

Nonconductive Adhesives



Adhesive Tabs

Composed of a thin film of strong nonconductive adhesive. Size of adhesive area is $\frac{7}{16}$ " (11mm) diameter which is appropriate for $\frac{1}{2}$ " SEM pin and cylinder mounts.

Place the "press" portion of the tab on an SEM mount surface. After pressing, pull tab up and a thin layer of adhesive is left on the mount surface. Contents: 72 sheets, total of 2,592 tabs.

16079 Adhesive Tabs, box/2,592each

Lift-N-Press Tabs



adhesive being applied to a specimen mount using Lift-N-Press Tabs

Improved adhesive tab composed of a thin film of strong, nonconducting, $\frac{1}{2}$ " (12.7mm) diameter adhesive which has these properties:

- Fits $\frac{1}{2}$ " SEM pin and cylinder mounts
- Smoother background
- High strength adhesive
- Better particle detection
- Adhesive only 25um thick
- Easy dispensing roll
- Longer shelf life

16082 Nonconductive Lift-N-Press Tabs, roll/500each

Tempfix™ Adhesive Specimen Mount Set

excellent for particulate specimens such as powders, particles, pollens, insects, dried samples and similar fine matter



Tempfix™ is a non-conductive thermoplastic hot melt adhesive resin, especially formulated for SEM studies. It does not contain solvents and is stable under high

vacuum. Its adhesive characteristics appear in the 40-120°C range. Melting starts at 40°C and it becomes a thin fluid at 120°C, displaying a wide viscosity range. It has a very smooth surface and can be used in SEM imaging without interfering background.

Preparing specimens requires a hot plate or heating block, aluminum sheets of 10 x 10 x 0.25mm used as specimen mounts, a metal cooling block and a pin stub type specimen holder with a side clamping screw on top. The aluminum sheet is warmed up to about 120°C and a small

amount of Tempfix™ is applied and smoothed over the sheet. Excess resin is removed. After the sheet has cooled down, Tempfix™ is a solid smooth plastic surface. Particulate or other small samples may be sprinkled or applied on the solid plastic surface and the sheet is gently heated above 40°C to the desired viscosity. Use temperature to control viscosity and how far the particulates "sink" into the adhesive. Remove the sheet and cool it quickly on a metal block. Delicate specimens will likely not suffer heat damage. A thin conductive coating (sputtering or evaporation) might be needed for optimum imaging results. The aluminum sheet with the specimen can either be mounted on the supplied pin mount adapter with clamping screw or can be mounted on a specific SEM mount with a conductive adhesive carbon tab. **M** adhesive, **M** curing agent, **T** **I**

16030 Tempfix Adhesive Seteach

PELCO® High Performance Ceramic Adhesive



The PELCO® High Performance Ceramic Adhesive has been especially developed for bonding and sealing ceramics, metals, quartz and glass for high vacuum, high temperature and cryo applications. It is a dispersion of alumina in an inorganic silicate aqueous solution. Comes in the form of a paste and can be easily applied with a brush or a spatula. Good mechanical strength is achieved within minutes at room temperature. Curing schedule is 2 hours at 93°C



(200°F). Full properties are reached after curing. It provides both low electrical and thermal conductivity. Sold in 2 sizes: a container holding 1 pint (473ml) or a container holding 50 grams (approx. 22ml). **M** **T** **I**

16026 PELCO® High Performance Ceramic Adhesive, 1 pinteach

16026-10 PELCO® High Performance Ceramic Adhesive, 50 gramseach

M = MSDS on web page
T = Tech Note on web page
H **F** = Hazard Fee may

■ Cg = Suspected Carcinogen	■ O = Oxidizing
■ C = Corrosive	■ R = Radioactive
■ F = Flammable	■ T = Toxic
■ I = Irritant	□ U = Unlisted
■ L = Lachrymator	

TED PELLA, INC.
 Microscopy Products for Science and Industry



Mikrostik™ Adhesive

Ultrathin sticky base, clear, suitable for small particles which are submerged by other adhesives. Applications cited include organic powders, pollen, seeds - for attachment to an SEM stub. Can be diluted with MEK. Dries quickly. Nonconductive.

