PHENOFREE hot moulding resin

New phenol-free and formaldehyde-free thermosetting mounting resin

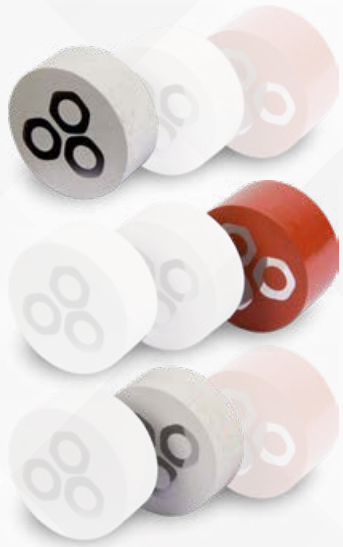
In line with its ecological commitment, LAM PLAN proposes on the market the first effective alternative to phenol metallographic mounting resins which are liable to release phenol (and/or formaldehyde) during baking.

The PHENOFREE mounting is intended for the technical mounting of all types of materials for material examinations or edge examinations. It smartly replaces the traditional phenol mounting resins with the same hardness and less shrinkage than a phenol mounting resins.

The range of PHENOFREE resins includes 3 coloured resins (grey, white and red) to make the identification of your metallographic samples easier. They are particularly adapted for the polishing of hard materials. The white Phenofree resin may prove to be in some cases a good alternative to the use of epoxy resins.

Characteristics	Qty. in kg	Ref.
PHENOFREE 1		
Grey composite powder Polyvalent, hard	2,5	06 PF010 20
	10	06 PF010 10
	25	06 PF010 50
PHENOFREE 2		
Red composite powder Polyvalent, very hard	2,5	06 PF020 20
	10	06 PF020 10
	25	06 PF020 50
PHENOFREE 3		
White composite powder Polyvalent, extra hard	2,5	06 PF030 20
	10	06 PF030 10
	25	06 PF030 50

Require the unmoulding agent SOLILUB.



Phenol-free
Formaldehyde-free

Unmoulding agent

Recommended for PHENOFREE, 633 and 634 resins.

SOLILUB

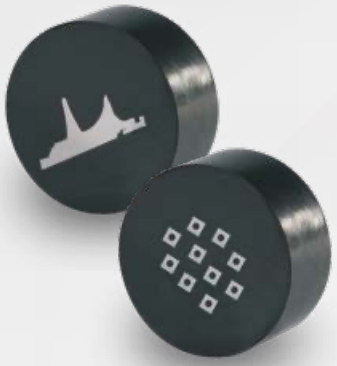
Characteristics	Qty.	Ref.
Anti-stick powder for hot mounting process	Pot de 50 g	06 00683 00

Hot mounting resins

To respond to all metallographic control and research situations, LAM PLAN developed and tested a range of hot mounting resins. Each resin is characterised by a very specific physical and chemical properties.

EPOXY RESINS 633 AND 634

The black epoxy mounting resin is filled with glass fibres with high mineral loads. It is ideal for mountings intended for edge examinations of hard to extra hard materials thanks to its resistance to abrasion, important hardness and absence of shrinkage. The 634 is a fine powder epoxy resin, used for examination of edged samples.

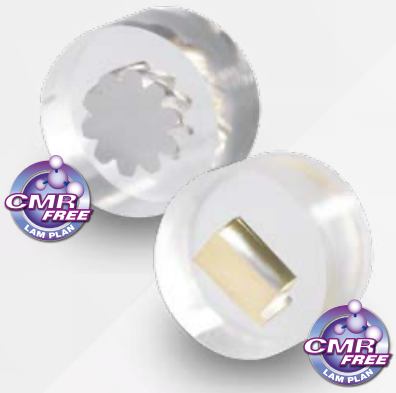


Characteristics	Qty.	Ref.
633		
Black epoxy powder, loaded with glass fibres Edges examinations Extra hardness - No shrinkage	2,5 kg	06 00633 20
	10 kg	06 00633 10
634		
Black epoxy powder, fine grains Edge examinations on complex samples High hardness - No shrinkage	2,5 kg	06 00634 20

ACRYLIC RESINS 616 AND 616.2

The acrylic resin 616 is perfectly transparent and adapted to most materials. Mainly used to view the evolution of the grinding of the sample.

