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From: Director, CSIR-NPL
No. 14-VII/NV(3060-GTE)25PB/T-152 Dated:04.02.2026

CORRIGENDUM

With reference to NPL's Global Tender ID: **2026_CSIR_826441_1** for "**Powder X-Ray Diffractometer**". All the prospective bidders are hereby informed that some changes have been made in the technical specification of captioned tender. Revised specifications are as follows:

Original Specifications	Final Specifications
As tendered	Attached as Annexure II

Revised Technical specifications (Annexure-I) is also ATTACHED with this Corrigendum. Accordingly, all the interested bidders may submit their Offer as per revised technical specification.

Please also note that bids submitted without taking these changes into consideration will be rejected summarily.

All other terms will remain the same. The same is also available on CSIR-NPL official website http://www.nplindia.in under Tender link.

Sr. Controller of Stores and Purchase

FORM TO BE FILLED BY IO WHILE CONVENING PRE-BID MEETING OF TSC.

File No. 14-VII/NV(3060-GTE)25 PB/T-152 **Date: 27/01/2026**

Pre-bid Meeting

Name of Indentor: Dr N Vijayan

Indent No. NPL09122025HCP00055147 / 2025-26

Item Description Powder X-ray Diffractometer

No. of Budgetary Quotes: 3 Nos

(1) A pre-bid meeting of TSC was held on 27th Jan. 2026

(2) Following queries were raised by participating Bidders:

Name of the Firm	Queries Raised	Remarks, if any
M/s. Anton Paar India	(i). Mr. Abhishek Singh from M/s. Anton Paar India raised a query that the Anode Current specification from 60 mA to 50 mA or higher	The committee accepted the suggestions given by the participant.
	(ii). Mr. Abhishek Singh from M/s. Anton Paar India raised a query about the warranty from 1 year to 3 Years.	The committee decided to stick to the existing specification of 1 Year only to maintain uniformity in order to participate more number of firms.
M/s. Rigaku Coportation	(i). Mr. BK Srivastava from IR tech (Representing M/s. Rigaku Corporation) raised a query about the sample holder depth from 1 mm to 0.2 mm, 0.5 mm, 1mm	The committee accepted the suggestions given by the participant.
	(ii). Mr. BK Srivastava from IR tech (Representing M/s. Rigaku Corporation) raised a query about "Changeover from Bragg Brentano geometry to monochromatic parallel beam geometry must be computer controlled and must not require any manual intervention like change of any slit or realignment" to *"Changeover from Bragg Brentano geometry to monochromatic parallel beam geometry must be computer controlled with minimum manual intervention like change of any slit or realignment"*	The committee decided to stick to the existing specification, as it needs an auto alignment facility.
M/s. Malvern PANalytical	(i). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that the "X-ray tube Max.	The committee decided to stick to the existing specification of Max. output

	output power should be 1.8 kW"	power: ≥ 2.0 kW"
	(ii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that instead of Auto alignment it should be alignment free	The committee accepted the suggestions given by the participant and made the changes in the revised specifications as " Auto alignment/alignment free"
	(iii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that weight of the sample should be specified.	The committee accepted the suggestions given by the participant and made the changes in the revised specifications as "≥ 2 Kg weight"
	(iv). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "sample stage should have minimum instead of 12 mm make it as 25 mm"	The committee accepted the suggestions given by the participant and made the changes in the revised specifications as "12 mm or better"
	(v). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "instead of 1 No. of Zero background holder to 2 Nos. of Zero background holder"	The committee accepted the suggestions given by the participant and made the changes in the revised specifications as "2 Nos of Zero Background Holder"
	(vi). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "instead of 1 No. of transmission sample holder" into 3 Nos. of Transmission sample holder"	The committee accepted the suggestions given by the participant and made the changes in the revised specifications as "3 Nos of Transmission Sample Holder"
	(vii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that Hybrid Solid State Detector is 2D"	The committee suggested to go for 0D and 1D instead of 2 D and the relevant changes are made the revised specifications.
	(viii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "removal MS office software" from the specifications.	The committee decided to stick to the existing specification of MS Office software

