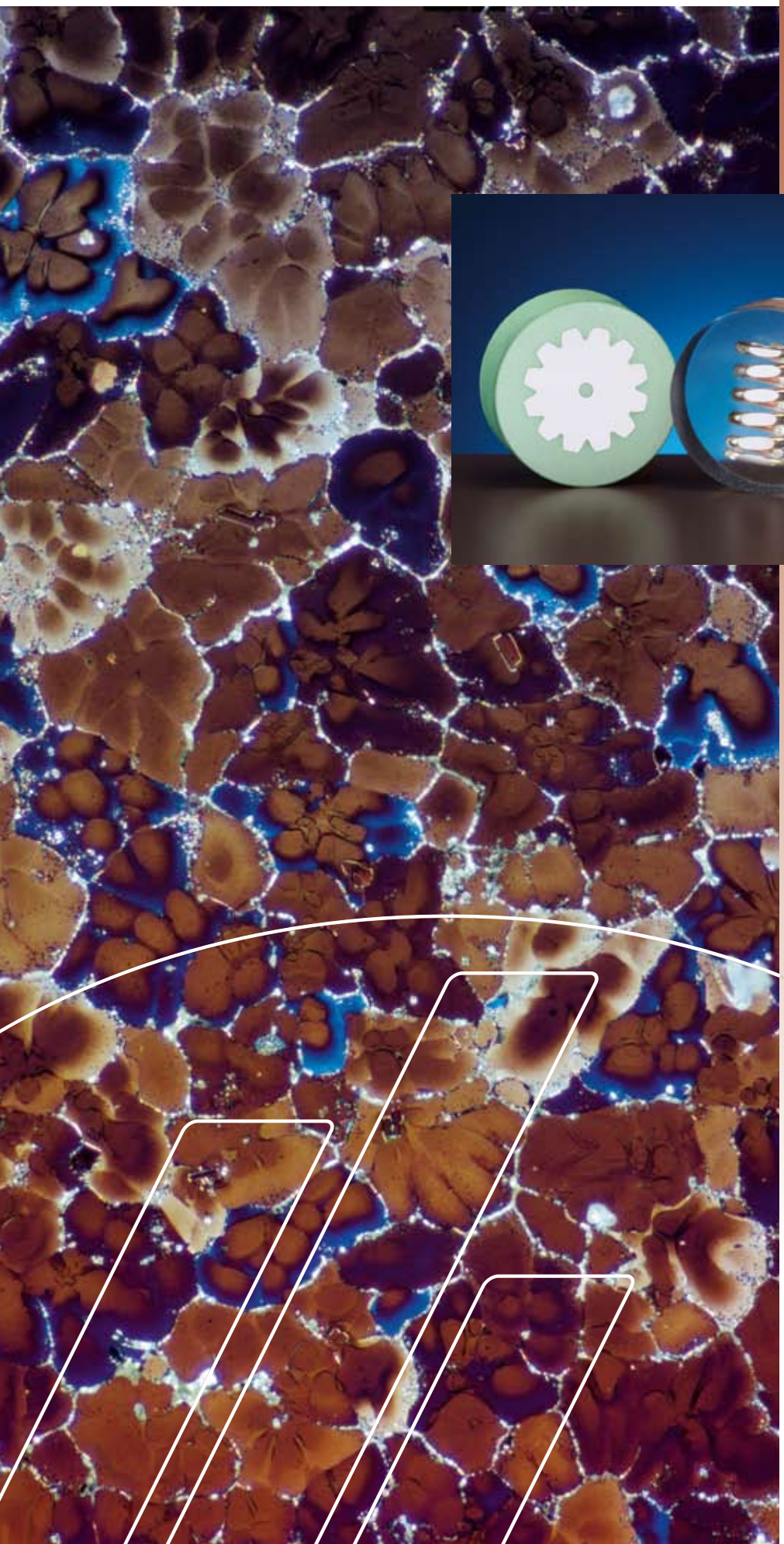
Cold Mounting

Struers

Epoxy, acrylic and polyester resins for all materialographic applications



- A range of resins for heat and pressure sensitive specimens
- Focus is set on short curing time, low shrinkage and high adhesion
- Superior edge-retention and abrasion resistance
- Ultra-fast solutions for the microelectronic industry
- Vacuum impregnation of fragile and brittle materials
- A range of resins for large volumes of uncomplicated specimens
- Large selection of mounting cups and other accessories

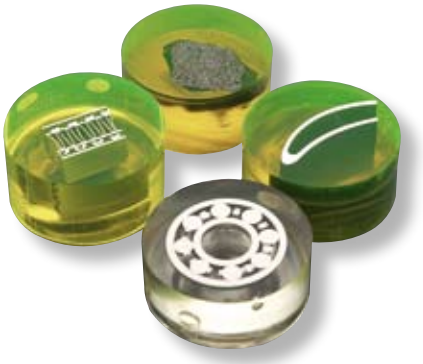
Cold Mounting

The purpose of mounting is to protect fragile or coated materials during preparation and to obtain perfect edge-retention. Mounting also allows for a safer, more convenient handling of e.g. small, sharp or irregularly shaped specimens or when the protection of layers is imperative.