16033 Mikrostik™, 14mleach

PELCO® Pro Cyanoacrylate Super Glues



small tubes with 5 x 2gr



20ml bottle

The PELCO® Pro cyanoacrylate based instant or super glues are ideal for repair, sample preparation, assembly and bonding dissimilar materials. Clear, fast curing cyanoacrylate without mixing or additional heat applied.

Available in sets of small tubes with 5 x 2gr, 20ml bottle with dispenser tip or 20gr dispenser tube. All PELCO® Pro Cyanoacrylate Super Glues (superglue) can be removed or debonded with #19920 PELCO® Pro Cyanoacrylate Debonder (see below). To cover a large range of applications, different viscosities with different curing times are offered.

The shelf life of cyanoacrylate glues (and epoxies) can be extended by storing them at lower temperatures; -20°C. At lower temperatures, the adhesive becomes very viscous and the speed of chemical reactions is practically reduced to zero. It will keep the adhesive stable for years. Before use, let the adhesive thaw with the container sealed to avoid condensation into the adhesive.

PELCO® Pro C100 Cyanoacrylate Glue

PELCO® Pro C100 CA glue has a viscosity of 100cps and a curing time of 4-10 seconds, clear. Use to bond plastic, glass, ceramic, rubber to metal with moderately smooth surfaces, not ideal for porous materials. General purpose cyanoacrylate glue. Suitable for many applications.

14460 PELCO® Pro C100 Cyanoacrylate Glue, 5 x 2gr..each

14470 PELCO® Pro C100 Cyanoacrylate Glue, 20mleach

PELCO® Pro F5 Cyanoacrylate Glue

low odor / low bloom (frosting)

PELCO® Pro F5 CA glue is a very fast bonding cyanoacrylate with a viscosity of 5cps with a curing time of 2-4 seconds, clear. Use for high speed bonding of dissimilar materials with smooth surfaces and minimal gap (0.002" /

50µm), superior wicking properties. Not suitable for porous materials.

14462 PELCO® Pro F5 Cyanoacrylate Glue, 5 x 2greach

PELCO® Pro C5 Cyanoacrylate Glue

low odor / low bloom (frosting)

PELCO® Pro C5 CA glue is a very fast bonding cyanoacrylate with a viscosity of 5cps with a curing time of 2-4 seconds, clear. Use for high speed bonding of dissimilar materials with smooth surfaces and minimal gap (0.002" / 50µm), superior wicking properties. Not suitable for porous materials.

14462 PELCO® Pro F5 Cyanoacrylate Glue, 5 x 2greach

PELCO® Pro C5 Cyanoacrylate Glue

PELCO® Pro C5 CA glue is a fast bonding cyanoacrylate with a viscosity of 5cps and a curing time of 5-10 seconds. Use to bond any combination of metals, glass, plastics, rubber, ceramics or glass with smooth surfaces and minimal gap (0.002" / 50µm), excellent wicking properties. Not suitable for porous material due to the low viscosity.

14464 PELCO® Pro C5 Cyanoacrylate Glue, 5 x2 gr.....each

14474 PELCO® Pro C5 Cyanoacrylate Glue, 20mleach

PELCO® Pro C300 Cyanoacrylate Glue

PELCO® Pro C300 CA glue has a higher viscosity with a longer curing time. Ideally suited when more careful positioning is needed, surfaces are not smooth or for gaps up to 0.006" (150µm). Curing time 10-15 seconds.

14465 PELCO® Pro C300 Cyanoacrylate Glue, 5 x2 gr..each



PELCO® Pro C1000 Cyanoacrylate Glue

PELCO® Pro C1000 CA glue has a high viscosity and a longer curing time. Ideally suited when more careful positioning is needed, surfaces are not smooth or for gaps up to 0.008" (200µm). Curing time 10-15 seconds.

14477 PELCO® Pro C1000 Cyanoacrylate Glue, 20ml...each

PELCO® Pro CA-Gel Cyanoacrylate Glue



PELCO® Pro CA-Gel glue is a gel type cyanoacrylate with high viscosity, excellent gap fill up to 0.10" (250µm) and extended curing time 20-25 seconds. Use to bond rough surfaces and repositioning after initial contact. Can also be mixed with Fine Silver Powder (#61-310, next page) for a super fast drying, conductive adhesive.