Indentor's recommendation

1. The comments, as received from bidders during PBC, and our response is as follows:

Tender Specification and its number	Comment of bidder	Response of Indentor (Accepted/ Not accepted)	Revised specification (If any)	Justification for non-acceptance
(Old Version) 2. iii). Anode Current: Maximum up to 60 mA or higher with increment of 1 mA	(i). Mr. Abhishek Singh from M/s. Anton Paar India raised a query that the Anode Current specification from 60 mA to 50 mA or higher	Acceptance	**(Revised Version)** 2. iii). Anode Current: Maximum up to 50 mA or higher with increment of 1 mA	NIL
(Old Version) 16. **Warranty:** The quoted XRD System with all accessories must be provided with complete & comprehensive warranty for 1 year including X-Ray Generator, X-ray tube, electronics, motors, detector. During warranty period if any part is required for replacement then same to be arranged on DDP basis without any cost to buyer. All Third party indigenous items like chiller, ups, computer, Printer should be with standard one or more years warranty	(ii). Mr. Abhishek Singh from M/s. Anton Paar India raised a query about the warranty from 1 year to 3 Years.	Non-Acceptance	There is no change in the specification	The committee decided to stick to the existing specification of 1 Year only to maintain uniformity in order to participate more number of firms.
(Old Version) **5. v).** 6 Nos. Sample holder for powder samples with depth 1mm of stainless steel/aluminum/glass	(i). Mr. BK Srivastava from IR tech (Representing M/s. Rigaku Corporation) raised a query about the sample holder	Acceptance	**(Revised Version)** **5. v).** 6 Nos. Sample holder for powder samples with depth from 0.2 mm, 0.5 mm, 1mm of stainless steel/aluminum/glass	NIL

(Old Version) **6. i. d).** Changeover from Bragg Brentano geometry to monochromatic parallel beam geometry must be computer controlled and must not require any manual intervention like change of any slit or realignment	depth from 1 mm to 0.2 mm, 0.5 mm, 1mm (ii). Mr. BK Srivastava from IR tech (Representing M/s. Rigaku Corporation) raised a query about "Changeover from Bragg Brentano geometry to monochromatic parallel beam geometry must be computer controlled and must not require any manual intervention like change of any slit or realignment" to *"Changeover from Bragg Brentano geometry to monochromatic parallel beam geometry must be computer controlled with minimum manual intervention like change of any slit or realignment"*	Non-Acceptance	There is no change in the specification	The committee decided to stick to the existing specification, as it needs an auto alignment facility.
(Old Version) **4. iv).** Max. output power: ≥ 2.0 kW	(i). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that the "X-ray tube Max. output power should be 1.8 kW"	Non-Acceptance	There is no change in the specification	The committee decided to stick to the existing specification of "Max. output power: ≥ 2.0 kW" for the wide participation from the other vendors.

(Old Version) 1. b). For fast changeover of modes of operation XRD system must have auto-alignment facility for entire optical path and stages (excluding stage for spherical samples).	(ii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that instead of Auto alignment it should be alignment free	Acceptance	**(Revised Version)** 1. b). For fast changeover of modes of operation XRD system must have auto-alignment/alignment free facility for entire optical path and stages (excluding stage for spherical samples).	NIL
(Old Version) 5. ii). Suitable sample stage to measure spherical samples of diameter of 100 mm or more. XRD measurements of spherical samples can be manual	(iii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that weight of the sample should be specified.	Acceptance	**(Revised Version)** 5. ii). Suitable sample stage to measure spherical samples having diameter of 100 mm and weight of 2 kg or more. XRD measurements of spherical samples can be manual	NIL
(Old Version) 5. iii). Sample stage should have minimum 12mm motorized movement along Z-axis for sample alignment. If required suitable accessories for precise sample alignment such as laser etc should be provided.	(iv). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "sample stage should have minimum instead of 12 mm make it as 25 mm"	Acceptance	**(Revised Version)** 5. iii). Sample stage should have minimum 12mm or better motorized movement along Z-axis for sample alignment. If required suitable accessories for precise sample alignment such as laser etc should be provided.	NIL
(Old Version) 5. vi). 1 Nos. of zero background holder (with zero background Si insert)	(v). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "instead of 1 No. of Zero background holder to 2 Nos. of Zero background holder"	Acceptance	**(Revised Version)** 5. vi). 2 Nos. of zero background holder (with zero background Si insert)	NIL

