CLARIFICATIONS AND RESPONSES IN THE PRE BID MEETING HELD ON 25TH DECEMBER 2013 IN OUR SEMINAR HALL FOR THE PROCUREMENT OF AUTOMATED THERMAL EVAPORATION SYSTEM

File No : PUR/IMP/089/13

Description of Item : AUTOMATED THERMAL EVAPORATION SYSTEM

Replies to the queries regarding thermal evaporation system integrated to a glove box

(A) M/s Inkarp Instruments, Hyderabad, representing MBraun, Germany			
S.No.	Existing Specification	Amendment Requested	Decisions of the Committee
1.	4 port glove box, GB1 (~1800mmx780mmx900 mm) for attaching to the evaporation chamber. GB1 will have the encapsulation system(dispensing unit and UV curing).	Length of Glove Box GB 1 containing the evaporation system, liquid dispenser , UV cure should be 2200mm with 6 ports (instead of 1800mm).	GB1 will accommodate evaporation chamber, dispensing system and UV-curing system. If the dispensing system and UV curing system are compact 1800 mm will be enough. However the committee felt that for all the systems to be conveniently used 2200mm length is better. Hence the amendment is accepted. The new specification for GB1 will be "6 port glove box, GB1 (~2200mmx780mmx900mm) for attaching to the evaporation chamber".
2.	Vibration dampened base for GB1 and GB2.	Requested that the requirement for vibration dampened base be removed.	The committee decided that vibration dampened base is not required if the purifier and blower assembly are not kept in the bottom cabinet of the glove box. Accordingly new specification will be " vibration dampened base

			required if purifier and blower assembly are kept in the bottom cabinet of the glove box".
3.	8" bowl size for the spincoater.	Spin coater -8" bowl size for 6 " or 5" x 5 " substrates.	Normally 2.5"x2.5" substrates will be used and hence the chucks provided with the system should be able to hold these. However it should be possible to use substrates as large as 6"x6" with suitable chuck, if required. The new specification will be "6" bowl size with a maximum substrate size of 6"x6" with a suitable chuck".
4.	For evacuation of the chamber instead of cryo system, a suitable turbo molecular pumping system may be quoted.	Pumping alternative 12 m3/hr dry scroll pump in combination with Turbo molecular Pump with > 1050l/s.	Turbomolecular pump is already given as an optional item. The committee decided to change the specification for this optional item as follows; "Turbomolecular pump with capacity >1050 l/s backed by a rotary pump or dry scroll pump of capacity not less than 16 cfm".
5.	For organic evaporation sources the temperature range should be 0-1500^0 C.	It was requested that for organic sources (10) each 2cc crucible alumina, temp range may be modified as from 50^0 C to 600^0 C.	Organic materials may not require high temperature for sublimation. However certain oxides may have high melting point. Hence the specification is changed as" organic sources(10); 2cc crucibles with a temperature range of room temperature to 1500^0 C for 2 sources and at least room temperature to 600^0 C for the remaining 8 sources".
6	Substrate stage assembly capable of insitu mask changing, substrate transfer, mask alignment and gradient deposition.	Requested clarification about substrate transfer.	Substrate transfer is not an insitu process while all other things, mask changing, mask alignment and gradient deposition are insitu processes. Hence the committee decided to

			modify the specification as "Substrate stage assembly capable of insitu mask changing, mask alignment and gradient deposition".
7.	Magnetically coupled linear transfer arm for mask exchange Storage for at least 3 mask frames in vacuum(attached to the side of the chamber).	Automatic mask changing without breaking vacuum- a maximum of 4 masks to be stored in a mask stack.	The specification is clarified as follows: minimum of 3 masks should be kept in vacuum and using a magnetically coupled linear transfer arm the masks may be transferred to the evaporation position. Vertical manipulation of the substrate stage should be possible.
8.	Gradient deposition	Requested detailed explanation of gradient deposition (On different substrates arrangement under one substrate frame, and that the arrangement of shadow masks).	Gradient evaporation is a feature by which one can have films of the same material with different thickness on different substrates in one evaporation process. The movement of the mask plate will expose substrates to evaporation sequentially.
9.	Water cooling and heating of the substrate stage (cooling down to RT and heating up to 200^0 C. Heating should be uniform over the substrate area).	Requested to change the specification as follows: Substrate heating with suitable heater up to temp 200 deg. C including thermocouple temp controller. Optional cooling.	The specification is changed to "substrate heating with suitable heater up to 200 degree Celsius with thermocouple and temperature controller. Substrate cooling with water circulation to maintain the substrate temperature at around 20 degree Celsius also to be provided".
10	Connection tubes required for connecting	Requested clarification	The committee decided to add the requirement of N_2

	regeneration and purging gas cylinders(Approximately 8 meters each).	about gas regulators.	regulator and forming gas regulator in the corresponding lines.
M/s. HindHiVacuum, Bangalore			
10.	Individual shutters for all evaporation sources.	Requested to increase the size of the chamber if all the 12 sources are to be given individual shutters.	The size of the chamber mentioned in the original specification is the minimum size. Hence the committee decided not to change the specification.
11	Water cooling and heating of the substrate stage (cooling down to RT and heating up to 200^0 C. Heating should be uniform over the substrate area).,	Requested to keep substrate cooling only when there is no substrate rotation.	The rotation of the substrate is provided to ensure thickness uniformity where as cooling is required for controlling morphological changes in the deposited film due to unwanted substrate heating. Hence the committee decided not to change the specification.
12	**The committee also decided that each bidder should provide a break-up of the price to the individual components in as much detail as possible.**		

The tender specification stands amended to the extent as given above.

Stores & Purchase Officer