14478 PELCO® Pro CA-Gel Cyanoacrylate Glue, 20gr tube.....each

Cyanoacrylate Brand Cross Reference and Technical Data									
Product Number and Description	LOCTITE	Henkel	Permabond	3M	Base	Gap Fill (inches)	Viscosity (cps)	Tensile Shear Strength (psi)	Cure Speed (Fixture/Full)
14464, 74 PELCO® Pro C5	420	40	101/260	CA 3	Ethyl	.002	5	2700 - 4300	<5 sec/ 8 hours
10033 PELCO® Pro CA44 Instant Tissue Adhesive	404/495		105		Ethyl	.004	45	2700 - 4300	<8 sec/ 8 hours
14460, 70 PELCO® Pro C100	414	63	102/262	CA 4	Ethyl	00.6	100	2700 - 4300	<10 sec/ 8 hours
14465 PELCO® Pro C300					Ethyl	00.6	300	2700 - 4300	<10 sec/ 8 hours
14477 PELCO® Pro C1000	498	5168			Ethyl	00.8	1,000	2700 - 4300	<15 sec/ 8 hours
14478 PELCO® Pro CA-Gel	409	Power Gel	2010	CA 50	Ethyl	0.10	Gel	2700 - 4300	<25 sec/ 8 hours
14462 PELCO® Pro 5 low odor/low bloom (frosting)					Modified Ethyl	.002	5	2700 - 4300	<2.5 sec/ 4 hours
16024 PELCO® SampleBond™	460	9010	932		Ethyl	.005	100	2700 - 4300	<7 sec/ 24 hours

PELCO is a registered trademark of Ted Pella, Inc.
Loctite is a registered trademark of Loctite Corporation.
Henkel is a trademark of Henkel Adhesives Company.

Permabond is a division of National Starch and Chemical Company.
3M is a trademark of 3M Company.

Fine Silver Powder



High purity, high density fine silver powder for making conductive adhesives or embedding materials. Can be mixed with epoxies (see below) for making conductive embedding material or with cyanoacrylate gel (#14478, previous page) for a super fast drying, conductive adhesive to mount specimens. **M ■ I**

61-310 Silver Powder, 7-15µm, 25greach

PELCO® SampleBond™ Adhesive



The PELCO® SampleBond™ Adhesive has been especially developed for sample bonding to supports. It is a thin, fast curing cyanoacrylate type adhesive which can be used as a cleaner alternative to wax for mounting samples to glass for TEM/FIB thinning procedures. Ideal for bonding metals, silicon, ceramics and other non-porous materials to similar materials or to glass. Can also be used to bond thin samples together for cross section procedures. Samples glued with PELCO® SampleBond™ can be easily

debonded (removed) from the support by using #19920 PELCO® Pro Cyanoacrylate Debonder. Supplied in 20ml bottle with dispenser tip, closed with PTFE coated steel pin for optimum seal. **M ■ I**

16024 PELCO® SampleBond™ Adhesive, 20mleach

PELCO® Pro CA44 Tissue Adhesive



PELCO® Pro CA44 is an instant tissue adhesive based on cyanoacrylate. Developed to glue tissue on specimen holders used in vibrating microtomes such as Microslicer™ and Vibratome®. Although the tissue adhesive is unstable in boiling water, it is recommended to use #19920 PELCO® Pro Cyanoacrylate Debonder (next page) to remove or clean cured cyanoacrylate. Supplied in 20ml bottle with dispenser tip, closed with PTFE coated steel pin for optimum seal. Compatible to Loctite 404 tissue

adhesive. **M ■ I**

10033 PELCO® Pro CA44 Instant Tissue Adhesive, 20mleach

PELCO SampleBond™ / PELCO® Pro Cyanoacrylate Debonder Kit



Conveniently packaged kit with PELCO® SampleBond™ Adhesive for sample bonding on glass supports and PELCO® Pro Cyanoacrylate Debonder (see description below) to remove the sample after thinning. Kit contains two ea. 20ml bottles with dispenser tips.

PELCO® SampleBond™ **M ■ I**

PELCO® Pro Cyanoacrylate Debonder **M ■ F, Cg, I, T H◆F**

16025 PELCO® Samplebond™ / Cyanoacrylate Debonder Kit, 20ml + 20mleach

PELCO® Pro Cyanoacrylate Debonder also on next page.