(Old Version) 5. viii). 1 Nos. transmission sample holder	(vi). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "instead of 1 No. of transmission sample holder" into 3 Nos. of Transmission sample holder"	Acceptance	**(Revised Version)** 5. viii). 3 Nos. transmission sample holder	NIL
(Old Version) 7. Advanced Solid-state Hybrid Photon counting detector with Silicon sensor with >95% quantum efficiency for Cu and Cobalt to be offered with the following specifications	(vii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that Hybrid Solid State Detector is 2D"	Non-Acceptance	**(Revised version based on the committee suggestions)** 7. Advanced Solid-state Hybrid Photon counting detector (0D and 1D) with Silicon sensor with >95% quantum efficiency for Cu and Cobalt to be offered with the following specifications	The committee suggested togo for 0D and 1D instead of 2D and the relevant changes are made the revised specifications.
(Old Version) 10. The operating system must have the latest configuration built-in along with licensed version of latest MS Office (MS Office 365 will not be acceptable), with i7 processor, 1TB HDD, 16 GM RAM, with 23" LED monitor and colour laser printer to be supplied with Powder XRD instrument	(viii). Mr. Naresh Vyas from M/s. Malvern PANalytical raised a query that "removal MS office software" from the specifications.	Non-Acceptance	There is no change in the specification	The committee decided to stick to the existing specification of MS Office software

Final recommended specifications (revised after PBC) are as attached at Annexure II and signed by I/O:

Corrigendum to Tender may be issued/ may not be issued.

Recommended Revised Date of Tender submission (if any) is _____

The specifications are generic and broad based.

Submitted to TSC for necessary approvals.

FORM TO BE USED BY TSC FOR FINALISING PRE-BID MINUTES

File No. 14-VII/NV(3060-GTE)25 PB/T-152 Date: 27/01/2026

TSC Minutes (To be typed clearly by the I/O)

Based on the Pre-bid meeting and recommendation of I/O, following changes have been made in the specifications:

Original Specifications	Final Specifications
Attached in Annexure I	Attached in Annexure II

The file is forwarded to Purchase Section for uploading the final specifications and TSC minutes on the website and CPPP Portal.

Declaration: We hereby declare that we have no conflict of interest with any of the bidder in this tender

Annexure II

Technical Specification for Powder X-ray Diffractometer	
Requirement: 1. Supply, installation and performance demonstration of floor mounted, fully automated Powder X-Ray Diffraction (XRD) System along with all necessary hardware and software for analysis of Powder, solid, thin film (GIXRD), spherical samples & future upgradeability to Small Angle X-Ray Scattering (SAXS). 2. Upgradability for in situ Nonambient X-ray diffraction, High Resolution XRD (HRXRD) solution for rocking curve/Reciprocal Space Mapping facility. System must have capability to measure spherical shaped samples and same can be asked to demonstrate.	
1	**Essential Analytical Capability:**
	a. System must be capable of sensing and recognize all the components in the beam path including X-Ray tube, optics in both primary and secondary side. b. For fast changeover of modes of operation XRD system must have auto-alignment/alignment free facility for entire optical path and stages (excluding stage for spherical samples). c. The instrument should be clearly visible inside the frame cabinet, covering most of the viewing area (80%).
2	**X-Ray Generator**
	i) Output power: 3 kW or more solid-state type with auto ramp facility ii) Voltage: Maximum up to 60 kV or higher with increment of 1 kV iii) Anode Current: Maximum up to 50 mA or higher with increment of 1 mA iv) Control: Fully automated through software
3	**Goniometer**
	The Goniometer should be with independent θ and 2θ drives for accurate positioning and with design to have zero backslash. i) Two theta range: from (-90 deg to 160 deg) or higher with capability of foil transmission mode keeping the sample stage in horizontal position in both reflection and transmission geometries. ii) Minimum step size: 0.00010 or better iii) Goniometer radius: 240 mm or more
4	**X-Ray Tube/Target**
	i) Target: Copper (Cu) ii) Focus: Long fine focus (LFF) iii) Insulation: Ceramic Insulation iv) Max. output power: ≥ 2.0 kW v) Suitable Beta filter for X-ray tubes to be included vi) X-ray tube must have auto component recognition facility to indicate anode

