Hot/Compression Mounting

Hot mounting, or compression mounting, uses pressure and heat to encapsulate a sample for grinding/polishing. It is an economical mounting method for samples that can withstand the pressure and heat used. Hot mounting protects the sample edges, makes small/irregular samples easier to handle, makes manual/semiautomatic polishing easier and facilitates etching after sample polishing.

There are a variety of hot mounting powders available for a range of applications listed below along with the durometer hardness (Shore D) of each cured mount:

Phenolic

A wood-based bakelite mounting powder used for routine applications, when color-coding for material identification, or as backfill for more expensive mounting powders.

Blue Diallyl Phthalate

A mounting powder, offered as either glass- or mineral-filled, that provides excellent edge retention and chemical resistance.

Black Glass-Filled Epoxy

A hard mounting material with glass fiber filler that provides excellent specimen adhesion and edge retention. Use of mold release is recommended.

Transparent Thermoplastic

A powder used for routine applications and offers a clear mount for easy sample observation without yellowing over time.

Graphite | Copper

These conductive mounting powders are used for SEM, EBSD and electrolytic polishing applications. Copper-based should be used for samples where copper is not a primary constituent, and graphite-based is recommended for specimens without carbon as a component.

Part Numbers:

Phenolic: 135-100XX
Blue Diallyl Phthalate: 160-100XX
Black Glass-Filled Epoxy: 150-101XX
Transparent Thermoplastic: 165-100XX
Graphite: 155-200XX
Copper: 155-10010

Cleaning

Cleaning is a vital step to achieving good adhesion between the mounting material and the sample. Excess oil, grease or foreign particles can result in gaps which can negatively affect the sample finish. Allied's recommended cleaning procedure is as follows:

1. Place samples in an ultrasonic cleaner with a diluted GP cleaning solution and clean for 5 minutes.
2. Rinse with ethyl alcohol and dry with compressed air spray. Excess moisture can be removed by heat drying on a hot plate at 70-100 °C for a few minutes.

If the sample needs to be removed from the mount, it may be possible to remove it by sectioning away excess material with a plated rim diamond blade, and then chiseling away the remaining mounting material.

Using the Mounting Press

1. It is recommended to apply mold release to surfaces that the mounting material will come into contact with (e.g., top and bottom die, spacer, assembly chamber) so that the mount will come off easily after the cycle. Make sure the mold release is dry **before** the sample is placed on the die, or the mounting powder could adhere to the die.
2. With the bottom die raised to the top, place the sample in the center of the die (Figure 1).
3. Lower the bottom die.
4. Place the powder inside. The amount used will depend on the type of powder, and the size of the sample and assembly. For example, about 1.5-2 scoops are used for a standard 1.25" phenolic mold.

   Note: If duplexing (mounting 2 samples per cycle), less powder may be needed in the top and bottom section to close the assembly with the bayonet cap, regardless of mount type or size.
5. Set the curing time, temperature and pressure parameters on the press as specified in the operation manual.
6. After the cycle time is complete, turn the bayonet to "open" and raise the die until the bayonet and mount can be removed (Figure 2). Flashing, an excess of cured powder that has migrated onto the dies, is normal and will need to be removed from the mount, as well as the top and bottom die and the spacer (if used). Use the brass brush or the scraping tool included with the press to remove flashing.

Figure 1: Place the sample in the center of the die.

Figure 2: Remove the mount after the cycle has finished.

Mold Release	
Instructions	**Part numbers**
• Let the mold release dry. • Keep the sample away from the mold release. • User preference determines use of spray, liquid or powder.	Silicone Spray (Hot): 200-10005 PTFE Spray (Hot or Cold): 200-10006 PTFE Liquid (Hot or Cold): 200-10015 Powder (Hot): 200-10100

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