M = MSDS on web page
I = Tech Note on web page
H◆F = Hazard Fee may

PELCO® Pro Cyanoacrylate Debonder



The PELCO® Pro Cyanoacrylate Debonder destabilizes and debonds cured cyanoacrylates. Useful for releasing specimens from holders, cleaning cyanoacrylates from surfaces and removing cured cyanoacrylates from fingers. Works on all brands of cyanoacrylate glue (Loctite, Henkel, Permabond, 3M™, PELCO®, Aron Alpha, etc.). The debonder is also a solvent, please check before using on plastic surfaces / samples and avoid repeated skin contact. Supplied in 20ml bottle with dispenser tip. **M ■ F, Cg, I, T H ◀ F**

19920 PELCO® Pro Cyanoacrylate Debonder, 20mleach

NOTE: The shelf life of cyanoacrylate glues (and epoxies) can be extended by storing them at lower temperatures; -20°C. At lower temperatures, the adhesive becomes very viscous and the speed of chemical reactions is practically reduced to zero. It will keep the adhesive stable for years. Before use, let the adhesive thaw with the container sealed to avoid condensation into the adhesive.

Krazy Glue® Pen



No mixing, no drip, no clogged tips.

Contains cyanoacrylate adhesive; comes out one drop at a time. Clear, same as type 201. Bonds in seconds. **M ■ I**

14450 Krazy Glue® Pen, 3geach

Duco® Cement



Dries fast, clear, tough. For china, glass, wood, metal, leather.

Contains acetone and butylacetate solvents. Nonconductive. Sold in tube of 29.5ml (1 oz.).

M ■ F, I, T

14445 Duco® Cement, 29.5mleach



Super Fast Epoxy

Super fast 2-part epoxy resin cement for bonding applications. Sets in minutes. Full bond overnight. Stick polymerized specimens on aluminum Specimen Slug Mounts. Will not dissolve in acetone or alcohol. Dual dispensing syringe. **M ■ I**

14420 Epoxy Cement, 29.5ml 2-part, one packageeach



Loctite® 404 Quick-Set

Vibratome® and Microslicer™ applications and other quick-set tissue-slide uses. 0.33 oz. / 9.3g / 10ml **M ■ I**

10035 Loctite 404 Tissue Adhesive, 10mleach



Loctite® 460 Sample Bonding Adhesive

Loctite® 460 is a fast curing thin glue which can be used as an alternative to wax for mounting samples to glass for TEM/FIB Thinning. Soluble in acetone. **M ■ I**

16029 Loctite 460 Sample Bonding Adhesive, 20geach

Poxy Pak™ Epoxy



Powerful replacement for mineral spirits, solvents and other unfriendly cleaners. Ideally suited for removing used grinding/lapping/polishing discs with PSA backing from their support discs. New food-grade citrus based 3M adhesive remover is also very effective in removing over-

spray of any aerosol adhesives, grease, oil, grime, tape residue, tar, wax, etc. A solvent-free formulation that provides wipe-away convenience with no filmy residue.

Active ingredient is listed as GRAS (Generally Regarded As Safe) for food contact applications under FDA21 CFR 182.20. Part A **M**; Part B **M**; **■ I H ◀ F**

14443 Poxy Pak™, 29.5ml, 2-part, one package. each



3M™ Multipurpose Adhesive

- High tack, fast drying adhesive offers great coverage
- Permanently attaches foils, paper, cardboard, felt cloth to painted or unpainted metals, wood and hardboard
- Controlled spray pattern to minimize overspray and cleanup
- Mount photographs on art board or foam core.
- Not recommended for EPS expanded polystyrene foam

M ■ I, F

16049 3M™ Multipurpose Adhesiveeach

M-BOND™ 610 Adhesive



ion milling, cross-sectioning

This is a nonconductive, two-component, solvent-thinned, epoxy-phenolic adhesive for high performance applications. Chemically resistant and provides a thin layer of glue which has good ion milling properties. It has low viscosity and is extremely

thin, with minimum creep, hysteresis and linearity problems. Solids content is 22%. It is an excellent adhesive for mounting samples for TEM dimpling and bonding of samples to TEM grids for imaging or FIB.

Operating temperature range, short term is -269° to +370°C; long term, -269° to +260°C.

Elongation can occur at +24°C (3%). This may be the widest temperature range general-purpose adhesive that is available.

