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From: Director, CSIR-NPL
No. 14-VIII/SK(44-OTE)25PB/T-14 Dated:22.06.2026

CORRIGENDUM

With reference to NPL's Global Tender ID: **2026_CSIR_280319_1** for "**Heat Treatment Line for Carbonization**". 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 2

Revised Technical specifications (Annexure-2) 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 & Purchase

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

File No.: 14-VIII/SK(44-OTE)25PB/T-14 **Date: 16-6-2026**

Pre-bid Meeting (To be typed clearly by the I/O)

Name of Indentor: **Dr. Saroj Kumari**

Indent No.: **PR4031812025 dated 10-11-2025**

Item Description: **Heat treatment line for carbonization**

No. of Budgetary Quotes: **Two**

(1) A pre-bid meeting of TSC was held on **16-6-2026.**

(2) Following queries were raised by participating Bidders:

Name of the Firm	Queries Raised	Remarks, if any
1. M/S Ants Innovations, Basai, Mumbai	1. All the furnaces and cooling sections should be split type furnaces for proper laying of filament 2. Feeding system will have 2 to 3 feeding tows minimum which can converge into one at the exit. This is essential for tensioning system. Per tow target should be 50 filaments minimum 3. If there are low number of filaments we can bypass the tensioning system. For this scenario we will provide special supports throughout the length of the furnaces. 4. Nitrogen/Argon going in the furnaces should have preheating facility. 5. Inlet and outlet of nitrogen should be possible through each furnace zone to remove the volatile components. Individual furnace outlets should be connected to suction system for VM removal. 6. Fiber handling shall be demonstrated with carbon fibers tows in cold condition. 7. Providing line drawing and indicative schematic diagram	

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
S.No. 1: A multi-zone (seven) horizontal carbonization furnace upto 1000 ^{o}C to be designed for the heat treatment of fibers. Different interconnec-ted temperature zones are as follows: 400 ^{o}C, ii. 500C, iii. 600 ^{o}C, iv. 700 ^{o}C, v. 800 ^{o}C, vi. 900 ^{o}C and vii. 1000 ^{o}C	All the furnaces and cooling sections should be split type furnaces for proper laying of filament	Accepted	**S.No. 1:** A multi-zone (seven), split-type horizontal carbonization furnace upto 1000 ^{o}C to be designed for the heat treatment of fibers. Different interconnected temperature zones are as follows: 400 ^{o}C, ii. 500C, iii. 600 ^{o}C, iv. 700 ^{o}C, v. 800 ^{o}C, vi. 900 ^{o}C and vii. 1000^{o}C	--
S.No. 9: It must have an inlet inert gas (Nitrogen/ Argon) system with a facility for uniform flow of gas	Nitrogen/Argon going in the furnaces should have preheating facility.	Accepted	**S.No. 9:** It must have an inlet inert gas attachment (Nitrogen/ Argon) with preheating system and facility for uniform flow of gas	--
S.No. 12: Roller stand with tension control system	Feeding system will have 2 to 3 feeding tows minimum which can converge into one at the exit. This is essential for tensioning system. Per tow target should be 50 filaments minimum	Accepted	**S.No. 12:** Feeding system will have upto 50 filaments in one tow. Roller stand with unwinding unit and suitable tension control system should be as per the requirement	--
	If there are low number of filaments we can bypass the tensioning system. For this scenario we will provide special supports throughout the length of the furnaces.	Not accepted	No change	Tension control system is required
S.No. 15: Exhaust hood type system made of stainless steel to remove volatiles, with ~2 HP exhaust blower, stainless	Inlet and outlet of nitrogen should be possible through each furnace zone to remove the volatile components. Individual furnace outlets should be connected to suction system for VM	Accepted	**S.No. 15:** Each furnace zone should be provided with inlet and outlet of nitrogen/argon gas to remove the volatiles. The outlet from each furnace should be connected to	--

steel ducting connected to water based scrubber	removal.		main suction system made of stainless steel to remove volatiles and connected to water based scrubber	
S.No. 16: The fiber handling system shall be demonstrated to the customer at CSIR-NPL during the installation as per specifications	Fiber handling shall be demonstrated with carbon fibers tows in cold condition.	Not accepted	No change	Fiber handling required in actual working condition.
Clarification and suggestion	Providing line drawing and indicative schematic diagram	Accepted	**S.No. 19:** A detailed, indicative schematic diagram or line drawing of the same system shall be submitted	--

