



# MICROSCOPY 101

We appreciate the response to this publication feature - and welcome all contributions. Contributions may be sent to Phil Oshel, our Technical Editor at:

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## Removing Platinum/Carbon Replicas From Mica

There are probably as many different ways to approach this kind of problem as there are people doing platinum replicas! The most reliable method we have ever discovered is to use a 1% aqueous polyacrylic acid (PAA) solution, deposited as one drop on the surface with the stubborn replica. Twenty four hours later, the drop has spread and the water has evaporated, leaving a thin but very tough PAA film. Then with something sharp (e.g., scalpel blade, but wear eye protection for this!), slide the blade edge underneath the edge of the PAA film, and if you have the "art", it will literally just pop off with the Pt/carbon film.

Next the PAA is floated on a surface of water, carbon side up, and again, do other things and come back 24 hours later. The PAA will have all dissolved into the water, leaving the Pt/carbon film floating on the surface of the water. The film is then picked up on grids as you would any other floating film.

Note: Patience is clearly a virtue, be sure to give it the full 24 hours or your grids will be PAA contaminated, with a major loss of contrast. Use a deep petri dish for this so that there is sufficient volume of water to efficiently dissolve the PAA.

If this sounds too complicated and you don't have patience, there is an alternative we also use: Victawet for EM. The Victawet is evaporated from a tungsten basket (see website instructions) and a very thin layer of the release agent is deposited onto the mica (or glass slide). Then apply the samples, shadow with Pt/C and the replica now is almost guaranteed to float off on the first try.

One note: The "better" the grade of mica, I am told, the easier is the release of such films. Grade V1 mica supposedly releases easier and that might be because there are fewer cleavage steps. We have not tested that theory ourselves so on that there can be no guarantees, but it does make sense.

SPI Supplies is a supplier of Victawet for Electron Microscopy and mica substrate materials. For a chart of different mica "grades", see our web page: <http://www.2spi.com/catalog/submat/chart.html>

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