Cold mounting offers specific advantages depending on the number of specimens and the quality required:

- Excellent results with porous, fragile and heat sensitive specimens
- Well suited for vacuum impregnation
- Fast curing of large specimen volumes

AcryDye adds colour to your mounts for easy identification.



Epoxies have the lowest shrinkage of all cold mounting resins. Curing time is relatively long, but the adhesion to most materials is excellent.

Epoxy for no shrinkage - Acrylics for fast curing

Struers offers 3 different types of cold mounting resins, epoxy, acrylic and polyester resins – and your choice of resin is determined by a number of factors such as type of material, specimen characteristics, quantity of specimens, and your quality requirements.

In our extensive research and development efforts, we have focused on:

- Short curing times
- Low shrinkage
- High adhesion ability

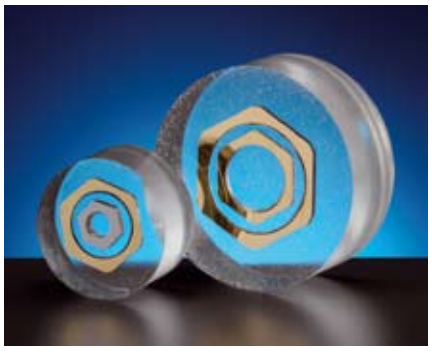
Epoxy resins

Epoxies are ideal for vacuum impregnation and porous specimens, and for high edge retention requirements.

Acrylic resins

Struers' acrylic resins are well-suited for both serial mounting of irregularly shaped specimens and for routine work or single specimens.

The acrylic resins offer good penetration of cracks and pores – ideal for encapsulation of printed circuit boards.



Acrylics are easy-to-use resins with short curing times, very limited shrinkage and excellent mounting properties. Available both with and without mineral filler.

Polyesters are suitable for routine work and for quick mounting of specimens requiring low shrinkage and good wear resistance.

Polyester resins

Polyester resins offer relatively short curing times and being inexpensive they are well suited for large quantities/series of uncomplicated specimens without holes or pores.

Vacuum impregnation

Certain materials like ceramics, plasma sprayed coatings or specimens for failure analysis require special care during preparation. Porosity, gaps, cracks and loose particles can easily be altered or even removed during preparation if the specimens are not mounted properly. In these cases, vacuum impregnation is used to reinforce and protect the materials.

With Struers CitoVac, impregnation is carried out quickly and efficiently. After curing the resin reinforces the fragile materials and artefacts like pull-outs and unopened or smeared pores can be avoided.

The resins best suited for vacuum impregnation are epoxy resins, due to their low viscosity and the negligible shrinkage.

It is not easy to distinguish pores and cracks from the base material. But the solution is right at hand. Struers fluorescent dye, EpoDye, can be mixed with the resins to allow for easy identification of pores and cracks when examining the specimen in fluorescent light.

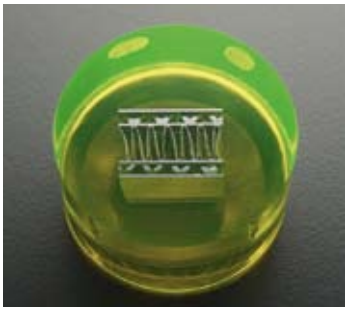
CitoVac. For easy impregnation of fragile materials.

Struers' Selection Guide
The easy way to the right choice

Selection Guide

One of the main focus areas of cold mounting is the curing time. To make your choice easier, we have designed a selection guide based on the curing time for different types of cold mounting resins.

Curing Time	Shrinkage	Cold Mounting Resin	Application area / Special features
10-20 min.	*	DuroCit	Contains special aluminium silicate filler for excellent workability. For coated specimens and high edge-retentions and planeness requirements.
	**	ClaroCit	Universal use. Provides clear, transparent specimens (extremely clear when cured under pressure).
	**	VersoCit	Routine examination of soft to medium hard materials.
	**	ViaFix	Excellent for filling of microvias. Provides clear, transparent specimens (especially when cured under pressure). ViaFix is affected by alcohol. When using diamond products or lubricants containing alcohol, the surface will be affected and the structure of the polymer beads will appear.
20-60 min.	*****	SeriFix	For large series of uncomplicated specimens without pores and holes. Long potlife. Very low cost per specimen.
1-4 hours	*	SpeciFix-40	Epoxy with curing time of 3½ hours. Cures in oven or DryBox. For vacuum impregnation of porous specimens and plasma spray coatings. Extremely good adhesion.
> 4 hours	*	SpeciFix-20	Curing time 8 hours. Ideal for small specimens. For vacuum impregnation of porous specimens and plasma spray coatings. Extremely good adhesion.
	*	EpoFix	Curing time approx.12 hours. Epoxy with very low viscosity. Very well suited for vacuum impregnation of porous specimens and plasma spray coatings. Can be used on all types of specimens. Superior penetration of cracks and pores. Excellent adhesion.
	*From 1-5 and 1 is best		



EpoDye, fluorescent dye for easy identification of all pores filled with mounting resin.

