-gold metalized 20 x 20 mil chips and bonded with Epo-Tek H20E (2 mil thick) Epo-Tek®H20E: 6.7 to 7.0°C/W Solder: 4.0 to 5.0°C/W

RT **12671-20E** **Epo-Tek® H20E Adhesive** 1 oz TS Price

EPO-TEK® H20S

Epo-Tek® H20S is a modified version of Epo-Tek®H20E. Epo-Tek® H20S is a highly reliable, two component, silver-filled epoxy with a smooth, thixotropic consistency (mixing ratio 1:1). This modified version offers high electrical conductivity, short curing cycles, proven reliability, and the convenient mix ratio, Epo-Tek® H20S is extremely simple to use. Epo-Tek® H20S pot life is 2.5 days and shelf life is one year when store at room temperature.

Maximum Bond Line Cure Schedule:

175°C	45 seconds
150°C	5 minutes
120°C	15 minutes
100°C	45 minutes
80°C	90 minutes

Typical properties: (to be used as a guide only, not a specification)

***Physical Properties**

Color:	Part A –silver; Part B – silver	
Consistency:	Smooth, thixotropic paste	
Viscosity (@ 100 RPM / 23°C):	1,800 – 2,800 cPs	
Thixotropic Index:	5	
Glass Transition Temp (Tg):	≥ 80°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):	Below Tg: 31 x 10-6 in/in/°C Above Tg: 120 x 10-6 in/in/°C	
Shore D hardness:	57	
Lap Shear Strength @ 23°C:	1,240 psi	
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi	
Degradation Temp (TGA):	414°C	
Weight Loss:	@200°C: 0.40% @300°C: 1.37%	@250°C:0.60%
Operating Temp:	Continuous: -55°C to 200°C Intermittent: -55°C to 300°C	
Storage Modulus @ 23°C:	339,720 psi	
Ion:	Cl- 162 ppm Na+ 0 ppm	NH4+ 282 ppm K+ 4 ppm
Particle Size:	≤ 20 microns	

***Electrical Properties:**

Volume Resistivity @ 23°C:	≤ 0.0005 Ohm-cm

***Thermal Properties**

Thermal Conductivity:	3.25 W/mK

RT **12672-20S** **Epo-Tek® H20S Adhesive** 1 oz TS Price

EPO-TEK® H22

Epo-Tek® H22 is a two component, silver-filled epoxy system. Mixing ratio of silver resin paste and liquid hardener is 100:4.5. Pot life 16 hours, and shelf life is 6 months at room temperature.

Maximum Bond Line Cure Schedule:

150°C	5 minutes
120°C	10 minutes
100°C	20 minutes
80°C	45 minutes

Epo-Tek® H22 features:

- Smooth, free-flowing, slightly thixotropic paste.
- High Tg allows it to be used for high temperature applications (≤300°C).
- Contains no solvents – It is a NASA approved low outgasing epoxy.
- Excellent resistance to solvents, chemicals and moisture.
- Extended pot life and fast curing at low temperature <100°C.
- Designed for die bonding and sealing hybrid circuit. Recommended for SEM small angle cleavage and wafer bonding.

Typical properties: (to be used as a guide only, not a specification).

***Physical Properties**

Color:	Part A –silver; Part B – amber	
Consistency:	Smooth, flowing paste	
Viscosity (@ 100 RPM / 23°C):	12,000 – 20,000 cPs	
Thixotropic Index:	2.36	
Glass Transition Temp (Tg):	≥ 100°C (Dynamic cure 20 – 200°C / ISO 25 Min; Ramp -10 – 200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):	Below Tg: 39 x 10-6 in/in/°C Above Tg: 224 x 10-6 in/in/°C	
Shore D hardness:	80	
Lap Shear Strength @ 23°C:	1,980 psi	
Die Shear Strength @ 23°C:	≥ 5 kg / 1,700 psi	
Degradation Temp (TGA):	454°C	
Weight Loss:	@200°C: 0.09% @300°C: 1.42%	@250°C:0.23%
Operating Temp:	Continuous: -55°C to 250°C Intermittent: -55°C to 350°C	
Storage Modulus @ 23°C:	540,120 psi	
Ion:	Cl- 175 ppm Na+60 ppm	NH4+ 148 ppm K+ 6 ppm
Particle Size:	≤ 45 microns	

***Electrical Properties:**

Volume Resistivity @ 23°C:	≤ 0.005 Ohm-cm

***Thermal Properties**

Thermal Conductivity:	0.94 W/mK

RT **12673-22** **Epo-Tek® H22 Adhesive** 1 oz TS Price

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