





INSTRUMENT STANDARD OPERATING PROCEDURE MANUAL

College of Medicine



SAFETY AND LABORATORY COOMMITTEE, C.O.M, K.F.U.

Prepared by

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Document History

Document	×0'		Modified
Section	Details of Amendments	Date	by (Initials)
SOP	First Draft on SOP for the operation of AUTOMATED CRITICAL POINT DRYER (Leica EM CPD 300)		
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I.	ORJE	CTIVE
	D S	the document describes the operation of AUTOMATED CRITICAL POINT PRYER (Leica EM CPD 300). canning samples for SEM imaging need to be dried in order to be compatible with the vacuum in the SEM microscope column and requires preservation of surface etails of the specimen.
2.	SCOPI	E
		Closed Full reproducible controlled processes through full automated software (Cut off point 45C) Program screen. Holder panel \ Filler Application protocols for biological specimens as Bacteria , Fungi , RBCs . pollens , animal and plant tissues and insects etc. CO2 pressure bottle temperature 18-25C (52-61 bar) –humidity 5-90%. Pressure vessl 150 bar. Maximum operating pressure 79 bar. Cooling capacity 90 W at -5 C (2500 1\ MIN). Cooling range 5C to 25C Heating range 33C to 43C. EM TP sample basket stem which fits directly to Leica EM CPD 300 holder.
3.	RESPO	ONSIBILITIES
) [It is the responsibility of designated personnel in the lab to train staff and students on this procedure and to ensure adherence to this procedure under supervision. It is the responsibility of designated personnel (staff or Student) to follow the instructions of this procedure under supervision.
4.	REFE	RENCES
		Leica EM CPD 300 operating manual. Leica EM CPD 300 Technical Data Sheet. Leica EM CPD 300 Application booklet.

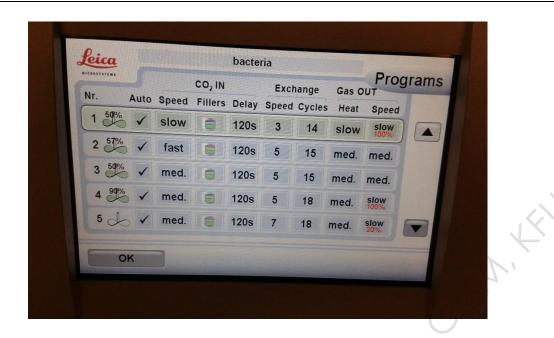
5. **DEFINITIONS**

		Leica EM CPD 300 basic unit Closed fully automated controlled programming
	П	software (80 bar), pressure vessel 150 bar
		Large variety sample holders with appropriate filter
		Process chamber with sample container and sample holder. Sample container with quick release pin.
		*
		Filter disc and porous pot holder with 4 wells (15x21 mm, mesh size 0.5 mm).
		Fine Mesh specimen holder for 4 fine Mesh Specimen Baskets (mesh size 0.5 mm) Cover slip holder
		Grid holder with 32 numbered slots.
		TP stem holder of Leica EM CPD 300.
		TP Baskets.
		Wafer holder for 4x2 inch wafers.
	ш	Waste bottle for liquids disposable (eg: Ethanol, Acetone etc.).
		Timer.
		Timer.
6. S	AFET	Y PRECAUTIONS
0. 5		
		Careful when handling flammable liquids (e.g. Acetone and Ethanol).
		Cleane all surfaces by aqueous reagents or 60% ethanol and a clean cloth.
		, O'
		PROCEDURE FOR OPERATING AUTOMATED CRITICAL POINT
	DRY	TER (Leica EM CPD 300).
	62	Turning on the instrument:
	o T	urning on the power supply
	o C	hoose the program name (e.g. 1 ,2, 3 etc.) from the prestored programs.
	o S '.	TART THE PROGRAME.
		he main tough severe show the main stong of the engoing programs
Ç. (he main touch screen show the main steps of the ongoing program:
4		
70.		
	6.3. 1	Software Operation.
	Lei	ca EM CPD 300 Technical Data Sheet collection sheet
	-	

	6.4. Steps of the Procedure
	☐ Applied the samples into pressure chamber of CDP and cover them with exchange fluid to prevent air drying.
	☐ Liquid CO ₂ filled into pre-cooled pressure chamber and new CO ₂ is filled (purging cycle).
	☐ After appropriate purging cycle all exchange fluid should be replaced by liquid CO ₂ .
	☐ Then Starts heating process and the heating process generates supercritical CO2
	☐ The superficial CO₂ then forms to gaseous CO₂ at the CO₂ critical point temperature and pressure (Tc 31 C and Pc 74 bar)
	By maintaining the temperature constant at 31 C. and opening the gas
	out valve which reduces the pressure in the chamber
	☐ Ethanol (Pc 60 bar\ Tc 241 C.) and Acetone (Pc 46 bar \Tc 235 C.).
	6.5. Turning off the Instrument
	END OF PROGRAM
	☐ Turn off the software.
	☐ Turn off the electric main power source.
	☐ Remove the samples
	☐ Start the next step Leica EM Sputter Coater family
Note:	
4	The SPECIMEN DURING PROCESSING MUST BE ALWAYS COVERED
	WITH LIQUIDS TO
	AVOID DRYING.
	6.6. Warning
	Write any the warning in BOLD and RED FONT.







Softer And Laboration Committee.