

**CSIR-INDIAN INSTITUTE OF CHEMICAL BIOLOGY  
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**PROCEEDINGS OF THE PRE-BID CONFERENCE**

Tender Reference	IICB/PUR/599/574/24/2022-23
CPP Tender ID	2022_CSIR_137595_1
Name of the item / equipment	SUPPLY INSTALLATION TESTING AND COMMISSIONING OF BENCHTOP POWDER XRD
Pre-Bid Conference held on	20 DECEMBER 2022

Further to the Pre-Bid Conference held on 20 December 2022, it is notified for all prospective bidders that the following changes are hereby made to the Tender Document as published on CPP portal [www.etenders.gov.in](http://www.etenders.gov.in).

1. Technical specifications and other allied requirement of the Benchtop Powder-XRD shall be as follows:
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Benchtop X-RAY DIFFRACTOMETER (XRD) comprising of the following major components /specifications

1	The XRD system should be equipped for sample stage, primary and secondary side optics along with the detector to be used for the analysis of the x-ray diffraction patterns of powder samples
2	X-ray Generator: <ul style="list-style-type: none"><li>• Fully Microprocessor controlled.</li><li>• Continuous power output: 0 to 600 W or better</li><li>• Voltage output up to 40kV or better</li><li>• Continuously variable tube current up to 15 mA or better.</li><li>• Output stability 0.01% or better.</li><li>• Operating power supply: 220 V /440 V (+/- 10%), 50Hz with Single or Three Phase.</li><li>• In case of mismatch, warning or error message should be displayed.</li></ul>
3	X-ray tube:

	<ul style="list-style-type: none"> <li>• Long fine focus ceramic tubes of anode material Cu with power rating compatible with generator having one line focus and one point focus.</li> <li>• It should be easily interchangeable, with warranty and necessary secondary beta filters.</li> </ul>
4	<p>Goniometer:</p> <ul style="list-style-type: none"> <li>• Should be vertically mounted and should have either theta-theta geometry or theta-two theta geometry</li> <li>• The Goniometer motor should be driven through stepper motor / d.c motor for better accuracy and fast step scan.</li> <li>• Two theta range: minimum - 3 to 140 deg. or better</li> <li>• Angular reproducibility: +/- 0.005 deg. or better.</li> <li>• Smallest addressable Step size: 0.005 deg. or better</li> <li>• Goniometer radius: 140 mm or above.</li> <li>• Scanning mode: Continuous scan, step scan, theta or 2 theta scan, fast scan.</li> </ul>
5	<p>Beam optics:</p> <ul style="list-style-type: none"> <li>• Variable divergence slits, K-beta filter, scattering/anti-scatter slits, and Soller slits</li> <li>• Both wide angle and low-angle XRD</li> <li>• Overall, all necessary optics for powder sample must be offered to reach a resolution of <math>&lt; 0.04^\circ</math> 2-theta at full-width half-maximum for the standard test sample (sample must be provided and demonstrated)</li> </ul>
6	<p>Detectors/Counters:</p> <ul style="list-style-type: none"> <li>• Hybrid pixel array detector</li> <li>• All the detector channels /strips should be functional and free of defect. The detector should have more than 200 channels</li> <li>• Must be able to operate in both fixed and scanning mode.</li> <li>• Necessary hardware &amp; software must be provided to reduce the fluorescence. (Supported by relevant documents)</li> <li>• The detector should efficiently and effectively work with other radiations i.e., Co, Cr etc.</li> </ul>
7	<p>Sample Stage:</p> <ul style="list-style-type: none"> <li>• Sample stage for both Powder and Low angle XRD</li> <li>• Heating stage (upto 500 °C)</li> <li>• Spinning or continuous rotation stage</li> <li>• Stage for Transmission mode measurement</li> </ul>
8	<p>Chiller:</p> <p>The instrument should have inbuilt integral chiller.</p>
9	<p>Sample Holder:</p> <p>Standard sample holders (non-glass, non-breakable): 3 numbers</p> <p>Sample holder for air-sensitive sample holder stage: 3 numbers</p> <p>Low background Silicon sample holders with a narrow circular well for minimum sample (1 to 3 mg): 3 numbers</p> <p>Sample holder for transmission stage: 3 numbers</p>

