

Mounting Thinned Samples to TEM Grids

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Mounting a thinned sample to a grid is the last step when preparing samples for observation in a transmission electron microscope (TEM). It is important to fit the sample to the grid without any extra material hanging off the sides so that the grid and stage will fit inside the TEM. Using fine self-closing tweezers makes handling the grid and the sample easier.

There are a variety of TEM grids to choose from, but molybdenum (moly) and copper grids with central oval openings are the most common.

Choosing an Adhesive

There are multiple methods to mount the sample to the grid that require different adhesives. User preference, application and sample type will dictate which method is best. For more information regarding various adhesives, see Allied's "Adhesives for TEM Sample Preparation" applications note or contact Allied.

EpoxyBond 110 (#71-10000) or **M-Bond 610 (#71-20000)** can be used to mount the sample to the grid after it has been removed from the fixture. They can also be used while the sample is still attached to the fixture because of their resistance to acetone, which is generally used to clean the sample after removal.

Trimming the Sample

If the sample is longer than 1.5 mm, the sample edge will hang off the grid (Figure 1a). It can be trimmed down by tracing the overhanging edge with a diamond scribe.

Recommended Method

Immediately after polishing and with the sample still attached to the fixture, mount a TEM grid to the sample and then trace the long ends of the sample with a diamond scribe (Figure 1a). Mounting the sample to the grid while it is still on the fixture provides more stability during trimming. Melt the mounting wax by placing the fixture on a hot plate, then remove the sample and grid together from the fixture. The remaining wax can be removed with acetone and cleaned with isopropyl alcohol (Figure 1b).

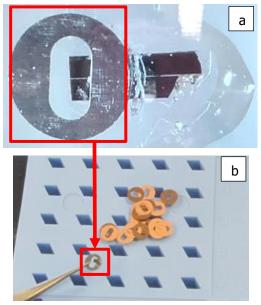


Figure 1: The sample edge hangs off the grid (a). The TEM grid after being removed from the fixture (b).