	target type vii) Tube height and tube focus for different types of optics must be auto alignment facility
5	**Sample stage and Sample holder**
	i) Sample stage for powder sample suitable for both reflection and transmission geometries with facility to keep powder sample always in horizontal position with a set of reflection and transmission holders ii) Suitable sample stage to measure spherical samples having diameter of 100 mm and weight of 2 kg or more. XRD measurements of spherical samples can be manual iii) Sample stage should have minimum 12 mm or better motorized movement along Z-axis for sample alignment. If required suitable accessories for precise sample alignment such as laser etc should be provided. iv) System must have both automatic and manual sample alignment options for bulk and thin film samples. Alignment and orientation of spherical samples can be manual, with the exception of Z-translation v) 6 Nos. Sample holder for powder samples with depth from 0.2 mm, 0.5 mm and 1 mm of stainless steel/aluminum/glass vi) 2 Nos. of zero background holder (with zero background Si insert) vii) 2 Nos. flat sample holder for thin film samples viii) 3 Nos. transmission sample holder
6	**Optics**
	All optical components and its settings must be automatically recognized, changed and aligned by XRD control software for error free analysis with the latest technologies like Multicore (iCore & dCore) / CBO auto / TWIN-TWIN / TruBeam **i) Primary Beam Optics for Cu source:** a. Computer controlled motorized Divergence slits, motorized beam mask. b. Two numbers of suitable soller slits, suitable beta filters to be offered. c. Multilayer monochromatic parallel beam mirror for Cu X-ray source to be offered for thin film, bulk and spherical samples. d. Changeover from Bragg Brentano geometry to monochromatic parallel beam geometry must be computer controlled and must not require any

	manual intervention like change of any slit or realignment ii) **Secondary Beam**: Computer controlled motorized Anti-scatter slits, two number suitable soller slits, long soller slit / parallel plate collimator to be offered for parallel beam geometry
7	**Detector**
	Advanced Solid-state Hybrid Photon counting detector (0D and 1D) with Silicon sensor with >95% quantum efficiency for Cu and Cobalt to be offered with the following specifications: i) Global count rate > 10^8 or better CPS ii) Pixel/strip size: 75 micron or less iii) Number of channels : 256 or higher iv) Detector: should work in continuous, fast scan, slow scan and static modes v) Detector should have option for fluorescence reduction by change of energy threshold for Cu radiation for sample containing iron
8	**Standards**
	i) Fluorescent disc for positioning the X-ray beam to be supplied with the system ii) Necessary standard sample for checking the accuracy of the peak position over the entire goniometer angular range from any National Measurement Institutes (NMIs)
9	**Software**
	i) Data collection - Licensed version of the software to control the complete XRD instrument, auto component recognition of all the components, system diagnosis and auto sample alignment ii) Data analysis - Licensed version of data evaluation software for profile fitting, search match, qualitative analysis, lattice parameter refinement, crystallite size determination, Rietveld based standard less quantitative analysis to be offered with Suitable Database iii) Data analysis software should be with minimum 05 users licenses for use by multiple scientists and researchers
10	**Data Acquisition System:** The operating system must have the latest configuration built-in along with licensed version of latest MS Office (MS Office 365 will not be acceptable), with i7 processor, 1TB HDD, 16 GM RAM, with 23" LED monitor and colour laser printer to be supplied with Powder XRD instrument

11	**Safety:** i) Provision for detection of abnormal cooling water flow, pressure and temperature, abnormal generator overload and shutter malfunction detection ii) The XRD instrument should be compliant as per International Safety Standards and Regulation norms (e.g. mechanical, electrical and X-ray Radiation safety and other hazards) iii) The supplier must have necessary approval from respective Indian agency (like AERB) for supply of XRD and necessary approval document to be submitted along with the final quote
12	**Water Chiller for X-ray source:** Suitable external water chiller compatible with the main Powder XRD instrument with dust filter/traps
13	**UPS:** Minimum 15 KVA or more Insulated Gate Bipolar Transistor (IGBT) based online UPS (with standard warranty) with isolation transformer. UPS must be able to handle Powder XRD system, computer, Printer and external water chiller pump for minimum 30-60 minutes uninterrupted XRD data collection during main power failure
14	**Other mandatory requirements:** Pre-installation requirements must be provided upon as and when required and supplier to arrange site inspection for installation planning
15	**Application and Operation Training:** Supplier must provide complete operation, does/don'ts and application training for all aforesaid applications for minimum 5 days at installation site (CSIR-NPL)
16	**Warranty:** The quoted XRD System with all accessories must be provided with complete & comprehensive warranty for 1 year including X-Ray Generator, X-ray tube, electronics, motors, detector. During warranty period if any part is required for replacement then same to be arranged on DDP basis without any cost to buyer. All Third party indigenous items like chiller, ups, computer, Printer should be with standard one or more years warranty
17	**Power Supply:** All electrical connectors provided with the supplied instrument should comply with Indian standards