

Use of Emitech K950 Carbon Evaporator

Electron Microscopy Core, University of Missouri

The carbon evaporator applies a thin layer of carbon to specimens. Usually the EMC will coat a 15 nm carbon coat onto specimens which can be measured with a brass indicator.

1. Turn on unit (switch on right back panel)
2. Open top of glass bell jar and place specimens on stage. Remove bell jar completely if difficult to place specimens in chamber
3. Prepare carbon rods for placement on inner lid.
 - Sand a small length (4 cm) of carbon rod flat and sharpen sanded end using silver sharpener by turning rod clockwise gently. Carbon shavings will form and can be placed in trash. Sharpen the rod to the midpoint of the sharpener. Place on the left-hand electrode by inserting the sharpened end, screw tight.
 - Sand a second length (4 cm) of carbon rod flat and insert into the right hand electrode.
 - Apply tension by pulling back on the spring-loaded left-hand side electrode and pushing the right-hand flat carbon rod against the sharpened rod. Tighten screw on the flattened carbon rod on the right-hand electrode. Ideally the sharpened rod should reside in the middle of the two electrodes and align over the specimen stage.
4. Close lid on bell jar.
5. Depress "**PUMP - Start**" button, ensure a vacuum is being pulled. The Turbo level on the upper right of the panel will reach 100% within 5 minutes.
 - Ensure Turbo is selected with flip switch
 - Select "Table rotate"
6. Once 100% Turbo speed is reached on indicator, then "**OUTGAS**" button can be selected.
 - Utilizing the knob on the upper left, increase the current slowly.
 - Around midway, the instrument will start to hum and a current will register on the gauge.
 - Increase knob slowly and watch the sharpened carbon rod **glow red**. As soon as you see red...
 - Quickly turn knob back to zero and unselect "OUTGAS"
7. While looking away, **press and hold** the "**EVAPORATE**" button. A thin carbon layer (~15 nm) has now been deposited on your specimen.
8. Press "**VENT - Stop**" to release vacuum. Switch off table rotate. The inner lid and carbon rods may be hot to touch, use caution when removing specimens.

