

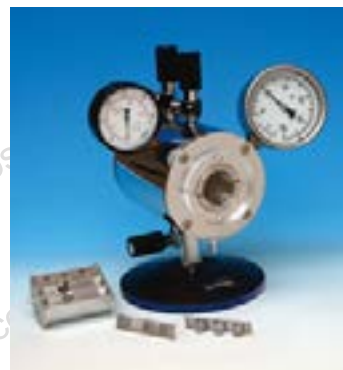
Critical Point Drying (CPD)

Critical point drying is an established method of dehydrating biological tissue prior to examination in the Scanning Electron Microscope (SEM).

Check List

- Make sure all valves are closed, including the CO₂ tank.
- Specimens have been processed and are in designated CPD holders *and* in final dehydrant.

NOTE: Dehydrants, especially acetone/propylene oxide are volatile and specimens **cannot** be allowed to dry at Step #3



EMS 3100 CPD

Procedure – CPD with the EMS 3100

1. Turn on COLD water and run through the unit. Wait until it gets to 20° C or less.
2. Unscrew the back threaded cap and remove specimen boat from the chamber.
3. Quickly load specimens into boat and insert boat into the chamber.
4. Thread the cap on until tight!
5. Open the CO₂ inlet valve on the top of the unit.
6. Open valve on the top of the CO₂ tank all the way.
7. Open the top exhaust valve slightly and leave open while observing the level of the liquid CO₂ through the front guarded viewing window.

NOTE #1: Always observe the level of the CO₂ and never let it fall below the level of the specimens.

8. When the liquid fills the chamber, close the exhaust valve and wait 5 minutes.
9. Carefully open the bottom exhaust valve and let gas escape for 2 minutes or until the odor of the final dehydrant is no longer detectable. **See Note #1 above!**
10. Wait 5 minutes and then repeat Step #9 two more times, for 2 minutes each, so that the specimens have been flushed a total of three times.
11. Close ALL valves securely, including the CO₂ tank valve.
12. Start running warm water through the unit to increase the chamber temperature.
13. The temperature and pressure should rise past the critical point of 31.1° C and 1071 psi.
14. Let the chamber reach 40° C and 1200 psi and wait 15 minutes for biologicals or 30 minutes minimum for MEMS.

NOTE #2: If the desired pressure, 1200 psi, is achieved before the temperature, carefully bleed off some pressure very slowly by opening the top valve. Never let the pressure exceed 1300 psi.

15. Open the top exhaust valve slightly and bleed off the pressure at a rate of about 100 psi/min.

NOTE # 3: Be sure to maintain the critical temp with warm water!

16. Once the chamber has reached atmospheric pressure, open the threaded cap, remove samples and store in the desiccators until needed.