

## Mounting

### Mounting is necessary when:

- The specimen is small
- The specimen has a complicated shape & therefore difficult to handle
- A standard size required
- Edge retention is necessary
- The specimen is porous or has cracks
- In powder metallurgy
- For coatings (taper section)
- For petrographic, surface hardened or ceramic specimens
- For failure analysis
- To analyse layers

### Preliminaries to mounting:

- Clean the specimen
- Adjust the specimen size to the cylinder size
- Adjust the specimen height
- Select the most suitable resin for material/application

### Considerations:

- Cup size
- Cup material
- Fixation and Multiclips
- Mixing and curing time
- Marking
- Chemical resistance

### Mounting techniques:

#### Hot compression mounting

- Small number or single specimen
- High quality
- Better Hardness
- Uniform size and shape
- Short processing time
- Respects tolerances

#### Cold mounting

- Large number of specimens
- Heat sensitive specimens
- Fragile or brittle materials
- Fast if using acrylic based resins
- Mounts of any shape can be made
- Doesn't respect tolerances
- Some have high shrinkage and/or are not very hard.

### Resins Selection Guide

The choice of resin/mounting media is very important in order to obtain the required result. There are two different types of cold mounting resins; Epoxy and Acrylic.

#### Epoxy








- Recommended for vacuum impregnation
- Lowest shrinkage
- Long curing time
- Excellent adhesion
- Transparent
- Low vapour pressure

#### Acrylic

- Large number of specimens
- Heat sensitive specimens
- Fragile or brittle materials
- Fast if using acrylic based resins
- Mounts of any shape can be made
- Doesn't respect tolerances
- Some have high shrinkage and/or are not very hard

Tables 1 and 2 summarise the specifications and properties of different hot compression mounting resins. The lab has stocks of *MultiFast* and *PolyFast* available for use. If you require a different resin you will need to organise its purchase with the [project budget form](#).

Table 1: Specifications of hot compression mounting resins.

Resin	Application	Filler	Shrinkage	Removal rate	Time <sup>1</sup> (min)	Type
 <b>PolyFast</b>	SEM	Carbon	*	High	5	Thermosetting
 <b>LevoFast</b>	Edge retention soft	Mineral and glass	*	High	5.5	Thermosetting
 <b>DuroFast</b>	Edge retention hard	Mineral	*	Very low	5.5	Thermosetting
 <b>MultiFast</b>	Routine, no special requirements, back-up	Wood flour	**	Medium	5	Thermosetting
 <b>CitoFast</b>	Edge retention very soft	Aluminium	**	Very high	3.5	Thermoplastic
 <b>ConduFast</b>	Electrolytic polishing/etching	Iron powder	**	High	5	Thermoplastic
 <b>ClaroFast</b>	Clear mounts	None	**	High	10.5	Thermoplastic

(\*) 1 is best    (°) 30 mm mount






Table 2: Properties of hot compression mounting resins.

	ClaroFast	ConduFast	DuroFast	LevoFast	MultiFast	PolyFast	Pre-Mount
Easy Handling							✓
Edge Retention			●	×		×	
Electrolytic polishing		✓					
Hard			✓				
Planeness			●	×		×	
Protection of layers			●	×		×	
SEM						✓	
Transparent	✓						
Wear Resistant			✓				
No requirements/backup					✓		

× = Soft materials (<HV400), ● = Hard materials (>HV400), ✓ = All materials

Tables 3 and 4 summarise the specifications and properties of different cold mounting resins. The lab has stocks of *SpeciFix-20* available for use. If you require a different resin you will need to organise its purchase with the [project budget form](#). Vacuum impregnation is recommended when mounting porous materials, such as ceramics or sprayed coatings.

Table 3: Specifications of cold mounting resins.

Resin	Material	Curing time	Shrinkage	Application
 <b>EpoFix</b>	Epoxy	12 hours	*	Vacuum impregnation
 <b>SpeciFix-20</b>	Epoxy	8 hours	*	Vacuum impregnation
 <b>SpeciFix-40</b>	Epoxy	3.5 hours at 50 °C	*	Vacuum impregnation
 <b>CaldoFix-2</b>	Epoxy	1.5 hours at 75 °C	*	Vacuum impregnation
 <b>LevoCit</b>	Acrylic	10 - 20 min.	**	Filler optimised for non-ferrous and soft ferrous metals
 <b>VersoCit-2</b>	Acrylic	10 min.	****	Routine examination of soft to medium hard materials
 <b>DuroCit-3</b>	Acrylic	30 min.	*	Mineral filler, excellent edge retention
 <b>ClaroCit</b>	Acrylic	20 min.	***	Universal use
 <b>ViaFix</b>	Acrylic	20 min.	***	Filling of microvias and pores

(\*) 1 is best

Table 4: Properties of cold mounting resins.

Type	EpoFix	SpeciFix- 20	SpeciFix- 40	CalcoFix-2	DuroCit-3	LevoCit	VersoCit-2	ClaroCit	ViaFix
Edge Retention	×	×	×	×	●	×			
Hard					✓				
Low curing temperature	✓	✓				✓			
Planeness	×	×	×	×	●				
Protection of layers	✓	✓	✓	✓	●	×			
Transparent	✓	✓	✓	✓				✓*	✓*
Use with EpoDye	✓	✓	✓	✓					
No requirements/backup							✓		

Accessories and consumables:

The lab has stocks of;

- Circular *Fixiform* mould cups.
- Fixation clips – *multiclips* and *metal spring* clips.
- Disposable *mixing cups* and paddle pop stick *stirrers*.

If you require other mounting accessories you will need to organise its purchase with the [project budget form](#).