	Capillary support for transmission mode measurement and capillaries for diverse diameter should be provided
10	<p>The instrument can be controlled with inbuilt computer with display or external computer. If external computer is required, it should be laptop with following configurations are better.</p> <ul style="list-style-type: none"> <li>• Window based (Windows 10 OS)</li> <li>• Computers should be preloaded with software from manufacturer of XRD.</li> <li>• Processor : Core i9 or higher version, Recent generation</li> <li>• Main memory : 32GB RAM</li> <li>• Hard Disk : 1TB SSD</li> <li>• Dedicated graphics card</li> </ul> <p>Further, an additional laptop should be provided of the above configuration for further data processing. A LaserJet printer should also be provided</p>
11	<p>Software:</p> <ul style="list-style-type: none"> <li>• Software for XRD data collection and data evaluation, Rietveld analysis, model building and structure determination.</li> <li>• Phase identifications, Phase Analysis and Phase Quantification including crystalline &amp; amorphous powders using standardless Rietveld technique, crystallinity determination and crystal structure refinement.</li> <li>• Data collected from the XRD must be compatible with ICDD database.</li> <li>• All the features of the Data interpretation software must be active for various applications e.g., calculation of micro structural parameters like cell dimension, cell volume, crystallite size, lattice strain etc. and structure solution based on Rietveld technique.</li> </ul>
12	<p>Calibration Standards:</p> <ul style="list-style-type: none"> <li>• One NIST sample is to be provided.</li> <li>• Demonstration of data quality by using same NIST sample.</li> </ul>
13	<p>Radiation Control:</p> <ul style="list-style-type: none"> <li>• Full Radiation protection chamber as per the latest international safety norms.</li> </ul>
14	<p>Documentation:</p> <ul style="list-style-type: none"> <li>• Complete service and user's manual for the diffractometer and attachments.</li> </ul>
15	<p>Installation &amp; Commissioning:</p> <ul style="list-style-type: none"> <li>• At CSIR-IICB, Kolkata site by the supplier.</li> <li>• Pre-installation Civil / Electrical/ Water/Radiation safety requirements / instructions should be mentioned well in advance.</li> <li>• Satisfactory performance, matching with the technical specifications, of the installed instrument should be demonstrated with standard samples provided by the vendor</li> </ul>
16	<p>Training:</p> <ul style="list-style-type: none"> <li>• The supplier should provide necessary training for data acquisition, data interpretation, Rietveld analysis, unit cell indexing and ab initio structure solution at the site of installation.</li> </ul>

17	UPS: (1 No) Suitable on-line 5 KVA or higher UPS with three-phase input, along with battery and stand, for operating main XRD system with 30 minutes back up time.
18	Other Essential Terms and Conditions <ul style="list-style-type: none"> <li>• Three years of Comprehensive Warranty for XRD system and computers. One year warranty for UPS. During this Comprehensive Warranty period, all components of the XRD including X-ray tube, X-ray generator, HV cable, electronics, mechanical components, etc. should be covered and in case of failure replaced on DDP basis up at the site of installation.</li> <li>• Essential Spare Parts: Commitments to supply spares for at least 10 years to be ensured.</li> <li>• Certification of Satisfaction for after sales service support from minimum of ten users in India.</li> <li>• Compliance: Vendor should take the necessary responsibility to quote for the configuration to suit all the above applications.</li> <li>• The vendor should provide the evidence for (purchase order copies or installation report copies) minimum five installations of the same instrument in the last five years in any organizations in India.</li> <li>• The technical specification sheet, product brochure and technical notes should be provided to validate and match the quoted instrument.</li> </ul>

2. Point No. 24 under Notes to Bidders and Clause 5.2 (b) of the Tender Document shall read as follows :

Bidder must have supplied and installed at least **05 [ five ] numbers** of the same equipment/similar instruments [ as described in the Technical Specifications – Chapter 4 of this Tender Document ] during last **five years** ending on 31.03.2022 to CSIR Laboratories/ Govt. Research Institutes or organizations/ PSUs, out of which at least one should be of the offered model which is in successful operation for the past one year as on the date of bid opening / techno-commercial bid opening. Bidder shall provide copies of Purchase Orders and installation certificates and also relevant service reports or performance reports along with technical bid. It will be the part of the evaluation criteria.

ALL OTHER TERMS AND CONDITIONS OF THE TENDER DOCUMENT SHALL REMAIN UNCHANGED.

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