A kit contains: 4 bottles (14g each) Resin, 4 bottles (11g each) Curing Agent, 4 brush caps for dispensing mixed adhesives, 4 disposable mixing funnels and instructions.

M-BOND™ Adhesive M ■ I

M-BOND™ Adhesive Curing Agent ■ I H ◆ F

16039 M-Bond™ 610, complete kit.....each

EPO-TEK® H70E Thermally Conductive Epoxy



EPO-TEK® H70E is a two component, thermally conductive, electrically insulating epoxy designed for chip bonding in microelectronic and optoelectronics applications. It is an excellent

heat-sinking adhesive and is recommended for thermal management applications where good heat dissipation is needed. EPO-TEK® H70E exhibits excellent handling characteristics and an extremely long pot life at room temperature. Easy to use; can be screen printed, machine dispensed, stamped or hand applied. Excellent adhesion to ferrous and non-ferrous metals, glass, ceramic, kovar and PCB. Can be cured very rapidly. M ■ I H ◆ F

Cure Schedule (minimum bond temperature/time)

175°C..... 1 Minute

150°C..... 5 Minutes

120°C..... 15 Minutes

80°C..... 90 Minutes

Properties (summary)

Color: Grey / Beige

Consistency: Slightly Pourable Paste

Viscosity: 4,000 – 7,000 cps

Thermal Conductivity: 0.9 W/mK

Operating Temperature:.. -55°C to 200°C (-67°F to 392°F)

Pot Life..... 56 hours

16017 EPO-TEK® H70E Epoxy, 85g (3 oz.) each.....each

Adhesive Remover



Powerful replacement for mineral spirits, solvents and other unfriendly cleaners. Ideally suited for removing used grinding/lapping/polishing discs with PSA backing from their support discs. New food-grade citrus based 3M adhesive remover is also very effective in removing overspray of any aerosol adhesives, grease, oil, grime, tape residue, tar, wax, etc. A solvent-free formulation that provides wipe-away convenience with no filmy residue.

Active ingredient is listed as GRAS (Generally Regarded As Safe) for food contact applications under FDA21 CFR 182.20.

Flammable propellant. M ■ I, F H ◆ F

80924 3M™ Adhesive Remover, 6.25 oz. case/6

80924-1 3M™ Adhesive Remover, 18.5 oz. each

80924-10 3M™ Adhesive Remover, 18.5 oz. case/6

Glue Gun



low temperature model

Glue Guns provide practical adhesive uses for certain applications. Leo Barish's papers referenced below and others not mentioned cover this subject.

A thermoplastic glue stick is used with a gun-type design to melt the glue and allow its application, for example, to an SEM specimen mount. Heavier

and/or larger specimens, which might move during study when held with a tape or disc adhesive, will hold firmly in place when this type of adhesive is used to "seat" the specimen. Carbon coating the specimen and the adhesive will permit an electrical discharge path. A lower temperature range (100° to 120°C / 212°- 248°F) is preferable, such as our model 16068 to avoid possible damage to heat sensitive specimens. (Normal temperature for standard high temperature glue guns is in the 190° to 210°C / 374° to 410°F range) The glue hardens quickly so the specimen should be positioned promptly upon glue application. If repositioning is required, the glue may be softened with the Glue Gun.

Porous specimens such as felt with a poor discharge path may accept a track of glue over its surface to reduce such static. Granular specimens may be sprinkled onto the hardening surface.

16068 Glue Gun, Low Temperature each

16068-2 Glue Sticks, 4" L x ø.437", pkg/18, Low Temp..... each

References:

Barish L, August 1990. *The Use of the Common Glue Gun in Light and Scanning Electron Microscopy*. Paper presented at INTER/MICRO-90, Chicago, 19-22.

Barish L, 1992. *Mounting of Specimens for SEM with the Common Glue Gun*. Proc 50th Ann Meeting of the Elec Mic Soc of America. pp 410-411.

PELCO® 2-Hour and 24-Hour Epoxy Mount Kits

Cold Epoxy Specimen Mounting for Materials Science



PELCO® 2-Hour Epoxy Mount Kit

for optical clarity, high hardness, low viscosity and good adhesion

The PELCO® Epoxy Mount Kit uses a cold embedding material designed for metallography, ceramography, geology and petrology samples. Used for light microscopy, scanning electron microscopy and micro probe analysis. It is low viscosity, low exotherm reaction and low shrinkage.