Ball bearing mounted in epoxy

DuroCit
Fast curing and no-shrinkage

DuroCit is a fast-curing acrylic resin with exceptional no-shrinkage ability. It is especially recommended for specimens where protection of layers is important i.e. coated specimens. DuroCit gives excellent planeness and it has good workability. This is due to the special aluminium silicate filling material which ensures the perfect materialographic properties of DuroCit.

- No shrinkage
- Excellent edge retention and planeness
- Good workability
- With quartz free mineral filler

DuroCit Powder, 870 g and DuroCit Liquid, 300 ml.

ClaroCit
For extraordinarily clear mounts

ClaroCit is due to its low hardening temperature suitable for mounting materials with low melting temperature, e.g. many types of plastic.

- Provides clear, transparent mounts
- Curing time only 20 minutes
- Universal use
- Low hardening temperature

To obtain the clearest mount without air bubbles, Struers recommend the use of a pressure chamber. Without use of a pressure chamber, the ClaroCit mount will contain a few air bubbles but is still transparent.

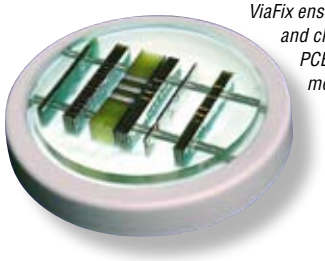
ClaroCit mounts cured with pressure (left) and without pressure (right).

ViaFix
For vias and microvias

ViaFix is a clear resin that due to its low viscosity is ideal for filling microscopic holes, voids and pores, i.e. microvias in printed circuit boards. ViaFix is suitable for all porous materials, such as ceramic coatings and plasma spray coatings.

- Excellent for filling of microvias
- Provides clear, transparent mounts
- Suitable for all types of fragile and porous specimens
- Short curing time at room temperature

Without use of a pressure chamber the ViaFix mount will be semi-transparent.



ViaFix ensures translucent and clear mount. PCB coupons mounted in ViaFix.

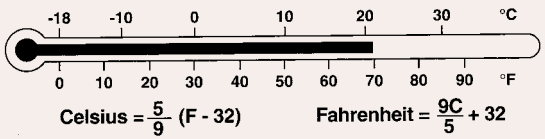
ViaFix can be used for microvias down to 100 µm. Blind microvia unetched, x500.

	DuroCit	ClaroCit	VersoCit	ViaFix	SeriFix	SpeciFix-40	SpeciFix-20	EpoFix
Type	Acrylic	Acrylic	Acrylic	Acrylic	Polyester	Epoxy	Epoxy	Epoxy
Compounds	Liquid and powder	Liquid and powder	Liquid and powder	Liquid and powder	2 liquids	2 liquids	2 liquids	2 liquids
Mixing ratio	Weight: Liquid: 9 parts Powder: 25 parts	Weight: Liquid: 6 parts Powder: 10 parts	Volume: Liquid: 1 part Powder: 2 parts	Weight: Liquid: 9 parts Powder: 11 parts	Volume/ Weight: Resin: 50 parts Hardener: 1 part	Weight: Resin: 2.5 parts Curing Agent: 1 part	Weight: Resin: 7 parts Curing Agent: 1 part	Weight: Resin: 25 parts Hardener: 3 parts
Potlife	4 min.	1½ min.	2 min.	2 min.	10 min.	> 60 min.	60 min.	30 min.
Hardening time[1]	20 min.	20 min.	10 min.	20 min.	45 min.	3½ hour in oven at 50°C	8 hours	12 hours
Peak temperature[1]	80°C / 176°F	90°C / 194°F	110°C / 230°F	115°C / 239°F	110°C / 230°F	100°C / 212°F	60°C / 140°F	40°C / 104°F
Hardness	92 Shore D	85 Shore D	82 Shore D	83 Shore D	85 Shore D	82 Shore D	84 Shore D	78 Shore D
Colour	Light green	Colourless, clear (extremely clear when cured under pressure)	Dull yellowish partly transparent	Colourless, clear (especially when cured under pressure)	Yellow, transparent	Clear, transparent Refractive index: N_D = 1.573	Clear, transparent Refractive index: N_D = 1.573	Clear, transparent Refractive index: N_D = 1.571
Can be coloured with EpoDye		X		X		X	X	X
Can be coloured with AcryDye	X	X	X	X				
Products	DuroCit Kit Cat.no: 40200080 DuroCit Powder 3 kg Cat.no: 40200081 DuroCit Liquid 1 l Cat.no: 40200082	ClaroCit Kit Cat.no: 40200072 ClaroCit Powder 3 kg Cat.no: 40200074 ClaroCit Liquid 1 l Cat.no: 40200073	VersoCit Kit Cat.no: 40200076 VersoCit Powder 3 kg Cat.no: 40200077 VersoCit Liquid 1 l Cat.no: 40200078	ViaFix Kit Cat.no: 40200067 ViaFix Powder 2.5 kg Cat.no: 40200068 ViaFix Liquid 1 l Cat.no: 40200069	SeriFix Kit Cat.no: 40200035 SeriFix Resin 1 l Cat.no: 40200036 SeriFix Hardener ½ l Cat.no: 40200037	SpeciFix-40 Kit Cat.no: 40200049 SpeciFix Resin 1 l Cat.no: 40200051 SpeciFix-40 Curing Agent 1 l Cat.no: 40200053	SpeciFix-20 Kit Cat.no: 40200048 SpeciFix Resin 1 l Cat.no: 40200051 SpeciFix-20 Curing Agent ½ l Cat.no: 40200052	EpoFix Kit Cat.no: 40200029 EpoFix Resin 1 l Cat.no: 40200030 EpoFix Hardener ½ l Cat.no: 40200031

