

AGAR TEM TURBO CARBON COATER

GENERAL POINTS

Amended October 2001

As a general principle, do not touch your grids or stubs with bare hands. Use the forceps provided to handle stubs. Also, do not touch the stage or the inside of the chamber wall with bare hands.

DO NOT LOOK AT AN EVAPORATING SOURCE WITHOUT GOGGLES OR DARK GLASS.

If the carbon rods have been used recently, they will be very hot. Do not replace them immediately. If they need replacing at the end of your session, leave them for the next person to change.

Don't throw any rods away - they can be recycled! Place used rods in the box provided.

If you use the last rods, please let the Technician know.

INSTRUCTIONS FOR USE

The chamber is not kept under vacuum, so you can lift the chamber lid (CAREFULLY!!) and place the sample to be coated on the stage. If you are coating freshly cleaved mica, place this face up on the stage, put a 1cm strip of paper across the mica and weight this down with 2 screws.

Reload the evaporation source if less than one third of the rod tip is remaining.

Switch on the power. This starts the pumps. The coater will be ready to use when the green READY light on the right of the machine is lit.

To coat stubs:

Continuous mode

This setting allows continuous coating for any length of time, governed by the operator. Use this setting to coat mica. The length of time of deposition is pure guesswork! The carbon coating has to be thin enough to give good resolution under the microscope, but thick enough not to fall to pieces when floating it off onto water, 2 or 3 seconds is normally sufficient. The carbon layer should then look silvery grey on the mica – if it is too silver then it is too thick and if it is brown then it is not a good quality film so use different rods.

1. Switch to MANUAL.
2. Use either of the SET buttons to select CONTINUOUS (“Cn”).
3. Ensure the manual volts adjust is aligned so that the 2 lines match.
4. Press the start button.
5. Press this button again to stop the evaporation.

Do not run this for long periods as the excessive heating will damage the rod holders.

Always use freshly prepared films to coat grids. If the carbon films are too old they will break up on contact with water.

Pulse mode

This setting lets pulses of carbon deposit onto the sample.

1. Switch to MANUAL.
2. Press either of the SET buttons to select PULSE (“PU”) mode. In PULSE mode the START/STOP button has a momentary action.
3. Press START/STOP button to create a pulse of current and therefore a burst of carbon deposition. This can be used several times to build up layers of carbon depending on the thickness required. This can be reproduced if the number of pulses used for each specimen is recorded.

IF, WHEN YOU HAVE FINISHED, THE RODS NEED CHANGING - LEAVE THEM FOR THE NEXT PERSON TO CHANGE BECAUSE THEY WILL BE VERY HOT!

LOADING THE EVAPORATION SOURCE

IF THE RODS HAVE BEEN USED RECENTLY, THEY WILL BE VERY HOT. DO NOT REPLACE THEM IMMEDIATELY.

1. Remove the old rods by undoing screw 4 and removing the static rod. Then undo screw 3 and remove the moving rod.
2. Place the rods in the box for recycling.
3. Brush the rod holding apparatus with the paint brush to remove any loose flakes of carbon.
4. Load the static rod (see diagram). This rod (CS) has no tip on the end. Its bevelled face should line up with the centre line (CL) of the feedthrough (a small tapped hole is used as a guide). Tighten the screw (4) by hand only.
5. Load the moving rod (CM). Push it through the moving rod holder (1) until it is touching CS. Now gently pull back the moving rod holder while keeping the two rods in contact. This compresses the spring (S). Tighten the screw (3) by hand. The rods are now sprung loaded together.

DO NOT THROW AWAY USED RODS - THEY CAN BE RECYCLED!