Perfectly transparent with no cotton effect, the acrylic resin 616.2 is resistant to alcohol, and therefore ideal for work with alcohol-based polishing products or requiring a cleaning phase with ethanol, isopropyl alcohol or other.



Characteristics	Qty.	Ref.
616		
Transparent acrylic powder. Visualising the sample during and after the polishing. All materials.	2,5 kg	06 00616 20
	10 kg	06 00616 10
616.2		
Transparent acrylic powder. Visualising the sample during and after the polishing. Alcohol resistant.	2,5 kg	06 06162 20
	10 kg	06 06162 10

COPPER MOUNTING RESIN 604.3

Conductive mounting resin for examinations with SEM or electrolytic etching device. A pure copper based resin of very homogeneous consistency, the conductibility of your mountings is optimised. The use of ultra-pure materials eliminates the risk of an analysis error.

Characteristics	Qty.	Ref.
Resinoid copper powder For electrolytic polishing.	2 kg	06 00604 30

GRAPHITE MOUNTING RESIN 617

Conductive phenolic mounting resin loaded with graphite (without copper and without metals or alloys) for SEM and TEM examinations.

Characteristics	Qty.	Ref.
Conductive black phenolic powder (graphite) For SEM examination	1,5 kg	06 00617 00

GUIDANCE

Advice on the use of LAM PLAN hot mounting resins

Material	Resin	Characteristics	Volumetric shrinkage	Color	Polymerisation time*
Composite	PHENOFREE 1 PHENOFREE 2 PHENOFREE 3	Phenol & formaldehyde Free	Low	Grey Red White	10 to 15 min
Epoxy	633	Extra hard	Very low	Black	5 to 10 min
Epoxy	634	Extra hard (fine grain)	Very low	Black	5 to 10 min
Acrylic	616	Excellent transparency	Low	Transparent	5 to 10 min
Acrylic	616.2	Transparent and alcohol resist	Low	Transparent	5 to 10 min
Copper	604.3	High conductibility	Low	Coppered	10 min
Graphite	617	Conductable	Low	Black	5 to 10 min

** Depending of the machines' characteristics*

Diagnosis and guidance for hot mounting resins

Before to begin any mounting process, the grease needs to be removed from the samples in order for the resin to adhere to the contours of the parts. Check if any burrs were committed in the cutting process. If necessary, deburr the sample's edges with an abrasive paper.

Noticed faults		Cause	Solution
Primer cracks on the sample's edges		Oversized Coated part according to the chosen mounting mould	Reduce the size of the sample or increase the size of the mounting mould
Shrinkage		Inadequate mounting resins	Choose a resin offering less shrinkage
		Insufficient heating time	Increase the temperature during the heating time
		Inadequate pressure mode and insufficient pressure	- Use the machine mode ajusting the temperature curve - Increase the mounting pressure
Resins grains visible on the faces of the sample		Insufficient pressure	Increase the pressure during the mounting cycle
		Insufficient heating time	Increase the heating time
"Smoke" visible in a transparent mounting		Wrong pressure choice	Choose a pressurisation only during the cooling cycle
		Too much resin according to the size of the sample	Limit the quantity of resin inserted in the mould or reduce the size of the mould
		Insufficient heating time	Increase the heating time
Mounting stuck in the mould		Insufficient "solilub" powder	Drop a sufficient amount of "solilub" on the machine's superior and inferior pistons
		Insufficient heating time	Increase the heating time
Bulge on top of the mounting		Insufficient cooling time	Increase the cooling time