1) 30 mm dia. mount without specimen at 21°C / 70°F

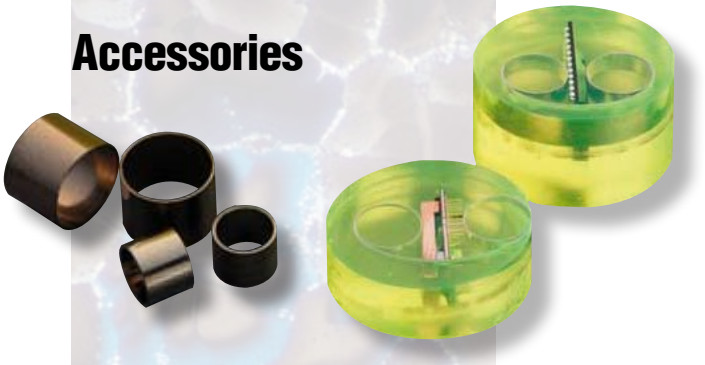
Struers offers a wide program of mounting accessories.
For more information see www.struers.com or contact your local dealer.

Temperature



$\text{Celsius} = \frac{5}{9}(F - 32)$ $\text{Fahrenheit} = \frac{9C}{5} + 32$

Accessories



Struers offers a large variety of mounting cups and other accessories to provide easier handling and more accurate specimen preparation.

- Mounting cups in different sizes
- Metal spring clips or plastic clips to hold or support small specimens
- Taper section angles, for measuring of layer thickness
- Fluorescent dye for microscopic examination under fluorescent light
- Dye for acrylic resins for easy identification of specimens
- Measuring syringes for quick measurement of liquids
- Cups and stirrers
- Electric mixer for optimal mixing of epoxy components

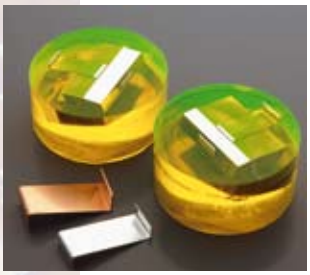
See separate brochure for further details.

Drybox – specimen drier and curing oven

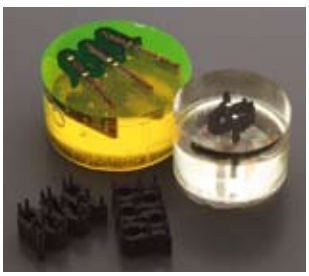
To achieve more uniform mounting results, Drybox can be used to control the temperature during the curing process. Drybox acts both as a specimen drier and a curing oven.

Drybox circulates a constant stream of temperate air around the mounting cups. This will, in the beginning, heat the specimens to an activating temperature, and afterwards, remove the heat created by the exothermic reaction during curing.

With Struers Drybox you can control the temperature during the curing process.



Taper section angles are available in steel, aluminium and copper. The angles make it much easier to measure the thickness of thin layers.



Struers MultiClips can support up to 5 small thin specimens.

Struers' products are subject to constant product development. Therefore, we reserve the right to introduce changes in our products without notice

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