Example: Circuit board encapsulated using the PELCO® Epoxy Mount Kit.

It can be used in conjunction with vacuum impregnation to ensure complete and void-free embedding. The cured resin is extremely hard, optically clear, and has excellent bond strength. It gives excellent polish and edge retention to the sample. Polymerization time is 2 hours at 77° F (25° C). Mixing ratio is 2:1 per volume (resin 2 parts to hardener 1 part). **M** **T** **U**

The 2-Hour (fast cure) Epoxy Mount Kit contains the following items:

- 813-501** PELCO® Epoxy Resin, 1 gallon (3,785ml)
- 813-504** PELCO® Fast Cure Hardener (2 hour), 0.5 gallon (1,892ml)
- 813-503** PELCO® Epoxy Pump, set of 2
- 128-4** Mixing Sticks, pkg/100
- 12904-20** Tri-Stir Beakers, 100ml, with pouring spout, pkg/20
- 12906-20** Tri-Stir Beakers, 250ml, with pouring spout, pkg/20

PELCO® 24-Hour Epoxy Mount Kit

for optical clarity, high hardness, low viscosity and good adhesion

The PELCO® 24-Hour Epoxy Mount Kit has the same optical clarity, high hardness, low shrinkage and low viscosity as our 2-Hour epoxy kit, but with a much longer pot life (up to one hour) and slower curing (24 hours). This allows for embedding larger batches in one charge and better impregnation of porous samples.. The longer pot life gives ample time to remove trapped gas and to avoid air bubbles in the embedding.

It can be used with vacuum or pressure impregnation to

remove trapped gas. The cured resin is extremely hard, optically clear and has excellent bond strength. It gives excellent edge retention during grinding and polishing of metallographic samples. Polymerization time is 24 hours @77°F (25°C). Mixing ratio is 3:1 per volume (resin 3 parts to hardener 1 part).

The 24-Hour (slow cure) Epoxy Mount Kit contains the following items:

- 813-501** PELCO® Epoxy Resin, 1 gallon (3,785ml)
- 813-514** PELCO® Slow Cure Hardener (24 hour), 0.33 gallon (1262ml)
- 813-503** PELCO® Epoxy Pump, set of 2
- 128-4** Mixing Sticks, pkg/100
- 12904-20** Tri-Stir Beakers, 100ml, with pouring spout, pkg/20
- 12906-20** Tri-Stir Beakers, 250ml, with pouring spout, pkg/20

PELCO® 2 Hour and 4 Hour Epoxy Mount Kit

Ordering Information:

- 813-500** PELCO® 2 Hour Epoxy Mount Kit H◆Feach
- 813-510** PELCO® 24 Hour Epoxy Mount Kit H◆Feach

Components and Supplies:

- 813-501** PELCO® Epoxy Resin, 1 gallon (3,785ml)each
- 813-502** PELCO® Epoxy Resin, 0.5 gallon (1,892ml) ...each
- 813-504** PELCO® Fast Cure Hardener (2-hour), 0.5 gallon (1,892ml) H◆F each
- 813-505** PELCO® Fast Cure Hardener (2-hour), 1 quart (946ml) H◆Feach
- 813-514** PELCO® Slow Cure Hardener (24-hour), 0.33 gallon (1,262ml) H◆F each
- 813-515** PELCO® Slow Cure Hardener (24-hour), 0.166 gallon (631ml) H◆Feach
- 128-4** Mixing Stickspkg/100
- 12904-20** Tri-Stir P.E. Beakers, 3 oz. (100ml).....pkg/20
- 12906-20** Tri-Stir P.E. Beakers, 8 oz. (250ml).....pkg/20

PELCO® Epoxy Pump Set

The pumps screw directly onto the gallon, ½ gallon or quart bottles of resin and hardener allowing for quick, exact and clean dispensing. The pumps dispense one fluid once per stroke. An Insert that limits the stroke to ½ oz. is included to allow for correct ratio of resin to hardener.



For example: one pump would be set at full stroke for 1 oz. of resin and the other for ½ oz. of hardener. If 3 oz. are required, two strokes of each pump will deliver the correct ratio. **T**

- 813-503** Epoxy Pump, set/2each

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