Final recommended specifications are as attached at Annexure 2 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-VIII/SK(44-OTE)25PB/T-14 **Date: 16-6-2026**

TSC Minutes

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

Original Specifications	Final Specifications
S.No. 1: A multi-zone (seven) horizontal carbonization furnace upto 1000 ^{o}C to be designed for the heat treatment of fibers. Different interconnected temperature zones are as follows: i. 400 ^{o}C, ii. 500 ^{o}C, iii. 600 ^{o}C, iv. 700 ^{o}C, v. 800 ^{o}C, vi. 900 ^{o}C and vii. 1000 ^{o}C	**S.No. 1:** A multi-zone (seven), split-type horizontal carbonization furnace upto 1000 ^{o}C to be designed for the heat treatment of fibers. Different interconnected temperature zones are as follows: i. 400 ^{o}C, ii. 500 ^{o}C, iii. 600 ^{o}C, iv. 700 ^{o}C, v. 800 ^{o}C, vi. 900 ^{o}C and vii. 1000 ^{o}C
S.No. 9: It must have an inlet inert gas (Nitrogen/Argon) system with a facility for uniform flow of gas	**S.No. 9:** It must have an inlet inert gas attachment (Nitrogen/ Argon) with preheating system and facility for uniform flow of gas
S.No. 12: Roller stand with tension control system	**S.No. 12:** Feeding system will have upto 50 filaments in one tow. Roller stand with unwinding unit and suitable tension control system should be as per the requirement
S.No. 15: Exhaust hood type system made of stainless steel to remove volatiles, with ~2 HP exhaust blower, stainless steel ducting connected to water based scrubber	**S.No. 15:** Each furnace zone should be provided with inlet and outlet of nitrogen/argon gas to remove the volatiles. The outlet from each furnace should be connected to main suction system made of stainless steel to remove volatiles and connected to water based scrubber
	S.No. 19: A detailed, indicative schematic diagram or line drawing of the same system shall be submitted

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 -2

Revised technical specifications

Name of item: Heat treatment line for carbonization

Quantity:01

Specifications

1. Amulti-zone (seven), split-type horizontal carbonization furnaceupto 1000 ^{o}Cto be designed for the heat treatment of fibers. Different interconnected temperature zones are as follows: i. 400 ^{o}C, ii. 500 ^{o}C, iii. 600 ^{o}C, iv. 700 ^{o}C, v. 800 ^{o}C, vi. 900 ^{o}C and vii. 1000 ^{o}C
2. Each zone must have a separate temperature controller.
3. Awater/gas-basedcooling system under inert atmosphere must be attached at the end of the furnace to lower the temperature to at least 200 ^{o}C before exposing to air.
4. Size of heating tube in the chamber: inner diameter 50-70 mm, length 1200-1300 mm, material: SS/ Alumina/ Quartz
5. Heating rate: 1 to 10 ^{o}C/min or higher
6. Length of heated constant zone is ~1000 mm or more for each zone with temperature uniformity: ±10^{o}C or better and temperature accuracy: ±5^{o}C or better
7. At least three suitable thermocouples in each zone
8. High-quality ceramic-based insulation material to be used
9. It must have an inlet inert gas attachment (Nitrogen/ Argon) with preheating system and facility for uniform flow of gas.
10. It should have a guiding system at the input to keep the fiber in the central line axis
11. Variable speed of fiber forwarding drive 0.1 to 0.5 meter/min
12. Feeding system will have upto 50 filaments in one tow. Roller stand with unwinding unit and suitable tension control system should be as per the requirement.
13. The whole system must have a computer control unit to adjust,monitor and control the temperature of furnace zones, speed of fiber, speed of cooling/blower system, tension, etc.Software to display progress, heating profile, gas pressure etc.
14. The system with comprehensive safety features and audio-visual alarms for all faults such as overheating, overloading, thermocouple failure, gas pressure, etc to be provided
15. Each furnace zone should be provided with inlet and outlet of nitrogen/argon gas to remove the volatiles. The outlet from each furnace should be connected to main suction system made of stainless steel to remove volatiles and connected to water based scrubber.
16. The fiber handling system shall be demonstrated to the customer at CSIR-NPL during the installation as per specifications.
17. Warranty: One year
18. Power: as per Indian requirement
19. A detailed, indicative schematic diagram or line drawing of the same system shall be submitted.