

ELECTRODE BOMBARDING INSTRUCTIONS

For proper bombarding, we strongly recommend the use of high precision meters including mA meter, temperature gauge and vacuum gauge.

Prepare the tubing:

1. Before splicing (joining), both the electrode and the glass tube should be evenly preheated.
2. When splicing fluorescent coated tubing, the powder inside the tube should be wiped away about 1/16 in. from the end of the tube.
3. A complete annealing process should be done after splicing to prevent future crack.

Bombarding procedure:

1. Follow the chart below for bombarding current of A, B, C & D
1. Connect unit to manifold with a suitable high vacuum connection. (It is not advisable to use rubber hose)
2. Test the entire system for leakage.
3. Open main stopcock and evacuate unit to hard vacuum. Close main valve and gauge stopcocks.
4. Backfill with 3.5mm (Torr) of Argon gas. (1 Torr = 133.3 Pa)
5. Turn on bombarder and adjust current to A. Heat glass to 150°C while maintaining 3-4mm pressure.
6. At 150°C adjust pressure to 2 mm and increase current to B.
7. At 200°C adjust pressure to 2mm and increase current to C.
8. At 225°C to 250°C adjust pressure to 2mm and increase current to D.
9. While maintaining ~2mm pressure, continue bombarding until the entire metal shell of the electrodes are a ***bright, incandescent, almost translucent, light shade of orange*** (an illuminated pumpkin orange) ***the entire length of the shell.***
10. Turn the bombarder off and completely open the main valve to evacuate the tube. Turn on the vacuum gauge, but wait a few moments before opening the vacuum gauge stopcock.
11. When the tube has cooled to ~70°C, and the best possible vacuum has been obtained (preferably less than 1 micron) the unit is ready for filling.
12. Close the vacuum gauge stopcock and turn the vacuum gauge off. Close the main stopcock.
13. Fill the unit with the desired gas to the correct pressure for the size of tubing used. Seal unit off from manifold and age-in.

Model	10CA 10CAT	12SCA 12SCAT	12CA 12CAT	13SCA 13SCAT	13CA 13CAT	14SCA 14SCAT	14CA 14CAT	15SCA 15SCAT	15CA 15CAT	15CA-60 15CAT-60	18CA 18CAT
Length & Diameter	4-6FT 12mm	4-6FT 12mm	8FT 12mm	4-6FT 12mm	8FT 12mm	4-6FT 12mm	8FT 12mm	4-6FT 15mm	8FT 15mm	8FT 15mm	8FT 15mm
A	150mA	200mA	200mA	200mA	200mA	200mA	200mA	200mA	200mA	200mA	200mA
B	200mA	250mA	300mA	250mA	300mA	250mA	300mA	250mA	300mA	300mA	300mA
C	250mA	300mA	400mA	300mA	400mA	300mA	400mA	300mA	400mA	400mA	400mA
D	400mA	400mA	500mA	400mA	500mA	400mA	500mA	400mA	500mA	650mA	700mA

Note: Bombarder size, Length of tubing, glass diameter, and vacuum pump efficiency will all affect the bombarding procedure. The above instructions are based upon processing tubes at the length & diameter illustrated in the chart above. Longer units or double pumping will require lower initial pressure and higher initial current to begin bombarding.